

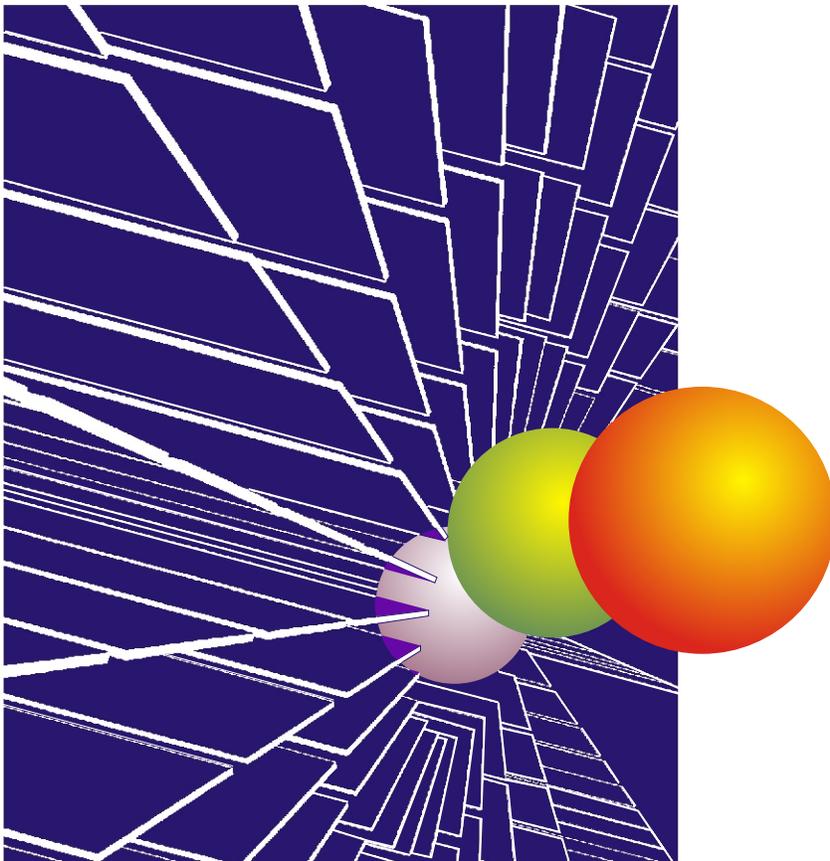
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Integration, Status and Potential of Environmental Justice and the Social Impact Assessment Process in Transportation Development in Missouri

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INTEGRATION, STATUS AND POTENTIAL
OF ENVIRONMENTAL JUSTICE AND THE SOCIAL IMPACT
ASSESSMENT PROCESS IN
TRANSPORTATION DEVELOPMENT IN MISSOURI

A Dissertation
presented to
the Faculty of the Graduate School
University of Missouri-Columbia

In Partial Fulfillment
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Doctor of Philosophy

by
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16. Abstract This research examines the Social Impact Assessment Process at the Missouri Department of Transportation as directed by the National Environmental Policy Act (NEPA). The analysis includes an examination of the influences of the more recent directives provided by Community Impact Assessment and Environmental Justice within the Social Impact Assessment and NEPA processes. Four case studies are used to assess the influence of human-dimension impacts in transportation development. The case studies include the organizational setting and development of an environmental emphasis in the Missouri Department of Transportation, the process of environmental clearance that includes human-dimension impacts, the influence of Environmental Justice and Community Impact Assessment, and the industry guidance, trends and policies created to address Environmental Justice. Findings of this research indicate that the Social Impact Assessment process is under-utilized in transportation development but holds great potential for opening the environmental and transportation decision-making process to greater influence on the part of citizens. Constraints to increased effectiveness of the Social Impact Assessment Process include the organizational setting in Departments of Transportation, the original NEPA guidance, the lack of personnel with social science backgrounds at Departments of Transportation, the budgetary constraints on staffing facing these organizations, and the lack of external agency influence over the Social Impact Assessment Process. The Social Impact Assessment process is likely to increase in relevancy for Departments of Transportation based on the Federal Highway Administration's emphasis on human-dimension impacts and potential legal challenges regarding Community Impacts and Environmental Justice. Increased consideration of the human-dimension issues surrounding the transportation development process can benefit citizens and communities by ensuring transportation facilities enhance rather than degrade the social and economic setting of neighborhoods and communities. Departments of Transportation are also likely to benefit from greater consideration of human-dimension impacts through increased citizen consent for projects and decreased environmental clearance delays.			
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ABBREVIATIONS

CE – Categorical Exclusion

CEQ – President’s Council on Environmental Quality

CIA – Community Impact Assessment

DOT(s) – State Department(s) of Transportation

EA – Environmental Assessment

EIS – Environmental Impact Assessment

EJ – Environmental Justice

EJ EO – Environmental Justice Executive Order

FHWA – Federal Highway Administration

LEP – Limited English Proficiency

NEPA – National Environmental Policy Act

ROW – Right of Way

SIA – Social Impact Assessment

Chapter 1 – Introduction

The National Environmental Policy Act (NEPA) is a well-established environmental decision-making process that has been existence for over thirty years in the United States. Signed on January 1, 1970, by President Nixon, the Act established the administrative and analytic framework to identify and consider the environmental and human impacts associated with proposed federal actions. Examples of federal actions likely to require NEPA evaluation include the construction of highways and dams, changes in land use and water management policies, and the construction of military bases and nuclear reactors. Any federal action that has the potential to significantly affect the human and natural environment is required to undergo the environmental clearance process proscribed by NEPA legislation.

This environmental clearance process, known as the NEPA process, promotes the concept of “look before you leap” (Porter and Rossini 1983: 7) and is rooted in the environmental movement originating in the 1960’s and in the rational, scientific decision making context of the same period (Culhane et al. 1987). The Act directs federal agencies to examine and assess a broad range of impact categories associated with federal actions. Broadly summarized, these categories include physiographic impacts, biological impacts, economic impacts, and social impacts (Culhane et al. 1987:8). The result of the NEPA analysis is an environmental document that describes both the positive and negative impacts of the proposed action along with mitigation and avoidance strategies that can be used to lessen the negative impacts. This environmental document is then

used by agency decision-makers in the final determination of whether, and or how to proceed with the proposed action.

It is important to note here that while the environmental document is intended to aid in decision-making by agency heads, many of the decisions regarding environmental impacts, and as a result, project design, are made through the environmental documentation process. As environmental specialists work with other agencies, or under the standardized guidance and known acceptability of certain impact types, the project is re-defined as these impacts are identified and fed into the design process. In this context, the final environmental document provides a defense of proposed actions rather than a tool for later decision-making; the impacts have been avoided, minimized, or mitigated in the NEPA process rather than just identified and evaluated for later consideration. This places a greater level of responsibility on agency environmental staff and processes to ensure environmental protection than what appears to be intended in the NEPA and CEQ guidance.

The purpose of this dissertation is to evaluate the integration, status, and potential of the social impact assessment process (SIA) in the transportation context as directed by NEPA. Importantly, the SIA process is examined in light of Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority and Low-income Populations,” issued by President Clinton, February 11, 1994 (President, Proclamation, 1994), and by the Community Impact Assessment emphasis of the 1991 federal transportation authorization. This analysis is based on the environmental and SIA

processes used at the Missouri Department of Transportation (MoDOT) and specifically focuses on an Environmental Assessment for a major bridge project in southeastern Missouri.

During the thirty-plus years of NEPA, social impacts have a well-documented role in the NEPA process. The guidance and scope of the social impact assessment within the interdisciplinary NEPA process has remained relatively constant over these thirty-plus years. The environmental justice executive order (EJ EO) and the community impact emphasis (CIA) represent a federal reinforcement of the social impact assessment in the environmental clearance process. Transportation professionals tout the EO as a restatement of Title VI of the 1964 Civil Rights Act that requires non-discrimination in all programs and activities. Similarly, CIA is a restatement of the original directives of SIA in NEPA that required an interdisciplinary approach that included the social sciences. The EO and CIA reinforce the importance of sociological insight and investigation in the NEPA process and the role of public involvement in NEPA.

The Transportation Context

The development of the transportation in the United States began facing major environmental constraints as early as 1956, nearly fourteen years before the issuance of NEPA. The origin of environmental constraints on transportation development are summarized by Burbank (2003:2):

Once construction of the Dwight D. Eisenhower System of Interstate and Defense Highways began shortly after the enactment of the Federal-Aid Highway Act of 1956, citizens and local officials from coast to coast

began letting FHWA know that they would not accept adverse impacts from the new highways. FHWA was forced to broaden its mission from that of providing highways to meet traffic demands to one that includes reflecting cultural, economic, environmental and social needs of U.S. cities and sensitive rural areas.

The original charge to transportation agencies was how to complete the interstate systems by the 1970's. However as Burbank points out, the direction changed in 1970 with NEPA, to one of, "How can we build our highways while minimizing or eliminating damage to the environment?" And not only did NEPA add an environmental emphasis to the previously unconstrained organizational setting of the federal and state Departments of Transportation, it in fact forced a cultural change within these organizations. As Burbank (2003) reflects on the impacts of NEPA in transportation, she quotes a former Illinois DOT employee, "You were dealing with engineers [who] for one, didn't have any environmental training in their formal education; and they were told for so many years "get that thing built." After NEPA the sense was, "Get that bit out of my mouth, let me get this thing done." And while environmental studies seem somewhat out of context in a transportation agency, the importance of NEPA in transportation should not be underestimated. Considering the scope of the transportation system, environmental impacts, environmental protection, and the organizational and process changes that followed, NEPA drastically altered the way that DOTs do business.

Importantly, the Federal Highway Administration (FHWA) is one of the major producers of environmental documents. FHWA follows only the US Forest Service in the number of Environmental Impact Statements (EISs) produced per year. In 2000, FHWA was responsible for sixty-seven EISs out of a total of four hundred and seventy-three EISs

submitted by fifteen different federal agencies (EPA 2002). And these figures belie the efforts in the environmental area as the majority of environmental work never reaches the EIS level of significance and is classified and processed as either an environmental assessment (EA) or a categorical exclusion (CE). In Missouri, over ninety-eight percent of all environmental work is for the EA and CE level documentation. Similarly, for all FHWA sponsored environmental work, almost ninety-nine percent of the NEPA projects are classified as EAs or CEs (FHWA 2001). And as a reflection of the status and integration of the human-dimension consideration in transportation, NEPA and CEQ guidance only requires SIA when other significant impacts are likely, generally for EISs and EAs. Social impacts are not sufficient by themselves to trigger assessment of the project. This results in a situation where human dimension considerations may not be addressed for nearly ninety-nine percent of all projects. In Missouri, it wasn't until 2000, that SIA work was included on all CEs as well as EAs and EISs. The SIA was included for CE analysis as a safeguard to ensure the identification of EJ issues that might later elevate an easily processed CE to a more time and resource consuming EA or EIS.

Social Impact Assessment in Transportation

Social Impact Assessment by definition is the assessment of the changes in social conditions, resident interactions, and structures due to an action. In the FHWA technical guidance, SIA is defined by the impacts to, or changes in, neighborhoods, access and travel patterns, community services, general social groups, and housing. It also involves public involvement and generally includes economic impacts such as changes in the local or regional economies, impacts to businesses and business districts (FHWA 1987).

Others have developed definitions of SIA (Finsterbusch 1976; Freudenburg 1986; Dietz 1987), but they all generally include the identification and evaluation of some change.

The change can either be an improvement to or deterioration of some present state.

With transportation projects, usually the most visible social impacts are the relocation of residents and accompanying changes in the neighborhoods and communities. However, the range and significance of social impacts appropriately varies based on the type of project and the setting in which it is constructed. Just as with impacts to natural resource areas, the sophistication and effort in the SIA process of identifying, evaluating, and then avoiding, minimizing or mitigating impacts results in the net social impacts as a result of the project.

Community Impact Assessment

Community Impact Assessment (CIA) represents a sub-analysis within the SIA context of the NEPA process. While SIA encompasses all relevant levels of geography in its analysis, CIA focuses on impacts in community and neighborhood settings. As a result of the devolution of planning functions from the federal level to the state and regional levels with the 1991 Intermodal Surface Efficiency Transportation Act (ISTEA), an emphasis was placed on a more robust linkage between state DOTs, and state, local and private interest groups. As described by Stommes and Brown (2002:2), ISTEA also, “sought to integrate community development with transportation enhancements.” In this sense, ISTEA and the following transportation re-authorization, TEA-21, recognized

transportation's multiple functions including its role in creating and maintaining communities.

As a result of the community involvement and community betterment emphasis of ISTEA, practitioners sought additional guidance and understanding regarding the nature of transportation impacts and benefits on the local level. In 1996, under FHWA guidance, a group of state, local and federal transportation professionals developed and published, *Community Impact Assessment: A Quick Reference for Transportation* (US DOT 1996). While CIA was similar to SIA in its practice, the CIA focus emphasized that transportation investments have significant economic and social consequences, and in the past, these consequences had not been adequately addressed. Further, the guidance states that CIA is important to ensure the quality of life in communities, responsive decision-making, coordination with all stakeholders, and nondiscrimination.

CIA represented a re-emphasis of the original SIA guidance and rapidly replaced SIA in the discussion of social impacts within the industry. FHWA has taken extraordinary steps to get the word out for CIA and a series of yearly conferences was established to increase DOT activity and effectiveness in the area.

Environmental Justice

With the 1994 release of President Clinton's Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EJ EO), State DOTs were overwhelmed with a sense of confusion concerning what the EO

meant to the agency's operations. It appeared to many as a new set of regulations that were forced upon DOTs without guidance or consultation. From the FHWA perspective, the EJ EO was simply a re-statement of the original intentions of Title VI of the Civil Rights Act of 1964. Title VI states that, "No person in the United States shall on the grounds of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal Financial assistance." In comparison, the EJ EO states, " Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

The EO was operationalized in transportation development through the NEPA process. Three fundamental principles are considered the core of environmental justice in the transportation setting. These principles of environmental justice are identified by the U.S. Department of Transportation (2000) as:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
- To ensure full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Similar to the broader context of environmental justice where it is argued that minority and low-income population groups bear the burden of hazardous waste sites and

offensive industries, EJ in transportation is based on the premise or risk that minority and low-income populations bear the majority of disproportionate, adverse impacts associated with federal actions such as the construction of highways.

Finally, the principles of EJ have been adopted by FHWA as a means to improve the communicative and public involvement dimensions of decision-making. In their study of EJ case studies, FHWA (2000: iii) concludes that:

Today, effective transportation decision making requires understanding and addressing the unique needs of many different socioeconomic groups. Early, inclusive, and meaningful public involvement in transportation decision making is a proven means for designing transportation facilities that fit more harmoniously into communities. The involvement of people potentially affected by transportation projects offers many benefits and does not threaten the accomplishment of other U.S. DOT priorities, such as safety and mobility.

EJ has undoubtedly garnered the attention of DOTs. Yet nearly nine years after its issuance, agencies are still resisting full deployment while FHWA is still advocating greater attention to the human-dimensions of transportation. Even more drastic, by most accounts, thirty-plus years after NEPA, the SIA process is still not wholly functioning in the environmental assessment process and decision-making. In the transportation context, CIA and EJ both represent re-statements of the original guidance and intention of regulations provided in 1964 with the Civil Rights Act and in 1970 with NEPA. Both of the emphases appear to be gradually affecting the NEPA process as well as the organizational setting within DOTs.

Rational Decisions

As identified in previous work in the environmental impact assessment field (Culhane et al.1987; Deitz 1987) and as evidenced by the text and emphasis of NEPA and the accompanying Council of Environmental Quality (CEQ) regulations, NEPA was intended to reform decision-making. The best decision-making process should reflect a comprehensive, scientific approach to understanding the project constraints involved and then the best decision can be made. However, it appears that no matter how scientific, or comprehensive-rational the process was intended to be, the actual work of NEPA is more likely a reflection of the organization's response to the implementation of such encompassing legislation.

As a result of the complexities and implementation pathologies inherent in the organizations, projects, and the regulations involved, there is great variability within and between NEPA analyses for projects. Within this decision-making framework that includes the DOT organizational setting and it's response, several of the topical impact areas identified by NEPA appear to have progressed further in their influence in the decision-making process. These topical areas generally are coupled with permits, external agency oversight, memorandums of agreement, or similar controls that force the acting agency to comply with the pre-defined scope of impact avoidance or mitigation. Examples of these impact types are threatened and endangered species, wetlands and water quality, as well as impacts to historic and archeological sites. Further, these topical areas tend to be quantifiable in the number of acres of habitat, acres of wetlands, tons of sediment, or number of pre-historic sites.

SIA on the other hand has not been coupled with any forcing mechanism and does not appear to be as integrated, or have the same status in the decision making framework as the more regulated impact areas. Beyond the uniform relocation policies for residents and businesses, there have been very few efforts to mitigate for social impacts. Additionally, SIA variables tend to be less quantifiable, especially for practitioners outside the social science fields. Neighborhood cohesion, sincerity and effectiveness of public involvement, identification of community gatekeepers, and long-term economic impacts of projects tend to be less tangible impacts. As a result, social impacts also tend to be harder to quantify as a means of valuing the social impacts in relation to other impact areas within the context of an integrated impact assessment.

Considering these differences in topical impacts and the more comprehensive and scientific rational setting of transportation agencies managed by technical personnel, it is likely that SIA considerations, including CIA and EJ, have either yet to be valued, and/or yet to be perceived as a risk to project deployment. In fact, greater consideration of human-dimension impacts, especially given the intentions of CIA and EJ, are in direct conflict with the technical, economic logic of benefit-cost analysis, one derivation of the rational reform models. For an agency intending to reduce project costs and increase efficiencies, avoiding the purchase of lower cost right of way because of population characteristics of the residents (low-income in this example) fly in the face of agency goals to optimize the economic value and efficiency of transportation projects.

With the influences of CIA and EJ in the NEPA process, repercussions in the administrative, scientific, and participatory nature of the process have followed. Given this new social impact assessment framework, the traditional focus on the comprehensive, scientific, rational decision-making must be tempered with an understanding of the pragmatic communication necessary to address the more subjective impacts.

This analysis seeks to examine the status and integration of the SIA process within NEPA and the organizational setting as it has been re-emphasized by CIA and EJ. The constraints and potential to greater consideration of human-dimension impacts are also identified based on the development of the Environmental unit at the Missouri DOT. Further, the scope and sophistication of the SIA analysis used by the agency is assessed, and the potential of SIA considerations and practices within the current environmental context is examined. Eight years of work experiences at the Missouri Department of Transportation and affiliations with other State DOTs are used to expand the explanatory potential of this analysis.

Progression of this Analysis

In the chapters that follow, the historic development of an Environmental unit at the Missouri Department of Transportation, the environmental process and setting within the DOT, and a project case study and the subsequent review of the project are used to define the SIA process and setting. National trends and progressive state guidance are then used

to establish and define the status of integration of the human-dimension consideration in the transportation and NEPA context.

Chapter 2 provides a review of the state of knowledge and practice in NEPA, as well as the guidance provided for NEPA, SIA, CIA, and EJ. Based on this review, the role of SIA and its human-dimension components can be located within the broader framework of environmental protection and the social sciences. From this review, the analysis of the status, integration, and potential for SIA in environmental protection can be understood in light of the organizational and regulatory setting.

Chapter 3 provides an overview of the rational focus of decision-making reforms that provided the background for the NEPA directives. To an extent, Culhane et al. (1987) and Nienaber's and Wildavsky (1973) have already come to the conclusion that the rational model of decision-making may be desired but is seldom achievable with the NEPA process. However, the guidance still leads practitioners towards a rational, comprehensive, scientific effort in the development of environmental documents and in decision-making. Systems analysis, benefit-cost analysis, and integrated impact assessment all represent efforts towards this end. In coordination with this dominant rational model, I argue that Sagoff's notion of social versus economic policy (1988) and Habermas's notion of communicative versus instrumental rationality (1970) offer a potential explanatory framework to address the lack of SIA in NEPA implementation and can provide useful direction in increasing the consideration of human-dimension issues in transportation development.

Chapter 4 introduces the range of data sources and inter-related methodologies used to explore the current integration, status, and potential of SIA. In order to establish a picture of the present state of SIA in NEPA and the organizational setting, first a review of the development of the environmental process at the Missouri Department of Transportation and, then, the role of SIA in this setting is provided. Secondly, a review of the Relocated Route 74 EA and the subsequent EJ Review of this effort are used to establish how SIA was completed and the factors that are included as impacts. Finally, a review of federal efforts to promote SIA, CIA, and EJ, as well as progressive state DOT action and policies are examined to provide an overview of how SIA should work and the potential of the practices in environmental protection. These efforts were supplemented through discussion with state DOT and FHWA employees who have worked in the environmental area and are considered experts in their field. This approach is grounded in the author's eight years of work experience at MoDOT as the socioeconomic specialist. These experiences and case studies are expanded to the broader, national context through interaction with other State DOT employees who were challenged by the same circumstances, the author's attendance at industry meetings and conferences, and interaction with advocates of SIA from the federal level.

Chapter 5 provides the context for the understanding of environmental and regulatory constraints through a historical overview of the establishment of an environmental work unit at MoDOT. Through this grounded approach, the importance of the environmental process and resulting regulatory complex is examined through the response of the DOT to these new responsibilities.

Chapter 5 also provides an overview of how the environmental work gets prioritized and completed at a DOT, and the significance of these activities to the DOT. Considering CIA and EJ as stimulus to the SIA process, the response of MoDOT to the re-emphasized human-dimension area is then examined.

Chapter 6 provides an analysis of a major bridge project and route relocation in southeastern Missouri that resulted in dramatic and apparent changes to a residential neighborhood. This review provides an analysis of what environmental impacts were considered for the project, how the impacts were valued, and the outcome of the environmental document. The impacts identified in the NEPA process and how the organization responds to these circumstances provides an understanding of the impacts considered most likely to result in project delay or failure. Importantly, this review provides an examination of the development of a typical EA under the guidance of Title VI and NEPA, and before the FHWA emphasis on CIA and EJ.

Chapter 7 includes an examination of the FHWA and MoDOT review of the environmental document for the Relocated Route 74. Based on a complaint of a Cape Girardeau resident and minority spokesperson, the original EA for the project was reviewed to determine the extent that the process had complied with NEPA regulations - specifically for community and minority impacts. The EA was found to comply with current environmental protection standards but lacking in its efforts and discussions regarding social impacts including access, noise impacts to residents, and minority public involvement. Importantly, FHWA argued that the current guidance regarding minority

impacts, the EJ EO, was based on Title VI considerations and thus greater efforts were needed to address the community and minority concerns. Additionally, as EJ and Title VI were almost absent from previous environmental work at the DOT, the review of the Route 74 EA was to provide exposure to the concepts of EJ and real-world examples for the DOT to incorporate into their future studies. These events provide a pivotal point in the development of the environmental awareness and inclusion of human-dimension impacts in the environmental process at MoDOT. It wasn't just trees and birds that DOTs needed to consider but people and neighborhoods and neighborhood interaction.

Chapter 8 provides an analysis of industry efforts, generally led by the FHWA, to increase the importance and consideration of human-dimension impacts in transportation development. Rather than re-emphasizing SIA, a new vocabulary was established that included community impact assessment and environmental justice. By all accounts, the emphasis on CIA and EJ represent a re-statement of the principles of SIA originally outlined in the NEPA and Title VI regulations. Based on the strong emphasis by FHWA regarding human-dimension impacts and progressive state DOT policies, the future potential of human-dimension considerations in transportation development is outlined.

Chapter 9 concludes with an overall assessment of the integration and status of the SIA process and its related guidance in the DOT setting. The pathologies and opportunities to greater consideration of the human-dimension considerations are presented and recommendations for greater inclusion of SIA factors in the environmental process, and ultimately in environmental protection, are presented. In the transportation setting,

natural resource protection is working based on DOT's perceived risk of project delay or termination based on external enforcement. The SIA field is slowly gaining ground in DOTs, but without external threats to projects, most DOTs have yet to implement an effective environmental process that includes the human-dimension factors.

In concluding, it is argued that while the NEPA and transportation development efforts are intended as rational and optimizing, the reasons we have transportation - people, neighborhoods, and communities - present decision-makers with not-so-rational, less technical, and more communicative circumstances and impacts. As a result, people, neighborhoods, and communities have been overlooked and are deserving of greater inclusion in the process. And not only does the inclusion of human-dimension factors have potential in ensuring quality of life for all citizens, but an expanded role for SIA can also ensure organizational success through environmentally sensitive project delivery.

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Chapter 2 - NEPA, The Social Impact Assessment and Environmental Justice.

Following a growing sense of environmental concern and protection exemplified by such notables as Teddy Roosevelt and Gifford Pinchot, and later reflected by Rachel Carlson's Silent Spring in 1962, the National Environmental Policy Act (NEPA) was legislated in 1969 and signed into law in 1970. NEPA legislated an environmental assessment process for all federally funded projects that could potentially affect the human and natural environment. And while the conservation movement is well over 100 years old in the United States, the signing of the 1970 act represents the first environmental law with a comprehensive national environmental focus (President's Council of Environmental Quality 1997). The scope of the resulting environmental requirements, new environmental sectors in governments, the number of people employed to complete the NEPA process, and the extent of the public involvement resulting from NEPA are tremendous.

It is not an overstatement to say that almost all federally funded public works projects undergo NEPA scrutiny and are exposed to public oversight. These projects are accepted, modified or rejected by agency decision makers based on the project's impacts to wetlands; biotic systems and threatened and endangered species; social, economic and community structures; public sentiment; public services and properties; cultural and historic properties; agricultural production and lands; hazardous waste, and a multitude of similar constraints that can vary depending on the nature of the project. Within these topical impact fields, those impacts classified as social in nature have not been integrated

into transportation development as well as work in the natural resource areas. As stated by Foster (1999:257), “NEPA’s primary concern is with impacts on the natural, or physical, environment. As such, socioeconomic impacts are considered only when they are connected and/or interrelated with the physical environmental impacts.” This approach to human-dimension impacts as secondary environmental impacts has resulted in the minimization of social impacts in the determination and outcomes of projects. With the 1991 Intermodal Surface Transportation Act and the 1994 Environmental Justice Executive Order, the previous low-levels of emphasis in social impact assessment have been called into question. State DOTs have not given human-dimension impacts the credit they warrant in the project development process.

NEPA Implementation

The Act is by most measures a success in terms of its widespread adoption. Considering the volume of environmental studies alone, in the first decade following the signing of the Act (1970-1980), 10,475 environmental impact statements were written (Culhane et al. 1987:1). Between the years of 1973 and 2000, over 24,376 environmental impacts statements (EISs) were filed with the Environmental Protection Agency (Environmental Protection Agency 2000). These numbers do not include the other environmental documentation categories of environmental assessments and categorical exclusions (EAs and CEs). EAs and CEs are forms of environmental documentation for less impacting projects that still often require extensive environmental research, mitigation and clearance. Yet thirty-plus years later, NEPA remains unchanged and provides for the same regulation and guidance in 2002 as in 1970.

The broad implementation of the NEPA process is another measure of the acceptance of NEPA. The Act has been established in all necessary branches of federal and state government (Bregman and Mackenthum 1992), and the process has been emulated by Canada, Europe, and essentially world wide (Wandes-Smith 1979). Based on the NEPA process, the United States is recognized as a leader in environmental management: half of the state governments in the United States have their own versions of NEPA, as do well over 80 other countries (Hart and Enk 1980). Additionally the World Bank has modeled their environmental management systems after the NEPA process.

Further, the United States was recognized by the Organization for Economic Cooperation and Development (OECD) for the success of the impact statement process as well as its exemplary public involvement (OECD 1996). Based on the continued implementation and relevance of the NEPA process, Senator Henry Jackson's 1969 summary of the potential of NEPA rings true. He described NEPA as, "The most important and far-reaching environmental and conservation measure ever enacted by Congress..." (U. S. Congress 1969). And while resources are being protected and even enhanced through the NEPA process, the social issues to be addressed by NEPA are seen as secondary impacts. Kennedy (1999:1) summarizes the trade-offs between protecting the environment versus protecting people in the process of developing transportation infrastructure. She states, "There is an underlying tug of war going on in the world of transportation, human rights vs. environmental rights." And as outlined in FHWA's, *Community Impact Assessment: A Quick Reference for Transportation* (1996: 2), "In the past, the consequences of transportation investments on communities have often been ignored or introduced near

the end of a planning process, reducing them to reactive considerations at best.” The following review of the literature outlines the context of the social impact assessment process within the NEPA and the transportation organizational setting.

Purpose of NEPA

Energy and land development, policy changes, land management, and new technologies will undoubtedly affect the natural and human environment in some manner, whether it be a positive or negative impact. The “look before you leap” perspective of NEPA allows for a determination of the extent and nature of both the positive and negative impacts of a proposed action. NEPA is the public law that ensures that information concerning the impacts of these projects is considered as the decisions are made regarding if, and how to proceed with projects. As outlined by the CEQ (1978:2), NEPA is designed to, “insure that environmental information is available to public officials and citizens before decisions are made and actions are taken.”

The dramatic societal and natural resource changes brought by the completion of the Interstate Highway system (Briggs 1983), as well as the boomtown changes associated with energy resource development in rural areas have amply demonstrated the need for a NEPA-like policy (Albrecht 1985; Murdock and Leistritz 1979).

The Act’s stated purpose is as grand as the levels of organizational implementation. As stated in the Act:

The Purpose of this Act are:

To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the nation; and to establish a Council on Environmental Quality ((42 U.S.C. 4331 (Purpose)).

In the Council on Environmental Quality's 25-year review of NEPA, they identify NEPA as a "framework for collaboration between federal agencies and those who will bear the environmental, social and economic impacts of agency decisions," and as, "the foundation of modern American environmental protection" (CEQ 2000: ix). Culhane et al. (1987: 1) summarize the implications of the NEPA process as; bringing technical precision of science to bear on resource decision making, adding environmental sensitive officials to previously insensitive bureaus' staffs, and the opening of an otherwise parochial agency decision process to public scrutiny.

NEPA is as timely now as it was in 1970 when signed by then President Nixon. With the current environmental emphasis on sustainable development, urban sprawl, brownfields and environmental justice, NEPA's call for "productive harmony" between man and nature remains a relevant concept. As stated in the Act:

The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urban development, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use

all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can coexist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (42 U.S.C. sec. 431(a)).

Title 1 of the Act states that in order to carry out this national environmental policy, “It is the continuing policy of the Federal Government to use all practicable means” to

- 1) Fulfill the responsibilities of each generation as the trustee of the environment for succeeding generations;
- 2) Assure all Americans safe, healthful, productive and aesthetically and culturally pleasing surroundings;
- 3) Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
- 4) Preserve historic, cultural, and natural aspects of our national heritage, and maintain, whenever possible, an environment which supports diversity and variety of individual choice;
- 5) Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities; and
- 6) Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources. (42 U.S.C. sec. 4331(b)).

Title 1 of the Act continues in Section 102 to state that “The policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the federal government shall” —

- A) Utilize a systematic, interdisciplinary approach which shall insure the integrated use of the natural and social sciences and the environmental design arts in planning and decision making which may have an impact on man’s environment;
- B) Identify and develop methods and procedures, in consultation with the Council of Environmental Quality established by Title II of this Act, which will insure that presently unquantifiable environmental amenities and values be given appropriate consideration in decision making along with economic and technical considerations;

- C) Include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on---
- i. The environmental impact of the proposed action,
 - ii. Any adverse environmental effects which cannot be avoided should the proposal be implemented,
 - iii. Alternatives to the proposed action,
 - iv. The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
 - v. Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

In summary, Title I of NEPA established the environmental policy and decision-making process for federally funded projects. Importantly the Act dictates an interdisciplinary examination of impacts in order that the full range of environmental and human impacts of a proposed action can be understood before an action is taken. Items i. through v. above are to include the human environment within the concept of environmental impacts.

The oversight body of the Act was established at the national level through the Act in Title II, Sec. 202 of the Act. It states, "There is created in the Executive Office of the President a Council on Environmental Quality (hereinafter referred to as the "Council")." In essence, the Council (CEQ) monitors environmental quality and trends, as well as reviews and appraises the programs and policies set forth in Title 1 of the Act. The regulations enacted by the CEQ provide guidance for federal agencies regarding the actions they must take in order to comply with NEPA. Additionally, the CEQ regulations require that, "Agencies shall integrate the NEPA process with other planning at the

earliest possible time to ensure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts.”

While NEPA and the related CEQ guidance focus on the actions of federal agencies, it is often the case that the actual NEPA process is administered and performed at the state agency level with oversight from the respective federal agency. In the Missouri Department of Transportation case, and in most state Departments of Transportation (DOTs), the state DOT acts as the NEPA performing agency with the Federal Highway Administration acting as the lead, or supervisory agency with the final responsibility for the document, work, and decision. This is not the case for many federal agencies with NEPA responsibilities. For many federal agencies, there is not a state agency component, thus the NEPA process is completed by the federal agency. But across the country, state DOTs have acquired the NEPA performing responsibilities with FHWA oversight and ultimate responsibility.

Title I and II of the National Environmental Policy Act established what has become known as the NEPA process. The Act requires examination of environmental impacts; importantly it also considers such impacts in terms of the human environment through an interdisciplinary approach. In effect, the link between our quality of life and environmental quality was legislated through NEPA. This call for an integrated use of the social and natural sciences in the NEPA process has undoubtedly increased the breadth of impacts considered during the decision-making process. It has raised a few

eyebrows as well, as these non-traditional impact areas were incorporated into more parochial and established processes.

As a result of the Act including interdisciplinary analysis of proposed actions, it was intended that sociologists, biologists, geologists, engineers, planners, etc. all work on the NEPA process in order to better identify impacts within the various specialty fields for the project in question. Additionally, SIA type impacts can be considered an impact in themselves or as a result of an impact to another resource area. In this sense, erosion may be a direct impact to a fishery, but it also has direct impacts on the individual subsisting on the fishery and the sport fisher who contributes to the economy. It then follows that the various fields of topical specialization must be used in the process to ensure that the wide range of affects can be adequately documented, then avoided, minimized, or mitigated.

It is in the requirement for interdisciplinary analysis and consideration of the human dimensions that calls for a social impact assessment (SIA) of proposed actions. And while each of the substantive natural resource areas have developed their own somewhat standardized analysis and reporting schemes to comply with the Act, and are worthy of investigation as a whole or in their own right, the focus of this analysis is on the social impact assessment process established through the Act, as it has been re-emphasized through community impact assessment (CIA) directed by ISTEA and the environmental justice (EJ) executive order (EO). SIA does not have an established and standardized analysis and reporting scheme, but instead tends to rely on addressing impact with no set

impact level or rate of mitigation. An examination of the processes and practices of SIA, especially considering the recent emphasis in the area with CIA and EJ, will allow for an assessment of the sophistication of the process as well as its status in transportation development.

The Social Impact Assessment (SIA) Process in NEPA

In the field of sociology, as well as in other social science disciplines, understanding the consequences of technological, environmental, and change in general, has been a prominent endeavor and at the core of these disciplines. Freudenberg (1986:453) traces the genealogy (and similarities) of the SIA process to some of the earliest works in sociology that attempted to understand the implications of change, including that of Toennies and Durkheim. Deitz (1987: 54) draws from more recent theorists such as Habermas to demonstrate that the SIA process, “offers great potential for integrating scientific policy analysis into a democratic political process.”

However, Forkenbrock and Weisbrod (2001:3) point out that SIA has not historically been included in transportation decision-making. They state that:

Potential transportation projects traditionally have been evaluated on the basis of a combination of engineering and economic criteria. Projects are generally selected according to how significantly they would improve such important performance measures as total travel time through a network and safety. In recent years, however, increased attention has been given to the effects of transportation on members of society other than users of the facility to be improved. The social and economic effects of transportation projects should be fully considered because (1) these effects can be substantial and (2) they often are important to the quality of people’s lives.

Cramer et al. (1993:477) also emphasize the importance of considering social impacts for development projects they state that:

Drastic economic and social upheavals can occur in dependent communities due to the arrival or departure of resource related activities as well as advances in technological developments.

Still, not until the issuance of NEPA in 1970 did the SIA process become formalized as part of our national environmental management system. And while the vernacular use of the word “environment” tends to lead one to think of the natural, biotic systems, under the NEPA framework and guidance it also includes the social, economic and built components.

Palinkas, Harris and Petterson (1985:1) argue that the social impact analysis is an important part of the environmental impact statement and, “Entails the evaluation of the consequences of an existing development or program or the projected consequences of a proposed development or program that are likely to affect the social, economic, and cultural activities of a community or group of people.” Finsterbush (1976:1) states that the SIA process measures, “all of the important effects of an action on people, groups, organizations, communities, geopolitical entities and the institutions of society.”

Freudenberg (1986:452) describes the SIA process as a hybrid of both scientific and political process. A field that, “tends to form a subarea of environmental sociology,” and “draws heavily from other traditions in sociology such as, human ecology, social change, social problems, social indicators and evaluation research.”

Gramling and Freudenburg (1992) argue that social impacts are temporal as well, and as such, the timeline for impact consideration extends from the very conception of the project idea with anticipatory reactions, to the often-neglected post-project repercussions. Additionally, they expand on the literature with their notion of human adaptation. The human potential of adaptation, through this range of impacts, is often characterized as positive, but in effect, represents a carry-over of the original impact and is not captured as such.

In the Federal Highway Technical Advisory (FHWA T 6640.8A, 1987) the broad range of impacts included within the moniker of “social” impact to be included in an environmental document entail:

- (a) Changes in neighborhoods or community cohesion for the various social groups as a result of the proposed action.
- (b) Changes in travel patterns (all modes),
- (c) Impacts on school districts, recreation areas, churches, businesses, police and fire protection, etc.
- (d) Impacts of alternatives on highway and traffic safety as well as on overall public safety.
- (e) General social groups specially benefited or harmed by the proposed project.

Based on the guidance provided by the Federal Highway Administration, NEPA documents should include a discussion on each of the following areas (that may entail social type impacts): land use impacts, farmland impacts, social impacts, relocation impacts, economic impacts, joint development, pedestrians and bicyclists, air, water, visual and noise impacts, and construction impacts.

While the social impact assessment should be an analysis of the social impacts, the link between the function of transportation as a social phenomena, and its social impacts

cloud the analysis. As a result, the engineering and economic emphasis in transportation decision-making is prominent in the definition of what constitutes a social impact. In the NCHRP 456, *Guidebook for Assessing Social and Economic Effects of Transportation Projects* (2001), the list of social impacts appears more traffic-operations oriented than it does social impact oriented, even though the document begins with stating that social impacts have been ignored in favor of mobility and safety issues. Eleven categories of impacts are listed in the guidebook, of which, only three (community cohesion, economic development and distributive effects) are solely social and economic in nature. The other impacts listed include; changes in travel time, safety, changes in vehicle operating costs, transportation choice, accessibility, traffic noise, visual quality and property values. And while these impacts are important and related to social impacts, these dimensions are more precursors to or results of the impacts, rather than social impacts. Richardson and Kostyniuk (1998:140) identify the differences between social impacts from projects, versus social impacts of transportation in general similar to the guidebook's emphasis.

They conclude that:

Transportation plays a pivotal role in society by providing access to nearly all of a person's non-home based activities. Most people do not use transportation for the sake of transportation itself but rather to gain access to jobs, schooling, medical care, shopping, recreation, and so forth.

As of 1994, environmental justice considerations were included as an individual category, and in Missouri and most other DOTs this analysis is generally included as part of the SIA section of the environmental document. Previous to 1994, these types of impacts should have been included within the SIA section as a discussion of Title VI issues.

Current guidance and training available within the DOT institutional setting regarding social impact assessment addresses such broad and substantive areas as community impact analysis (CIA), relocations impacts, Title VI and environmental justice (EJ) analysis, and economic impact analyses. In today's SIA vocabulary, the terminology of community impact assessment to address more localized impacts has superseded the use of the SIA terminology among practitioners. This is a reflection of the greater emphasis placed on communities and neighborhoods through the 1991 Intermodal Surface Transportation Act. Yet the data and analysis requirements have remained basically the same.

The SIA area, like the other topical impact areas, includes a variety of impact categories depending on the nature of the project and the setting of the project area. Similarly, the larger NEPA process itself encompasses a broad range of activities, data and measures, agency coordination, and political pressure. Both the understanding of the impacts, and the process of identifying, prioritizing and decision-making regarding the impacts provides fertile ground for social science inquiry. As such, Freudenberg and Keating (1982:77) state that, "The SIA context can provide an opportunity to study communities, social change, anomie, and the effects of economic fluctuations on human and social well being—as well as an opportunity to study important decision making process from within."

With the large demand for full-scale EIS's during the early years following the signing of NEPA, SIA was seen as almost a new field of sociological specialization. The possible

impact areas within the field of SIA cover a tremendous number of topical areas, and seemed to offer social scientists a lifetime supply of work. As compiled by Murdock, Leistriz and Hamm (1985:100) the research detailing the realm of SIA is broad and includes: works presenting theoretical bases for doing impact assessments (Finsterbush and Wolf 1977; Murdock 1979; Branch et al. 1984); those proposing methodologies for assessing social and socioeconomic impacts (Fitzsimmons et al. 1977; Murdock and Leistriz 1980; Finsterbush and Wolf 1981; Leistriz and Murdock 1981; Finsterbush et al. 1983; Branch et al. 1984); and works describing the general types of impacts likely to result from large-scale projects (Murdock and Leistriz 1979; Fruedenberg 1982; Summers and Selvik 1982; Carley and Bustello 1984; McKell et al. 1984). In addition they document the work of others who have examined special types or dimensions of impacts (Sills et al. 1982; Murdock et al. 1983; Freudenberg and Rosa 1984), and those that have performed post-decision analyses of impacts (Gilmore et al. 1982; Chalmers et al. 1982; England and Albrecht 1984; Freudenberg 1984). Others have examined the accuracy of the environmental documents and assessment techniques, (Murdock et al. 1982), and impact mitigation possibilities, (Weber and Howell 1982; Halstead et al. 1984). The authors conclude that socioeconomic impact analysis has demonstrated substantial development in a relatively short period of time.

Finsterbush (1995:236) reports that after NEPA, "SIA became a cottage industry in the United States and by the end of the 1970's, about 1,000 professional social scientists had become part of the SIA network." Historically, the NEPA process was rapidly implemented with over 10,000 EISs filed between 1970 and 1980 (Culhane et al. 1987),

but as major project areas such as the interstate system and the efforts in flood control/dam building waned, so did the NEPA efforts. Concurrently, many projects were classified as EAs and CEs rather than EISs, thus the analysis requirements and level of efforts decreased. In comparison to the first 10 years under NEPA where over 10,000 EIS were filed, in 2000 there were 473 EISs filed with the EPA (EPA 2000). Finsterbusch (1995: 229) summarizes the historical development of the SIA process in NEPA and reflects that:

SIA is manageable and justifiable, is seldom conducted unless legally required, has declined as an activity since the late 1970's, has a widely accepted methodology, and can be conducted at reasonable costs.

And just as the number and types of projects declined and changed after the NEPA bloom of the early 1970's, efforts to address, understand, and improve the process similarly declined. Journal activity and industry literature is ripe with articles regarding NEPA and SIA from the 1970's through the early 1980's, but decreases during the later 1980's.

This decline in the academic and practical investigations of NEPA and SIA likely reflects built-out road systems, completed water control projects, and the greater use of lower classified environmental documents. However, since around 1996, the literature is again expanding to address CIA issues and EJ. And based on industry emphases, the quality of life issues related to CIA and EJ will remain prominent concerns in the transportation industry. The scope of the transportation system, and its related positive and negative impacts is just too large to be ignored.

The NEPA process and SIA are complex organizational undertakings and, as such, their implementation has not completely met the expectations identified in NEPA regulations.

Previous studies of the implementation of public policies have led to several concepts regarding the vagaries of policy formation and action. Pressman and Wildavsky (1973) identified the “complexity of joint action” as one of the main constraints to policy implementation. The complexity of agency coordination, analysis, and management of a multifaceted and long-term project often contributes to the failure of the project or policy. And according to Culhane et al. (1987), implementation is a dynamic process. Rather than thinking of the process as a formulation-implementation process, it is better understood as a formulation-implementation-reformulation process. In this sense the process of implementing the policy affects the outcome of the policy.

Culhane continues to explain that project implementation is the execution of a decision that carries out a specific federal action. So while the project implementation occurs after policy implementation, the processes and expectations are similar enough that concepts such as the complexity of joint action and constituency support remain as useful concepts for both.

In their study of the content and accuracy of EIS’s, Culhane et al. (pp. 57) use the concept of “implementation pathologies.” They state, “We use the concept of pathology to describe implementation problems that interrupt the causal path in a policy system between policy formulation and policy output. Pathologies are symptoms of implementation difficulty that usually suggest the causes of difficulty as well.” In their study, sixty-one of the one hundred and forty-six EIS projects that they examined experienced some implementation difficulty defined as a delay or modification. They

then grouped the reasons for the delay or modification into implementation pathology categories. The categories were identified as:

- 1) Technical – includes changes in project scope, design modification and scheduling change/delay.
- 2) Political/Legal – includes litigation/injunction, external agencies decisions/conflict, and public opposition.
- 3) Environmental – includes need for additional study, siting considerations/conflict, impacts, and safety/quality assurance.
- 4) Fiscal/Economic – includes funding, project economic, and market conditions.
- 5) Institutional/Procedural – includes property acquisition/ROW, governmental permits, legislative reauthorization and jurisdictional change.

These pathologies can arise individually or simultaneously and, just like impact analysis, different projects will involve different pathologies depending on the constraints of the setting, project and political/public sentiment. For the transportation area, Culhane et al. found that political/legal and fiscal/economic circumstances constitute the predominate pathologies. And based on the project delay associated with the various types of pathologies, pathologies related to “abnormal delay” were spread across the categories with political/legal and environmental pathologies leading as the main causes for delay. They conclude that non-implementation of a project usually involves “multiple reinforcing pathologies” most frequently blamed on fiscal/economic problems, followed by political/legal and then environmental reasons.

In summary of the discussion of pathologies by Culhane et al. (1987:80), they find that,

Pathologies stemming from rational-technical causes may occur with frequency but they can be overcome. Technical problems tend to result in delays or modifications, but they do not necessarily prevent implementation. In contrast, institutional/procedural problems, which are presumably key symptoms of complexity, were the least frequently mentioned pathology. Nonimplementation was more often attributed to fiscal/economic, political/legal, and environmental considerations. Unlike technical details, these factors are generally considered outside the control

of agencies responsible for project implementation. Thus, they are not easily explained by rational decisionmaking models.

Further Culhane et al. (1987:13), suggest that the writing and performing of an EIS is “embedded in a process that places significant demands on both internal agency resources and agencies’ external relationships.” This internal/external reform model suggests that through the integrated use of social and natural sciences in the NEPA process, agencies would gain staff with various professional or educational-based topical backgrounds (biology, sociology, planners), which in turn would sensitize the agency to the different issues it needed to consider. Each impact area would have representation through environmental analysis in the agencies’ decisions and culture.

The external reform argument identifies input from sources such as permitting agencies, the public, or a community or citizens group as pushing the agency to consider a wider range of impacts and considerations in their decision-making. Culhane et al. (1987:18) summarize external reform in NEPA as, “NEPA, in other words created a historically unique mechanism for interest groups, interagency and intergovernmental pressure on federal agencies.” Both proponents of the internal and external reform models see them as complimentary rather than at odds. The external reform provides a threat to the agency and the internal component gains clout and influence within the organization by addressing the external reform.

The SIA process is a unique impact area within the NEPA process in that the external reform component contains no regulatory forcing mechanism (a permit or threat of delay,

or project cancellation) to avoid impacts and, only to a lesser degree, it contains enforcement to mitigate through the Uniform Relocation policy. Conversely, wetland impacts and impacts to threatened and endangered species for example, have predefined impact levels, courses of actions, and known avoidance or mitigation requirements that are enforced by outside agencies. Additionally, as the SIA process must result in some practical rather than academic direction, the need for the application of theory and methods has confounded some. In Murdock et al. (1986:113), they conclude, “the area of socioeconomic analysis must be characterized as being largely atheoretical.” Further they point out that the goals of policy relevance and academic significance are often at odds with the analyses favoring one over the other.

The socioeconomic impact field remains an integral part of the NEPA process. With the addition of the environmental justice executive order a diverse body of literature addressing environmental justice is developing. As it will be demonstrated, with the addition of environmental justice to the SIA process, there has been an added sense of urgency and importance to the SIA component. However, the inclusion of EJ and CIA do not yet represent full-fledged regulatory, external controls. In MoDOT’s case, the threat of action by FHWA exists independent of defined consequences; it remains a threat. With an unknown but potential threat to project activities through EJ compliance, it is only through a successful environmental justice analysis that the organization can ensure project completion and ultimately organizational success. Requiring an analysis to address environmental justice has the secondary effect of increasing the analysis and prominence of community, neighborhood and economic analyses in order to identify and

determine the nature of impacts to low income and minority populations. And as DOTs are addressing community concerns, there is the added benefit of greater support from the communities for improved transportation as they become aware that not only will transportation be improved, but factors conducive to community should benefit as well.

While environmental justice was not identified as part of the social impact assessment in the executive order or in the proscriptive technical guidance, the concepts and implementation fall naturally into the social impact assessment dimension of the NEPA process.

Environmental Justice in Transportation

On February 11, 1994, President Clinton signed Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The Act states that, “Each federal agency shall make achieving environmental justice part of its mission by identifying and addressing as appropriate, disproportionately high and adverse human health and environmental effects of its programs, policies, and activities on minority populations and low-income populations.” While the concept of environmental justice seems rather new in the literature, it has been the Federal Highway Administration’s (FHWA) perspective that ensurance of nondiscrimination is important, and that discrimination has been regulated under Title VI of the 1964 Civil Rights Act. In 1987, the importance of nondiscrimination was clarified with The Civil Rights Restoration Act of 1987. The 1987 Act expanded Title VI responsibilities to include federal sub-recipients and contractors, regardless if those activities are federally funded.

And while there is no mention of environmental justice in NEPA, the text of the law stressed the importance of healthful communities and surroundings for all communities and Americans. Further, in the Federal-Aid Highway Act of 1970:23 United States Code 109(h), the expected impacts of transportation projects are to include consideration of neighborhoods, businesses, access to public areas, economic and tax effects, as well as other community resources.

The human dimension emphasis was also garnering support through national research. As early as 1975, in a National Cooperative Highway Research effort, distributive impacts and community impacts were identified as important components of an expanding context of transportation. Manheim et al. (1975:1) states that, “Highway agencies that were evolving into transportation agencies and were asked to consider a broader range of possible direct and indirect social, environmental and economic effects in all aspects of their decision making.” As a result of this effort, three key findings were proposed for future research. These three findings were: 1) Social, economic and environmental considerations in transportation planning are important because of inevitable conflicts among competing interests, 2) Social equity must be explicitly recognized and taken into account in transportation decision making, and 3) Different groups of people can be expected to have different interests and priorities.

And while section 102(2) of NEPA requires all actions and policies to “insure integrated use of the natural and social sciences and the environmental design arts in planning and decision making which may have an impact on man’s environment,” the state of the

practices leads one to question whether the social science dimension of the impacts are adequately addressed. Kennedy states (1999:1), “There is an underlying tug of war going on in the world of transportation, human rights vs. environmental rights.” She continues stating:

There is clearly a protection of the “environmental rights” that is promulgated in NEPA and Executive Order 11514 that has sparked civil rights activists over the past decade to question “human rights” in the equation of human rights vs. environmental rights. Have we as professionals overlooked the protection of society (human rights) and communities in the “environment” when balancing the impacts studied under NEPA in coming to final decisions and conclusions?

Forkenbrock and Schweitzer (1999:96) argue that human-dimension impacts are just now reaching a critical impact in need of action. They state, “As time has passed, however, it has become increasingly clear that the expanded transportation facilities have not benefited everyone; that, in fact, they have made some populations, often low-income and minority people, worse off.” And in 2002, an executive committee of The National Academies’ Transportation Research Board (TRB:2) suggested that, “ equity will be one of the major themes in transportation policy for the coming decade.” Even still, Sanchez et al. (2003:38) argues that:

Laws and policies protecting people of color are often more difficult to advance than policies protecting the environment. For example, the Endangered Species Act effectively protects endangered species whose habitats are threatened with harm by transportation projects, but similarly strong laws are not in place to protect minority and low-income communities from inequitable transportation projects.

So while many agencies proclaim the newness of environmental justice and a supposed new set of criteria to comply with, the concepts, along with potential for enforcement, have been viable in transportation policy since 1964, and have been re-emphasized

several times. However, SIA/CIA and EJ integration into the NEPA process appears as secondary function; according to the NEPA guidance, social impacts are not enough by themselves to warrant an EIS, but must be included if other significant impacts are present. FHWA employees point out that we have not done SIA to the extent necessary, and as will be documented, SIA does not have the status or integration, and thus the influence, that the natural resource impact areas have on transportation project design.

Distributional Impacts and Justice

While the integration of social analysis into the NEPA process and decision-making is questioned, the benefits and costs of transportation improvements have long been examined as a protocol for advancement of projects. Optimization and positive benefit-cost ratios, based on predominant engineering and systems analysis perspectives, dominated the public policy arena both before and after the implementation of NEPA. Transportation professionals, as well as economists, have argued that when projects are undertaken, there should be an overall net benefit for society. Yet distributional impacts have clouded the benefit-cost equation as some members of society gain while others lose. Supposedly, those that gain will then be capable of compensating the losers. But most importantly in this model, efficient projects will proceed and inefficient projects would be dismissed. However, even the efficient project is likely to have distributional impacts that may or may not be addressed by the project. NEPA could circumvent the shortcoming of the efficiency model by identifying benefits and impacts (generally non-economic), and thus adequately provide for compensation (mitigation) of the negative impacts. If we are to agree on the efficiency model, where some people lose and others

gain, then additional mitigation beyond the URL is needed to compensate communities and individuals. The FHWA guidance, *Community Impact Mitigation: Case Studies* (1998), provides five examples for projects where community and neighborhood mitigation attempted to ensure that mitigation for impacts reflected the level of impacts. In these cases, the winners (the DOT) did indeed compensate the losers through neighborhood and community re-establishment, preservation of an area's cultural setting, and enhancement of community services.

Environmental justice in transportation not only includes the distributional impacts, or adverse impacts on different population groups, but is also includes concerns about the fairness of the decision-making process involved (Transportation Research Board 2002). In the 2002 Transportation Research Board (TRB) report, the authors argue that the "fairness" of providing transportation is relevant on several levels. "Fairness" is relevant not only for project impacts, but for the provision of services and participation in the decision-making. They suggest that this fairness or justice is rooted in the convergence of several concepts of justice. By one definition, they argue, "Justice means having a basis in fact and following established rules and procedures to produce an impartial result" (pp. 84). To a degree, as long as the process was impartial, justice had been served through this administratively impartial action. In addition to the administrative solution, the authors cite the "law of equity" in addressing circumstances that produce both a result that is just, and for another population or geography, produce a result that violates justice. With the concepts of administrative procedure and equity, the question

becomes, how does an agency implement policies and avoid unequal distributional impacts related to an otherwise beneficial project?

The TRB committee expands on these notions of justice with Rawlsian conceptions of justice (Rawls 1971). According to Rawl's premises, the theory of justice involves two principles: first that there is an equality of rights and duties, and second that inequalities are only just when compensated. According to the TRB study, the notion that distributional gains and losses sometime require compensation has been a powerful idea in planning. Similarly, the NEPA process relies heavily on mitigation (some form of compensation) to ensure that impacts are addressed. And current guidance for environmental justice and community impact analysis has made mitigation of social impacts a high priority. Emphasis in the community impact area is highlighted by the 1998 release of, *Community Impact Mitigation: Case Studies*, by the U.S. DOT, FHWA.

Drawing from other literature, the nature of distributional impacts and environmental justice can be traced to work in environmental sociology and political economy of the early 1970's. Weinberg (1998:2) argues that the political economists first made the link between global capitalism and environmental externalities that fall mainly on marginalized communities (Schnaiberg 1975; Anderson 1976; Buttel 1987). He argues further that the political economists were pointed in the right directions, and that as stated by Schnaiberg, "environmental quality and social welfare issues are not socially or politically separable" (1980:5). Sagoff's (1988:14) also argues that environmental problems are beyond just market considerations, but are not a result of market failure in

pricing amenities. The resulting social regulation represented, for example by NEPA, was generated from environmental problems that are defined by ethical, aesthetic, and cultural objectives and not attempts to correct for market failure. As a result, the past effort to consider social regulation under market concepts creates an unnecessary contradiction between protecting the environment and the goal of efficiency in public investments.

Potential for Environmental Justice Issues

From a developmental standpoint, the environmental justice movement seems to have become relevant to the policy arena around 1985 (Hamilton 1995). Public exposure to hazardous waste facilities have generated much of the discussion and research concerning environmental quality and its relationship to race and income levels of residents. Based on a U.S. General Accounting Office Study of communities with hazardous waste sites, it was found that three out of four communities under study were disproportionately African-American and all were disproportionately poor (U.S. General Accounting Office 1983). Similarly, in one of the most seminal pieces regarding environmental justice, Chavis and Lee (1987) for the first time examined the presence of toxics associated with hazardous waste sites and residential areas. In their research, race was the most significant variable associated with proximity to commercial hazardous waste facilities and that income status of residents was substantially lower for residents in close proximity to hazardous waste sites. They argue that there is enough evidence to suggest racism in the location of waste sites, but that overall over one-half of the total population in the United States resided in communities with uncontrolled toxic wastes.

Bullard (1994), in *Dumping in Dixie: Race, Class, and Environmental Quality*, argues along a similar line as Chavis and Lee. Bullard states that industry has followed the path of least resistance; toxic industries locate in economically poor and politically powerless African American communities. According to Bryant and Mohai (1992:5), it was not until 1990 that the EPA first publicly recognized that, “Environmental hazards disproportionately impact people of color.” In their Detroit, Michigan, based research, they found that the likelihood a resident was of color or poor increased the closer that residence was to a hazardous facility.

While the evidence seems overwhelming in favor of the race-proximity argument, Atlas (1998: 7) suggests that the relationship is not as clear as it seems. A variety of data issues such as type of waste facility, level of aggregation of the census data, and the actual threat of the source facility, limit the previous research. Atlas states (1998:15), “This focus on the location of less than two percent of all hazardous wastes has diverted attention from the over ninety-eight percent of hazardous wastes that are managed at the facility where it is generated.” He states that a relatively few sites account for the majority of the nation’s hazardous waste volume. And with most of these more dangerous sites, relatively few people live in close proximity. Atlas argues that the largest sites have no people residing within a one-half mile, and less than fifty people within a mile of the site. He further documents that the “overwhelming majority” of the hazardous sites were in areas that had fewer minorities and low-income households than in the nation overall.

While there are data and methodological issues associated with these previous works, there is ample evidence the environmental justice framework is useful in understanding hazardous waste siting in relation to community and population characteristics. And in addition to the toxics siting protocol, this work outlines some of the more critical issues regarding exposure and impacts for fields such as transportation as well. Since environmental justice began more as a grassroots effort, the combination of grouping justice with popular environmental issues, and the ethical concerns regarding civil rights, has resulted in an expansion of environmental justice to a national policy issue.

While transportation issues may seem an unlikely area to address environmental justice, the history of events involving transportation and civil rights provides a good background to demonstrate the sociological dimensions of transportation and its link to current environmental justice issues. Bullard and Johnson (1997:10) state that, “The modern civil rights movement has its roots in transportation. From the legendary Rosa Parks to the Montgomery Bus Boycott to the Freedom Riders, all roads pointed to a frontal attack on racist transportation policies and practices.” The authors argue that racism is as prevalent in transportation as it is in housing, employment and the judicial system, stating, “Discrimination is a manifestation of the institutional racism and causes life to be very different for white people than for black people. Transportation racism is not an invention of radical social justice advocates” (1997:1).

Further, performance and use data regarding the transportation system suggest that impacts related to transportation services are disproportionately burdensome on the low-

income and minority populations. Sanchez et al. (2003) states that between 1998 and 2000, households with incomes less than \$20,000 saw the amount of income they spend on transportation increase thirty six and one-half percent, while those with incomes greater than \$70,000 saw only a sixteen and eight tenths percent increase. Also, overall, forty-five percent of transit users are white, thirty-one percent African American, and eighteen percent Latino/Hispanic, or forty-nine percent of all users are from a minority group. And in urban areas African Americans and Latinos comprise approximately fifty-four percent of transit users, yet the national transportation policy focuses heavily on road infrastructure at the expense of transit modes.

Besides discrepancies in funding of transportation modes, Sanchez also identifies disparities in indirect social and economic effects, unequal access to transportation jobs, language and information barriers, minimal outreach to communities, and ineffective legal protection and accountability as hindering social justice in transportation. And as stated in the TRB report (2002:2), “The natural and built environments and the quality of life are inextricably linked to the distribution of transportation system impacts and the social equity of transportation policies and programs.” However, research has just begun to establish the variation in transportation use, users, and the implications of this varied context for transportation development.

Considering the importance of transportation, especially by auto, the areas in which environmental justices issues can arise is broad. Provision of modal services beyond additional pavement arises as a planning issue, construction contracting requires

participation by minority and disadvantaged businesses, and transportation project implementation involves not only an analysis of direct impacts but also secondary and tertiary impacts for residents. So while this research deals with the applications of CIA and environmental justice in the SIA process, the concept and implications of human-dimension considerations resound throughout the performing organization.

Federal Transportation Directives for Environmental Justice in the SIA

As a federal agency, the U.S. Department of Transportation complied with the EJ executive order (EO) in 1997 with issuance of the DOT Order on Environmental Justice to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 5610.2). Following suit, the FHWA issued, FHWA Actions to Address Environmental Justice in Minority Populations and Low Income Populations (DOT Order 6640.23) in 1998. Then in 1999, the FHWA in conjunction with the Federal Transit Administration released planning guidance addressing environmental justice entitled, Implementing Title VI in Metropolitan and Statewide Planning . Overall there are 13 documents provided by the DOT addressing nondiscrimination and related issues (FHWA 1999:2).

As described in the FHWA guidance, there are three fundamental principles of environmental justice to be considered in the transportation context (1999:3).

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.
2. To ensure full and fair participation by all potentially affected communities in the transportation decision-making process.

3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

While the guidance is intended to address all components of the transportation development process, all three of the principles have merit in the NEPA and SIA process. Further, the executive order and its related introduction includes actions for addressing environmental justice in NEPA. These actions are to include:

- Analyzing environmental effects, including human health, economic, and social effects on minority populations and low-income populations when such analysis is required by NEPA;
- Ensuring that mitigation measures outlined or analyzed in the EA's, EIS's, and ROD's, whenever feasible, address disproportionately high and adverse environmental effects or proposed actions on minority populations and low income populations;
- Providing opportunities for community input in the FHWA NEPA process, including identifying potential effects and mitigation measures in consultation with the affected communities and improving accessibility to public meetings, official documents, and notices to affected communities; and
- In reviewing other agencies proposed actions under Section 309 of the Clean Air Act, EPA must ensure that the agencies have fully analyzed environmental effects on minority communities and low-income communities, including human health, social, and economic effects.

Importantly, the FHWA guidance looks to public involvement and community impact assessment as aiding in developing project level considerations for environmental justice impacts. In this sense, SIA as a whole benefits from the attention necessary to complete an environmental justice analysis. While past SIA considerations would often provide a cursory analysis of the project's social setting, the data and information requirements of environmental justice increases the level of detail in the analysis to identify population groups and the potential for disparate impacts. As such, environmental justice analysis raises the standard for all SIA, because it is in the community analysis where environmental justice concerns are identified; a rising tide floats all ships.

With the inclusion of environmental justice directives, the SIA process has increased in relevancy not only for State DOT's, but for the public as well. And while there has been a growing impetus for CIA and SIA based on the InterModal Surface Transportation Equity Act of 1991, environmental justice efforts have required an increase in the sophistication of SIA analyses. As the environmental justice issues are addressed in the NEPA process, there is the secondary effect of providing a more thoughtful and thorough SIA. When practitioners are required to answer specific questions regarding specific populations, the analysis necessarily reflects greater scrutiny of impacts, population characteristics, and the overall relationship between the project and impacted area. As a result, communities and neighborhoods benefit from this more thorough inquiry and consideration into the social and economic considerations of the project area. DOT organizational success in providing transportation depends on this community support as well as fulfilling the NEPA/SIA requirements. And while conflict over environmental justice protocol between state and federal agencies, as well as with communities is possible, this has not occurred in Missouri. The current level of emphasis on SIA/CIA and environmental justice is not waning. As Neumann of FHWA noted, "I originally thought EJ was just one of those things that would go away with the Clinton administration, but it appears it will be around and a major focus." Agencies will have to adhere to the principles and spirit of environmental justice before there is any decrease in the emphasis on these issues.

The FHWA guidance for the environmental justice executive order charges transportation professionals with the responsibility to adhere to three EJ principles when conducting

their work. The principles include avoiding, minimizing and mitigating for impacts, ensuring full and fair participation, and preventing the denial or delay of benefits of programs. These principles affect all levels of DOT operation, from the earliest planning and budgeting, to project development and construction, even providing guidance for system maintenance activities. The clearest application of environmental justice occurs in the planning and project development phases. This is the operational area of a DOT that most directly impacts and is experienced by the public. Within the planning and project development areas, the NEPA process provides the operational environment for environmental justice applications. The following chapters document and analyze the inclusion of the principles of environmental justice in the SIA/CIA process of NEPA at the Missouri Department of Transportation. The NEPA process, as part of the organization through the project development process, as well as the organizational responses to SIA/CIA and environmental justice, are used to document the status and integration of these concepts at the DOT. This approach addresses the affect of CIA and environmental justice on the actual work of creating transportation systems, as well as the organizational changes within the DOT to respond to this responsibility.

Chapter 3 - Theory

Identifying the Process and Organizational Changes: Environmental Justice, Community Impact Assessment, Social Impact Assessment, NEPA, and the Organization.

While a clear link between NEPA environmental documentation, avoidance, minimization and mitigation, and environmental protection has not been established, resources are undoubtedly being protected and restored. The degree to which the implementing organization makes decisions influenced by the NEPA directives, or includes the NEPA process as part of the organization, can also be thought of as directly affecting the status and protection given that resource by the decision-makers. The following discussion outlines the previous work in the field of public-policy decision-making in order to understand how the SIA/CIA and Title VI/EJ components of the NEPA framework are integrated into the decision-making process. I argue that the organizational setting of the DOT and environmental clearance activities, the guidance provided by NEPA, and the lack of an external enforcing mechanism for organizations to address social impacts has resulted in a second-class status for the SIA process within transportation development. Further, recent industry emphases on CIA and EJ have increased the relevance of SIA within transportation development and are gradually elevating the status, integration, and potential for meaningful contributions from the SIA field. However, SIA issues in general are in contrast to organizational goals of efficiency and rational decision-making and will require continued support from FHWA in order to ensure that people and communities, as well as wildlife, have a role in the determination of transportation development.

This approach will provide for an understanding of how the affect of the human-dimension impacts and the organizational responses to these impact considerations are integrated into the decision-making framework. Further, a diverse methodological approach including participant observation, discussions with informants, review of administrative records, and a review of the proscriptive guidance is presented. This methodological approach is designed to address the complexity of the NEPA process as well as the longitudinal nature of the events and actions related to the adoption and implementation of human-dimension considerations within the NEPA process and organization.

Previous work in the area of NEPA and the SIA process have generally focused on how-to- guides to direct the SIA process, the use of various theoretical perspectives during the process to guide the understanding of the impacts, and to a lesser degree, the effectiveness of the environmental policy. Work in the field of environmental sociology has generated a diverse range of perspectives addressing the interaction of natural resources and human use, but has been limited in its application in understanding the NEPA process and policy implementation. Rossini and Porter (1983: 7) point out that while the “look before you leap” perspective makes perfect sense, “...it has not generated a bandwagon of support. Consequently, one does not find vast resources devoted to the advancement of the science and art of impact assessment per se; rather, it is subject to political pressures as policy makers worry about the state of the economy, national defense and so forth.” Freudenberg and Keating (1982: 71) argue that while the NEPA requires the consideration of all things “social,” “sociological expertise is severely

underrepresented in the impact statement process.” Further, Murdock et al. (1986: 111) suggests that while the field of SIA has grown rapidly, “the area of socioeconomic impact analysis must be characterized as being largely atheoretical.”

This lack of attention and atheoretical characterization of the SIA process likely relates to the organizational location of NEPA and SIA as applied sciences within a technical organization. As applied sciences, and as a very secondary function of a transportation organization, the field does not generally employ or depend on sound theoretical and methodological works, but instead favors simple, quantified measures of impacts. Additionally, a lack of conviction and/or need on the part of DOTs to require robust SIA in their work has resulted in a decreased status and understanding of SIA impacts and analyses. As a result, professionals in the fields of planning, geography, engineering, etc often complete the work, and thus the potential for advancements in the SIA field have been limited.

Conceptual Model of Environmental Considerations in Transportation Development

Within this analysis context, there are three levels of conceptualization that can aid in understanding the implementation and the outcome of NEPA within the organizational setting at MoDOT. These are identified as, 1) Policy directives provided by NEPA that define the goals of the policy, 2) Implementation of these goals within the organization, and 3) Field implementation of the goals as defined by the organization.

In the case of the NEPA, the policy directives provide for a dual emphasis in using science to identify and manipulate impacts as well as consideration for unquantifiable impacts. Through the scientific, rational approach, the act directed the inclusion of the more quantifiable impacts into the organization's decision-making process; however, the amenities that were more difficult to measure such as quality of life, landscape views and neighborhood cohesion were also to be included. These unquantifiable impacts are defined by Sagoff's notion of a social regulation that includes the aesthetic, cultural and value-laden perspectives individual's hold that more often than not defy quantification and instrumental rationalization (1998:148). In this sense NEPA is indeed comprehensive, it directs agencies to use science and the rational model to address environmental impacts and at the same time calls for the consideration of the productive harmony between man and nature, the social and economic needs of future generations, and the welfare of man.

Important to the understanding of how these dual policy directives become operative in organizations are the concepts of external and internal reforms and the notion of implementation pathologies as described by Culhane et al. (1987), the concept of negotiated order (Day and Day 1977) and the notion of instrumental and communicative rationalities in understanding the implementation of the policy directives (Habermas 1970). And as the effectiveness of protection for natural resource has far exceeded the protection given human-dimension impacts (CEQ 2003:83), it is also useful to consider the protection of natural resource and social impacts as developing on almost separate

tracks as environmental protection -including the human-dimension impacts, has matured under NEPA guidance (CEQ 2003:83).

External reforms and internal reforms brought by NEPA are provide by the Act itself through the directive for an interdisciplinary approach that included the natural and social sciences as well as the orientation towards public involvement and the need to complete NEPA within the current framework of other environmental regulations – the NEPA umbrella (Smith 2002). In the case of natural resource impacts, external reforms have been effective through the external enforcing mechanisms found in external agency oversight, set levels of impacts, and the requirements for cooperation between natural resource agencies and DOTs. The NEPA umbrella guaranteed external agencies a voice in the outcome of projects. Thus when a project affected an endangered species, water quality or a historic site, external agencies had regulatory oversight over the impacts that must be considered in the environmental clearance process. Thus, the intentions and motives of these external agencies could affect DOT project delivery and design. As a new constraint, or complexity to the project delivery process, MoDOT worked with these agencies in order to ensure timely project delivery defined in environmental documents as feasible and prudent decisions. In effect, an order to the process was negotiated with these agencies to ensure that no surprises arose during development of the transportation project. These impact areas became known as fatal flaws to MoDOT and were so significant in the project development that the external negotiations with agencies became institutionalized within MoDOT. These impact areas became part of the way the organization does business, another consideration as common as engineering design

standards, a part of the instrumental rationality and context of providing transportation facilities.

In order to understand how natural resource impacts became part of the instrumental rationality of the DOT, the potential of these impact types to hinder a project, and the external agencies controlling these resource areas must be considered. As project related natural resource impacts fall under the purview of external resource agencies, MoDOT negotiated with these external agencies to determine what types and levels of impacts were acceptable, and the impact avoidance and mitigation requirements these agencies required in order to complete the projects. In the words of Day and Day (1977:130), the theory of negotiated order, “Confronted the problem of how order is maintained in an organization in spite of numerous external and internal changes.” At MoDOT, project delivery was maintained by including external natural resource agencies and through the negotiation of impacts on a project by project basis to the point that fatal impacts can be identified, avoided or planned for mitigation early enough in the project stages to avoid agency confrontation, delay, cost overruns or termination in later project stages.

Internal reform was effective in the case of natural resources at MoDOT based on the staffing of highly competent natural resource professionals in order to effectively participate in the negotiation of project impacts and mitigation. And based on the negotiated natural resource process, the technical and environmental resource implementation pathologies presented by these impacts could be overcome.

In contrast to the progression of natural resource impacts, human-dimension impacts represented by the SIA faced little external agency oversight, did not present fatal flaws to the project delivery process, and could be avoided by MoDOT. The human-dimension impacts and the lack of external enforcing mechanisms did not require institutionalization of the consideration of the impacts in the department's instrumental rationality that guided the factors that MoDOT considered important to completing their mission. As a result, internal reforms through staffing of social science professionals was also seen as less important as the organization could avoid the issue altogether. And when human-dimension impacts did arise, the primary organizational goals of safety and mobility, or the predefined levels of natural resource protection to ensure project completion were more important than the minor disruption or inconveniences people and neighborhoods could absorb.

In this context, human-dimension impacts were not fully addressed and thus did not provide implementation pathologies that would hinder project delivery. However, considering the NEPA directives and the intention that social impacts should be included, this gulf between MoDOT's organizational priorities and the resulting minimization of social impacts from the process is in itself an implementation pathology resulting from the lack of expression of the human-dimension considerations in the instrumental rationality of the organization. In contrast, natural resource impacts presented implementation pathologies, but also presented significant enough oversight through external agency influence that they were incorporated into the operations at MoDOT and minimized as pathologies that could delay or halt a project.

The concepts of instrumental and communicative rationality are important in understanding the inclusion of natural resource and human-dimension impacts with the organization's operative actions. Instrumental rationality as described by Dryzek (1990:4) is a rationality directed at an objectively determined end that maximizes productivity and efficiency. In this instance the agency determines the end, a successful construction project, and the means; the most prudent feasible alternate to build based on relevant factors. According to Habermas (1970:57) this perspective leads to a "scientifically rationalized control of objectified processes." Communicative rationality on the other hand has the objectives and the factors related to the achievement of that objective defined through open public discourse. In this sense, the why's and how's of a new road facility would be determined by the impacted public or stakeholders rather than the determination based on engineering standards and engineer-defined traffic safety and mobility goals. Habermas refers to this rationality as democratic in that the, "institutionally secured forms of general and public communication that deal with how men can and want to live" would determine the objectives and means. Thus for Habermas (1970:57) the problem is, "stated as of the relation of technology and democracy: how can the power of technical control be brought within the range of consensus of acting and transacting citizens?"

Within this framework, the importance and inclusion of natural resource impacts can be conceptualized as follows. NEPA added complexities in the form of environmental constraints to an already technological, rational and optimizing organization. Natural resource constraints came with robust external forcing mechanisms that forced the

agency to include natural resource consideration in project delivery. In order to ensure the instrumental means and ends of the organization – building the highway in a prudent and feasible manner, the department negotiated with external agencies to regain the order of the project development process. The desire to continue to operate in an optimal mode of project delivery placed emphasis on the impacts that could hinder a project and thus these impacts were assimilated into the organizations everyday activities of project delivery.

Human-dimension impacts on the other hand, represented by SIA in the NEPA framework did not provide robust external forcing mechanisms. SIA issues were not seen as a threat to the instrumental rationality of project delivery and thus not elevated to the same level of importance in project delivery as natural resource impacts.

Also in contrast to the natural resource impacts that were included in the process through a scientific rationalization of the impacts and their role in project delivery, human-dimension impacts tend to be less tangible as represented by Sagoff's notion of social policy (1988). As these concepts of quality of life, neighborhood cohesion and setting for example, are not as measurable by or threatening to the acting organization they are generally excluded from the mix of decision-making factors. In this sense, human dimension issues represent a communicative rationality that can only be understood through meaningful joint discovery, through informed discourse with stakeholders. Simply put, the human-dimension issues are not included in the decision-making model because they do not at this point affect the instrumental goals of the organization. They

do not affect the instrumental goals because they are not conceivable as threatening to the scientific, rational, optimizing model that supports the instrumental goals of efficient transportation development. The communicative model described by Habermas (1970) attempts to bridge this gulf. Similarly, Sagoff's notion of a social policy arrives at the same conclusion. There are impacts, generally human-dimension impacts under NEPA, that should be considered in environmental policy that are not easily measured and do not seem relevant in the project process, but that does mean that they are not important. It is the responsibility of the social sciences to ensure these impacts are considered, that they elevated to the same status as the technologically defined impacts.

The communicative dimensions can be included in the model and their inclusion requires access to the beliefs and value systems of the stakeholders impacted by the proposed policy or project. Means to access these non-tangible preferences include multiattribute models (Keeny 1973), integrated impact assessment (Rossini and Porter 1983) and systems analysis within the SIA context (Palinkas et al. 1985). More current work includes work in the area of public involvement theory (Scott 2003) and includes the multiattribute models as well as systematic development of informed consent as represented by the Institute for Participatory Management and Planning (1997). As McDonnough-Bragg of FHWA repeatedly has stated, public involvement is not new, we have just not been doing right.

The following text describes the parts of this model in greater detail to identify the roles of these concepts in transportation decision-making and project delivery.

Decision-Making

Dietz (1987: 54) summarizes the theoretical condition of environmental analysis as developing, with tremendous practical potential, but struggling to address the complexities of the policy and decision-making arena. He states:

Over the past 25 years, scientific analysis has become a key element in debate about social and environmental problems. Research in the social and environmental sciences has helped identify and clarify many problems. But in addition to this research on problems per se, techniques of scientific policy analysis, including benefit-cost analysis, systems analysis and risk analysis have become very influential in policy debate.

It is in the rationalistic models represented by benefit-cost analysis, systems analysis and risk analysis that most agree that NEPA was originated. Culhane et al. (1987: 261), state that, “The NEPA process, as elaborated by the proscriptive literature based on many cues in the act’s language, nonetheless holds out rational-comprehensive decisionmaking as an ideal.” They argue that according to the proscriptive literature, EISs should be quantified, precise forecasts of environmental impacts. And as rational, analytical documents, the documents should contain comprehensive, competent predictions about the consequences of an agency’s proposed actions.

Others came to a more realistic conclusion of the decision-making process and argued that decision-makers are generally unable to meet the information demands and processing requirements of a fully rational-comprehensive model. Further, the additional benefits from the fully rational-comprehensive model are generally cost and time prohibitive. March and Simon (1956) furthered the argument with their “satisficing” model. From this perspective, decision-makers base decisions on a group of selected

dimensions of the project and select a satisfactory solution to meet the more limited array of demands. This arational perspectives was also expanded by Linblom (1959) and more recently by Glenna (1999) to include the notion that decision-makers bring different values and perspectives to the process, thus the debate is more political or philosophical than rational or analytic.

Early works in public policy and decision-making have generally demonstrated an understanding of the development and implementation of public policy through these rational and arationalist conceptualizations of decision-making. These perspectives of the decision-making process (and the NEPA process) have been contrasted by others to a communicative rationality, one where the scientific analysis remains, but the potential for increasing democratic participation has been captured and included in the process as a valid constraint, similar to other more quantified areas. Habermas (1970:67) refers to this as the “pragmatistic” mode, where an informed public considers both technical information and values in making the decision.

Rationalist and Arationalist Models

Based on the rationalist model presented by Simon (1947), decision-making can be summarized as a four-step process that involves:

- 1) Decision-makers are assumed to agree on the goals that govern the decision;
- 2) All relevant alternate courses of action are identified;
- 3) Decision makers identify all relevant consequences of each alternate; and
- 4) Using some appropriate calculus, decision makers compare the sets of consequences and decide upon the optimum alternate.

These steps reflect the rational economic man who has perfect information and selects actions to optimize individual net benefit. According to Culhane et al. (1987) the rational-comprehensive decision theory was not accepted until the 1950's and 60's and was represented in the more purist form as systems analysis and PPB (planning, programming and budgeting) analysis. These authors suggest that NEPA, just like PPB and systems analysis represent the decision reform movement of the 1960's and undoubtedly were dependent on newer computer technologies that were believed to be able to amass and analyze data beyond the human abilities. In contrast, the arationalist camp argued that the full-blown rational comprehensive model was unattainable and not likely to result in benefits that would outweigh the costs and time required for such a robust analysis.

More evidence of an underlying rational-comprehensive focus in NEPA is found in the Act itself. Culhane et al. (1987: 8) argue that key words in the text of NEPA, such as, "systematic", "sciences", "methods", "quantified", and "interdisciplinary" are all reflective of this rationalist reform. Further they argue that Lynton Caldwell, who served as a consultant to the Senate for the development of the Act, intended that science would be recruited to reform the policy process. Caldwell (1982: 2) is credited with arguing that:

Enlistment of science on behalf of policy was necessary because only through science, broadly defined, could the impact of man's activities upon the environment adequately be assessed and remedial measures be applied where needed.

Concerning decision-making reforms, the array of rational or near rational models addresses the creation, intentions and action of public policy. With its call for public

participation and interdisciplinary analysis of impacts, NEPA is considered to come with built-in external and internal reforms to decision-making (Liroff 1976; Freisma and Culhane 1976). These reforms are characterized by the internal and external influences brought by the policy action and organizational staffing. In the case of NEPA, internal reforms are characterized by the influence of the interdisciplinary make-up of the personnel completing the environmental analysis. According to this perspective, environmental specialists with diverse educational and professional backgrounds are employed by the organization to complete NEPA work. As a result, these employees become internal advocates of the environmental areas they represent (Culhane 1974). In keeping with the rational model and under ideal circumstances, the actions and perspectives of the interdisciplinary staff would then be formalized and part of the normal operating procedures of the organization.

The external reform argument stems from the directives of NEPA and related guidance that call for increased and meaningful public participation in the decision-making process. They are also reflected in the concept of the NEPA umbrella that provides that such other laws as the Endangered Species Act, or Clean Water Act are included within the NEPA framework. NEPA cannot be completed until these ancillary regulations are met and presented in the NEPA analysis. As Culhane et al. (1987:17) state, “NEPA, in other words, created a historically unique mechanism for interest groups, interagency and intergovernmental pressure on federal agencies.” The interagency and intergovernmental reforms are evident in the NEPA process as regulatory permits, memorandums of

understanding, oversight of standardized practices, agency scooping meetings, and public involvement designed to allow for external influence over decisions that affect resources.

Additional external reform comes from litigation aimed at the NEPA process and associated impacts. Liroff (1976) is credited with first understanding the potential impact of litigation in NEPA work in that it became a much more constraining factor than originally conceived. Litigation over actual impacts and the process of identifying and addressing impacts became a mechanism by which the public or interest groups could delay, change or stop a project. As evidence, Freduenburg documents that in the first full decade after NEPA, 12,000 EIS had been filed with a resulting 1,200 lawsuits (1986: 454). And currently, much of the EJ literature documents legal cases as a demonstration of how EJ can affect organizations and projects through litigation, see (Kennedy 1999; NCHRP 2003; Sanchez et al. 2003). The risk of legal action as a result of an inadequate environmental analysis (and avoidance, minimization and mitigation) can be used by interest groups to delay indefinitely, force a re-design, or end the project. Thus, it can be concluded that organizations will cover these areas to the extent that litigation is likely, in order to reduce the risk associated with the process.

While the rationalist and arationalist models examine how the decision-making process works and is structured, the pragmatistic and communicative models provide for an alternate option of how the decision model could work. And while the rationalist versions tend to focus on the process or underlying structure of decision-making, the CEQ argues that it is not good documents or processes that are desired, but good decisions. Further,

these decisions should be made with public input. Dietz (1987) points out that NEPA and the like are generally viewed as scientific methods of policy analysis, but also have great potential for increasing democratic participation.

Habermas's (1970:104) communicative perspective recognized the organizational problems as communicative rather than technical in that, "Its organization continues to be a problem of practice linked to communication, not one of technology, no matter how scientifically grounded." This communicative process was to be reasoned but open to public discourse. In converse, he postulated an instrumental rationality, also reasoned, but with objectively determined ends (determined by core objectives of the performing organization rather than public need or want). Glenna (1999:136) proposes that Habermas's perspective is relevant in the policy arena in that the political-economic system requires consent of the public to exist. Thus, policies and the implementation of the policies must appear legitimate to the public or the power of the organization to fulfill its mission will be questioned. In this sense, a communicative rationality is required along with the instrumental rationality in order to legitimize the process and actions of the performing organization. The communicative dimension ensures sincere public involvement and, at least, informed consent, thus increasing public acceptance of the action. And if integrated properly, the communicative strategy can result in a more democratic process and outcome.

Culhane et al. (1987:10) conclude in their summary of decision theory and NEPA that, "NEPA led the horses to the waters of rational-optimizing decisionmaking, but it did not

require them to drink.” Still, the language of NEPA and the singular, technical organizational cultures, often represented by the engineering field, do emphasize the rational quantification and optimization of decision-making. And generally, the core activity of that organization dominates and guides decision-making.

However, considering the current re-emphasis of public involvement in the SIA process, the communicative/pragmatic approaches appear to have relevance in the application of the NEPA process. It is important to note that the scientific-rational criteria proscribed by NEPA and organizationally preferred is in contrast to the recent directives regarding implementation of community impact assessment (CIA) and environmental justice (EJ) within the NEPA process. In contrast to the other impact areas in the NEPA process which tend to be defined by the analyst, the social impact assessment process (SIA), which includes CIA and EJ, is directed to be defined in coordination with the impacted population. The CIA and EJ guidance calls for greater integration of public concern as actual data in the analysis of impacts.

Further, in the area of impact avoidance, minimization, and mitigation, impact avoidance for EJ impacts may be in complete divergence to the rational model. For example, from the rational standpoint, given two possible corridors for construction of a new roadway, and both corridors with housing, the rational decision is to purchase and construct in lowest cost right of way (ROW). Further, the lowest cost ROW consists of a low-income population group. However, EJ directives require that low-income populations be avoided if possible. In this sense, the rational decision to select the alternative in the

lower-cost corridor as a means of optimization could result in CIA and EJ impacts. Under this model, the project manager must make a conscious decision regarding the cost of right of way and the nature of the resulting SIA impacts. This situation, and a multitude of possible others under EJ guidance, call to question the efficacy of traditional benefit-cost analyses (and the rational models in general) in these circumstances. The subjective data directives provided in CIA and EJ are in contrast to the rational approach to decision-making in these situations. Here, the promise of human-dimension input lies in greater consideration of the subjective data along with inclusion of the more traditional analyses, rather than in favoring one or the other.

It is also important to consider that FHWA personnel tout the EJ and CIA guidance as simply re-stating what we should have been doing since 1964 (Title VI) and 1969 (NEPA), thus implying that agencies have yet to include SIA impacts to the degree and scope directed. And while the terminology in NEPA and Title VI do not include EJ, the concepts of including people and communities regardless of minority or income status, and in ensuring project impacts are addressed, are common for the pre-1970's as well as the post-1990 guidance. When one reviews the SIA guidance provided in technical manuals and compares it to the more recent CIA and EJ guidance, it is clear that both can be interpreted as addressing the same issues. Under these circumstances it could be argued that the rational model of NEPA analysis, and resulting organizational setting and process in place since 1970, did not adequately incorporate communicative information. Thus, CIA and EJ implementation do not represent new problems of implementation, but reflect nearly the same circumstances that existed in this organizational setting since the

1970's. In this case, current difficulties with implementation of CIA and EJ are again reflecting the divergence between the rational logic and process of NEPA, and the communicative dimensions of SIA work.

According to Sagoff (1988:148) NEPA represents a form of social regulation versus that of an economic regulation. And while policy theorists have worked to reconcile the decision-making reforms through a rational economic model, the underlying ethic of these social regulations are based more on our culture, aesthetic priorities, and history rather than economic optimization. Yet Sagoff argues there is a place for each model in effective policy. The prudential or practical dimensions of decision-making can be addressed through the economic model while the moral dimensions, while more difficult to include, should be included lest the intentions of the original policy will be diluted. Keffer et al. (1991:35) supports this argument. They argue that, "... policy formulation is firmly rooted in the process of using economic signals to determine if the positive results stemming from a policy action are greater than, less than, or equal to the negative results. It is inappropriate because it overlooks the complexity of reality by considering only market values as determined in the present." In the economic model, externalities are to be compensated for by those who benefit from the policy. In NEPA, impacts are mitigated. In the economic model, there are transaction costs. In NEPA there are difficulties in public outreach with minority and low-income groups. In the economic model, the entire project can be subjected to benefit-cost analysis; however, nowhere in the rational economic model are the underlying assumptions of NEPA; the magnificence

of the land, the harmony between man and his environment, expressed within these equations.

In this sense there exists two different, but not necessarily contradictory, value systems within environmental policy. Sagoff argues (1988: 196), “The failure to reconcile them – the growing divergence between the two positions – threatens to stall efforts to both improve environmental quality and to minimize risks to public safety and health.” From this perspective, SIA in the NEPA process is not unlike the non-economic values for natural resources that include beauty, tranquility, and expansive landscapes. Under a rational decision-making framework, these components of our environment are not included in decision-making. In order that these intangibles enter the equation, a decision-maker must consciously conclude that some non-economic attribute of the environment or a community is worth saving based their value of the attribute, because there is no place for it in the common decision-making rationality.

The NEPA policy and decision-making process appears directed by the rational comprehensive model. However it also appears muted by the vagaries of a fully comprehensive model and in need of greater and sincere public discourse regarding the projects. The very nature and dynamics of resource and social impacts, organizational time constraints, and informational overload, the infinite number of variables to consider, along with social and business networks necessary to conduct environmental clearance necessarily dilute the comprehensive model in favor of a timely and understandable solution. There is also an apparent effect of policy feedback in that the implementation

of the policy affects the policy. This is presented in the internal and external reform models of reform brought by NEPA regulations. Further, rational models, including benefit-cost analysis, need not attempt face environmental policy as a stand-alone framework. The intangibles, in this case represented by SIA variables, can and should be included to allow for greater expression of and attention to human-dimension impacts within transportation development.

The SIA process within NEPA, amplified by recent directives regarding CIA and EJ, provides a fertile organizational and decision-making setting from which to understand not only decision-making, but also the role of human-dimension considerations in this process. As the importance of transportation to society increases as evidenced by miles traveled and the increasing public scrutiny, transportation development and its impacts, especially to the built and human environments, will likely draw greater attention from the public as well as other agencies. It is important to understand the constraints as well as opportunities to greater consideration of human-dimension factors in transportation project decision-making.

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Chapter 4 - Measurement and Operationalization

The purpose of this analysis is to examine the integration, status and potential of the SIA process in NEPA and the MoDOT organization as it has been re-emphasized through CIA directives provided by the Intermodal Surface Transportation Efficiency Act of 1991, and later by the EJ executive order of 1994. This approach is intended to not only identify the level of integration, status and potential of human-dimension analysis within the process and organization, but also the “pathologies”, or delays within the process that reflect obstacles to greater implementation of SIA.

The setting and focus for this research includes the SIA process within NEPA environmental project clearance as it has been re-emphasized through CIA and EJ directives. In the NEPA process, SIA can be thought of as the encompassing analysis that can include geographies that range from neighborhoods through multi-state impacts. CIA focuses on community and neighborhood impacts. And EJ refers to an analysis of minority and low-income populations at any of these levels of geography. This process and setting fall within the transportation development function at the Missouri Department of Transportation (MoDOT). The analysis consists of four case studies. The case study in Chapter Five is based on an analysis of the organizational setting and historical development of an Environmental unit at MoDOT. Chapter Six examines a 1991 EA with social impacts that were not adequately addressed in the original environmental process. Chapter Seven consists of a FHWA/MoDOT review of the 1991 EA in order to determine the adequacy of the document in addressing community, public

involvement, and minority issues. And Chapter Eight considers industry trends as reflected by the emphasis in the area by FHWA, research conducted for the National Cooperative Highway Program, and policies and practices developed by progressive state DOTs.

Integration of SIA in NEPA and Organization

The integration of the social sciences in the NEPA impact analysis is examined here through the development of the SIA field within the organization, the organizational commitment to appropriate SIA staffing, and the importance of these impacts in the overall clearance process. If the social sciences are to be included in the decision-making process, they must be included in the organizational structure and environmental assessment processes. In order to assess the organization's perspective of which impact areas are most important to project completion and organizational success, the development of the Environmental unit at MoDOT is examined. The Environmental unit manages and completes the environmental clearance process defined by NEPA within the MoDOT. In this analysis, the order in which impact areas are provided staffing, as well as the "triggers" that lead to an increase in topical environmental protection efforts, are examined to understand the environmental and organizational priorities of the department.

Also relevant to the integration of the social sciences in the NEPA process are the degree of inclusion of these dimensions in the environmental processes and documents and the level of sophistication to which SIA impacts are addressed. In this work, I use a case

study in which the decision-making document is an Environmental Impact Assessment (EA) developed for the Relocated Route 74 project. The project was designed to build and provide access for a major river crossing in Cape Girardeau, Missouri.

Another, less direct measure of the integration of human-dimension impacts is represented by the state of the practice in identifying the impacts, and the level of emphasis placed on this impact area by external regulatory agencies such as the Federal Highway Administration. Is the SIA process recognized by the industry as important? And as FHWA tends to be the sole regulatory agency with external influence over SIA type impacts within the transportation context, the extent that this organization promotes, provides guidance or penalties in addressing these impacts should reflect FHWA's perspective of the need for human-dimension integration in the process and organization.

Status of SIA in the Process and Organization

Similar to the integration of social sciences in the NEPA process, the status of the SIA area in the environmental review process, in the final environmental document and in the organization is reflective of the status of this impact area within NEPA and transportation decision-making.

While SIA's integration can be considered a partial measure of the status of the SIA process, more importantly, the identification of these impacts in the agency's documents, can lead to conclusions concerning the level of sophistication and effort extended to ensure NEPA and project success. Similarly, the legitimacy of the impacts is also

important. Are the SIA impacts given attention to match their level of significance, and how are SIA impacts handled compared to other impact areas? Again, the historical development of the environmental unit at MoDOT, the contents and priorities in environmental documents, the state of the practice, and the FHWA emphasis on the SIA area are used as sources of information to address the status of the SIA process in NEPA and the organizational context. Both the integration and status of the SIA process within NEPA and the organization represent measures of the effectiveness of NEPA and the Council of Environmental Quality (CEQ)s regulations as public policy, and the policy's efficacy in ensuring an examination of both the human-dimension impacts and natural resource impacts associated with proposed projects.

Potential Model of SIA in NEPA and the Organization

The extensive guidance provided to Departments of Transportation (DOTs) related to the 1991 ISTEA and the 1994 EJ executive order appears to raise the bar for the analysis of SIA impacts in transportation development. FHWA presents the guidance as reinforcing the proscription initially provided in 1964 (Title VI of the Civil Rights Act) and in 1969 (NEPA), not as new or additional guidance. Determination of the status and integration of current SIA practices into transportation development can thus be referenced to the ideal model provided in the guidance, as well as models provided as early as 1969. This approach locates the SIA process in the organizational context and in the NEPA process, and provides a delineation of the work in relation to other impacts and in terms of the organization's perceived significance of the actual impacts (or the threat of not addressing these impacts).

This analysis examines the deeper conflicts between the goal of scientific, rational analysis in NEPA and the actual doing of the work, the nature of the impacts, and the organizational context. The overall rational logic of environmental assessment under NEPA guidance may not adequately address the apparently non-rational dimensions of the human-dimension impacts. Additionally, this approach allows for the delineation of the SIA process, as well as determination of the SIA's integration and status in the organizational and NEPA process.

Data Sources and Analysis

In order to capture the role that SIA has in the NEPA process and organization, and the degree that CIA and EJ have emphasized SIA's role, several data sources and methodological inroads were used. To address the historic and developmental dimensions of the SIA process, participant observation as an employee in MoDOT's Environmental services unit, and content reviews of environmental documents from the 1980's to the early 1990's were used. Additionally, a content review of a pivotal environmental assessment (EA), The Relocated Route 74 EA, the document's Finding of No Significance, and a subsequent EJ review of this EA are used to frame the environmental process and the demonstrate the re-emphasis in the SIA area by FHWA. This information is supplemented by interviews with MoDOT and FHWA personnel who work in the Environmental or Project Development divisions in their respective organizations. Further a review of FHWA efforts and industry trends in the SIA/CIA and Title VI/EJ area are reviewed to establish the direction and potential of the SIA process in

addressing human-dimension impacts in the NEPA and transportation development process.

SIA Field Work

This analysis draws heavily from eight years working at the Missouri Department of Transportation. Six years were spent as the socioeconomic specialist in the Environmental Services unit at the department's Design division. The primary responsibilities of this position included completing and documenting the SIA work for MoDOT projects, and providing oversight for environmental documents created by consultants. After leaving this unit, the SIA duties followed the author to a position with the Research, Development and Technology division in the department. Currently, the author is providing training and oversight to personnel to provide coverage for this area of environmental impacts. The Design division and Environmental unit are responsible for carrying out project level activities from project conceptualization through final design, along with the related environmental analysis and documentation, mitigation and surveillance.

These years of working in the NEPA process allowed for exceptional insight to the SIA process, and organizational responses to the process and area of SIA impacts. The years of employment covered 1994 through 2002 and included participation in the EJ review of the Relocated Route 74 EA. Thus the changes and presentation of CIA and EJ in the industry occurred during the period of the author's work in this area. Also important to understanding the status and integration of the SIA field in the process and organization,

the SIA position held by the author was the first defined socioeconomic specialist within the department. Previous to this time, planners, engineers, archeologist and employees with natural science backgrounds had completed the SIA work under NEPA.

As this analysis examines the integration and status of the SIA process, especially as reinforced by CIA and EJ directives, it is appropriate to provide a longitudinal perspective in order to capture the role of SIA under the original guidance, and under the re-emphasized proscription. Further, by drawing from both internal data sources that reflect the process at MoDOT, and external sources such as FHWA, national trends in the field, and other DOTs, the analysis can provide for generalization beyond the experiences at MoDOT.

Four primary data sources were identified from the NEPA process experiences at the DOT. These include:

- 1) Training, workshops, conferences attended during the period 1994 through 2003 that either included sessions on SIA/CIA/EJ or addressed these subjects in their entirety.
- 2) Review of environmental documents from the 1980's through 1990's
- 3) Observation of the day-to-day prioritization of impacts as threats to projects.
- 4) Participation in the MoDOT EJ Working group.

Attendance at training, conferences and the like provided not only training as to the specifics of the SIA area and NEPA process, but also allowed for an examination of the sensitivity and intentions of the guiding agencies (FHWA) as well as industry trends. The meetings also allowed for interaction with other SIA practitioners and environmental managers, which provided insight as to their acceptance, level of integration and sophistication of SIA practices. In chronological order, the following training,

conferences, and meetings provided experiences regarding the SIA/CIA/EJ process, status and integration.

- 1) 1995. National Highway Institute Training – Project Development and Environmental Documentation. Wichita, KS.
- 2) 1996. National Highway Institute Training – Impacts of Transportation Alternatives. Springfield, IL.
- 3) 1997. EPA Environmental Justice Conference for Communities and Agencies. Kansas City, MO.
- 4) 1998. FHWA Midwest Environmental Conference. Graffton, IL.
- 5) 1998. FHWA Environmental Justice Seminar. Jefferson City, MO.
- 6) 1999. FHWA Midwest Environmental Conference. Detroit, MI.
- 7) 2000. American Association of State Transportation Officials (AASHTO). Mississippi Valley conference. Chicago, IL.
- 8) 2001. Mid-America Regional Planning Environmental Justice Workshop. Kansas City, MO.
- 9) 2001. National Academy of Sciences - Transportation Research Board Environmental Committee Summer Workshop. St. Louis, MO.
- 10) 2002. FHWA Midwest Civil Rights Conference. Kansas City, MO.
- 11) 2003. National Academy of Sciences - Transportation Research Board Annual Meeting. Washington, D.C.

Attendance at these trainings, meetings, workshops and conferences provided not only basic training about the NEPA process, but also allowed for exposure to other practitioners and state practices. Important information such as the backgrounds of others doing SIA work, or a DOT employee's threatened and confused responses to EJ presentations were easily observed in these settings. In many cases, attendees at workshops did not know what Title VI or EJ meant to project development processes, expressed disbelief as to why DOTs needed to provide "special treatment" to anybody, and had no idea how to define or measure minority and low-income status as a project impact. Other responses that indicated a lack of exposure to human dimension issues are reflected by responses such as; does the guidance mean we have to do this (EJ) on all projects?, how do we know when we need to worry about this?, and if EJ doesn't have and legal basis, why should we do it at all?

Additionally, FHWA's emphasis and enthusiasm became apparent in the SIA area as CIA and EJ began to appear as topics in meetings usually reserved for natural resource impacts and engineering/DOT administration matters. And not only were environmental practitioners exposed to the concepts and practices of EJ and CIA, but presentations by FHWA extended to meetings for DOT senior management in hopes that DOT management would realize the importance of these issues. In general, attendance at these meeting provided insight to the cultural setting of NEPA and the SIA process within DOT and FHWA processes.

Another important data component for this analysis was the review of MoDOT environmental documents from the early 1980's through the 1990's. As the first socioeconomic specialist at MoDOT, there was very little guidance or clear duty assignment to describe the extent of the work or where it fit into the process, except that SIA was to be included in environmental documents. As a first step in understanding the work, previous environmental documents were reviewed as guidance. The review includes documents from as early as 1980 and included Environmental Assessments (EAs) and Environmental Impact Statements (EISs). During the eight years, the author also completed numerous environmental documents as well as reviewed and re-directed numerous environmental documents written by consultants. These documents and activities provide a historical and developmental understanding of the context and components of the SIA process.

The author's day-to-day presence in the Environmental unit provided incredibly rich data regarding the NEPA and SIA process and their integration and status within the organization. The environmental unit consisted of wetland and biological specialists, air and noise quality professionals, an agricultural specialist, a parkland specialist, a hazardous waste specialist, along with the socioeconomic specialist. Working with this group of diverse professional allowed exposure to the impacts, their relevance, and processes used in these various topical fields. Experiences working with this group allowed for an insider's view of why the organization is staffed to address certain impacts and not others, the frustration of co-workers when they are dealing with un-cooperative external agencies, and an understanding of permitting and mitigation decisions. The work experience in the Environmental unit provides a grounded understanding of the process and its internal and external organizational dilemmas.

The author's participation on the mutli-division, EJ working group at MoDOT was also important in understanding the role of human dimension concerns in a traditional, technical and straight-roads organization. This group was established in 2000 to bring all employees working in human dimension areas (specifically with civil rights responsibilities) from all units in the department together. The group's charge was to develop an understanding of the scope of this area in the department, and to formulate a department wide policy regarding all of the department's civil rights responsibilities. The "itch" at the time was the fact that the department did not have a policy to address EJ throughout the organization. Further, the DOT had only a minimal start in dealing with limited English speaking populations as directed by Presidents Bush's Executive Order

13166, as well as the human-dimension issues in project and maintenance level activities. And according to senior managers in the working group, using good practices to ensure EJ principles were not enough; there had to be a standardized policy in order to provide organizational cushion should litigation result from DOT activities.

Perspectives of SIA

Semi-structured interviews were also conducted with relevant personnel at both MoDOT and FHWA. All of the personnel who provided insight for this analysis had backgrounds in environmental analysis or management, SIA and EJ, or had experiences with the projects included in the case studies. These interviews addressed the development of an Environmental unit at MoDOT, the culture of environmental protection and SIA at DOTs, as well as specific issues regarding EJ. Additionally, interviews included discussions regarding the Relocated Route 74 project, the EJ implications of the project, and the potential future of SIA and EJ in transportation development. These interviews provided background information on the role of SIA and NEPA in transportation, and information regarding the specific case studies included in this analysis. The interviews also provided a perspective of the human-dimension impacts, status and integration from the perspective of engineers and other environmental specialties or organizational units. Some of the employees generous enough to give their time and thought to these interviews have over 25 years experience in integrating environmental issues in transportation development. All had unique insight to add to the understanding of the complex NEPA, project development nexus. The following individuals were consulted regarding EJ, SIA, the NEPA process and its organizational context:

MoDOT			FHWA		
Name	Title	Years experience	Name	Title	Years experience
Mark Kross	Environmental Manager/Liaison	20+	Don Neumann	Programs Engineer	25
Bill Graham	Environmental Mitigation Coordinator	20	Peggy Casey	Environmental Program Engineer	20+
John Howland	Environmental Manager	15	Glenn Smith	Civil Rights Administrator	20+ (retired)
Stefan Denson	Civil Rights Investigator	5	Mary McDonnough-Bragg	Regional Environmental Programs Coordinator	5 +
Sharon Taegel	Civil Rights Administrator	15 +	Ken Bectel	Environmental Program Engineer	20 (retired)
Kathy Harvey	Engineering/Environmental Technical Liaison	15	Brenda Kragh	Social Science Analyst	20

Additionally, information was provided by Mr. Tim Hill from Ohio DOT and Mr. Gerry Larson of Minnesota DOT. Both of these states are regarded as progressive in the industry and had established EJ policy for NEPA and project development activities as early as 1998. And while the EJ EO was released in 1994, it was not until 1997 that FHWA finalized guidance, and not until 1998 that the first State DOTs began following with their own policies.

Review of Administrative Documents

A review and analysis of the Relocated Route 74 Environmental Assessment and the subsequent EJ Review of the EA provides case study examples of the environmental and SIA process, as well as providing characterization of the SIA process as re-emphasized through CIA and EJ guidance. The initial EA, with a Finding of No Significant Impact in 1991, provides a developmental and organizational perspective of the role of the SIA process within NEPA and the DOT organization during the late 1980's and early 1990's.

The original EA is representative of the more complex environmental work at the DOT that generally results in the need for an EA or EIS.

The EJ Review, conducted in September 1996, was in response to the shortcomings of the original EA, and the EJ executive order. It provides a review of the adequacy of the original SIA, guidance for future environmental documents that may have human-dimension impacts, and a demonstration of FHWA's commitment to ensuring that the principles of EJ are carried out.

A review of FHWA's guidance and emphasis in the SIA/CIA and EJ area is also included in this analysis to aid in the description of the role that SIA should have in the environmental process. The proscriptive literature, as well as efforts by FHWA personnel, reflects the importance afforded this area by the overseeing agency. Additionally, the case studies, guidance and best practices promoted by FHWA represent what is expected to be included in a SIA or EJ analysis to comply with the intentions and spirit of the regulatory guidance.

To further the understanding of the integration and potential of the SIA process in increasing the consideration of human-dimension impacts in environmental protection, selected national research efforts on CIA and EJ as well as progressive state policies are reviewed. Further, national research conducted through The National Academies of Science, Transportation Research Board, provide information regarding the conditions of SIA and EJ analysis at state DOTs across the country. The review of progressive state

DOT EJ policies allows for consideration of what is seen as the first step for many DOTs. The three state policies reviewed, from Minnesota, Ohio and Georgia, represent policies designed to prioritize, locate and direct EJ practices and responsibilities within their respective organizations. In effect, FHWA's efforts, the national research, and the state DOT policies represent the direction and potential of SIA/CIA and Title VI/EJ for DOTs.

Policy Implications

One of the charges of the EJ working group at MoDOT was identifying the risk and level of effort MoDOT should assume in addressing human dimension areas, and EJ specifically. The group also identified the project development and planning areas as most likely to generate potential EJ circumstances. As a result of this analysis, recommendations will be made to the management at the DOT regarding the optimal staffing, organizational activity and policies that could be enacted to ensure that MoDOT complies with these regulations. As stated in one of the EJ working group meetings, "We need to be able to tell management what risk is associated with the EJ issue, and how far they need to go to address this risk."

In summary, the methods and data sources used in this analysis cover a range of data sources and methodological approaches to assess the complex and long-term development and implementation of environmental policy. Participant observation through employment in the Environmental working group, content and context analysis of administrative records, consultation with environmental and transportation

professionals, and a review of guidance and progressive policies are all incorporated in the analysis in order to understand the SIA process as emphasized through current CIA and EJ guidance. Again, this approach is intended to identify the status, integration and potential of human-dimension analysis, as well as the pathologies preventing greater implementation in the transportation setting.

While the case study setting and administrative records used in the analysis are specific to Missouri, the conditions and trends encompassing the SIA process, including EJ are generalizable to the majority of state DOTs. Trends at MoDOT are compared to national trends in the field to substantiate these efforts. These efforts are also generalizable to the broader context of decision-making and public policy through the examination of the internal and external responses of the agency to the stimulus provided by the NEPA regulatory complex.

The following chapters provide discussion and analysis of these data sources as they are used in understanding the limits and potential of environmental management that includes the human dimension.

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Chapter 5 - Case Study Setting – NEPA, EJ and SIA

The environmental compliance activities within transportation take place within the broader framework of providing the structures and service needed for mobility and access. Within the MoDOT organization, the environmental component of transportation is considered part of the support sector of the organization and aids in the completion of the core mission of providing transportation facilities. In order to understand the scope and importance of environmental protection within the transportation system, the scope of the organization and system are first examined. Similarly, an understanding of the overall environmental compliance process and the organizational response provides the context in which the SIA and environmental justice processes occur.

The Transportation System

According to the Missouri Department of Transportation Annual Report (MoDOT 2002), the Missouri Department of Transportation is a state agency with over 6,000 employees and a yearly budget of approximately 1.9 billion dollars. The state road system owned and managed by MoDOT contains over 32,000 miles of roadway, or 70,000 plus lane miles. Additionally, there are over 10,000 bridges in the state owned by MoDOT. Motorists drive about 47 billion miles a year on this system. The system encompasses over 385,000 acres of land in roadway and right of way.

In addition to the highway system, MoDOT provides for mobility through other transportation modes. MoDOT administers one hundred and fifteen publicly-owned

airports and over 4,400 miles of rail tracks, provides assistance to fourteen port authorities, and manages state and federal programs for thirty-seven general public transportation systems and three hundred specialized transportation programs for the elderly and disabled (MoDOT 2002).

Nationwide, Missouri is ranked seventh, based on the number of miles in the state road system. Within Missouri's roadway system, there are over 1,180 miles of interstate highway, 7,874 miles of expressways and other arterials, 23,360 miles of collector routes, and approximately 10 miles of roads classified as local (Highway Statistics 2002). In summation, the state's road system is extensive. The landscape changes, as well as the impact of this system on individuals and communities, are significant. Imagine the landscape without the transportation system, and imagine the daily routines we all exhibit without the transportation system.

Similarly, with 385,000 acres of right-of-way to manage, and a charge to connect communities and people, there are substantial environmental compliance issues that must be resolved. Environmental compliance is important not only to ensure environmental quality, but for at least two reasons related to organizational success. First, as with most other agencies receiving federal dollars, the dollars come attached to program compliance. So fulfilling environmental regulations ensures that federal monies continue to flow to the state for transportation projects. Secondly, most environmental specialists agree that the transportation system is of such scale, and that environmental awareness, especially for landscape changes is so predominate, that strict compliance to

environmental regulations is often easier to obtain than public acceptance of the project or its impacts. Kross, former environmental manager at MoDOT commented that in this sense, regulatory compliance aids in the defense of the project in the public arena. The organization has identified the impacts and is doing something about them.

NEPA and Related Environmental Directives

According to FHWA (FHWA 1999), there are forty-eight federal environmental laws affecting transportation. Ten of these laws are considered “general” environmental statutes and make up the bulk of the environmental regulatory schema in transportation.

These ten environmental statutes are:

- 1) National Environmental Policy Act
- 2) Section 4(f), DOT Act
- 3) Economic, Social and Environmental Effects, 23USC109h
- 4) Uniform Act (Acquisition and Relocation)
- 5) Title VI, Civil Rights
- 6) Executive Order 12898, Environmental Justice
- 7) Public Hearings, 23USC128
- 8) Historic Bridges
- 9) Wildflowers
- 10) Highway Beautification

Six of the ten general statutes (#'s 1,3,4,5,6,7) provide direction to transportation agencies in areas that are considered social or the “soft” side of the environmental area.

The other statutes included in the list of forty-eight, are listed under the areas of: 1) Health, which includes three statutes, 2) Historical and Archeological Preservation which includes seven statutes, 3) Land and Water Usage which includes twenty-four statutes, 4) Noise which is represented by one statute, and 5) Air Quality, which is represented by three statutes.

According to the industry presentations provided by FHWA employee McDonnough-Bragg, a more refined examination of the legislation and guidance in regards to the human environment only, reveals that there are at least twenty acts of legislation, regulations and orders, and FHWA policies and guidance that should be considered during DOT activities affecting the human environment. FHWA policy and guidance alone includes eight policies and guidance directives specifically related to environmental justice. These include:

- 1) FHWA Order, FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, (December 2, 1998)
- 2) FHWA Action: Notice of Final DOT Order on Environmental Justice, (February 3, 1997)
- 3) Memorandum to FHWA Regions, Nondiscrimination, Environmental Justice, and Community Impact Assessment in Planning and Project Development. (July 27, 1995)
- 4) Federal Register, Department of Transportation Final Environmental Justice Strategy, Vol. 60, No. 125, (Thursday, June 29, 1995)
- 5) FHWA Office of Civil Rights Paper, Civil Rights Authorities, (February 24, 1994)
- 6) White House Memorandum for the Heads of All Departments and Agencies, Executive Order on Federal Actions to Address Environmental justice in Minority Populations and Low-Income Populations, (February 11, 1994)
- 7) Notice, Impacts of the Civil Rights Restoration Act of 1987 on FHWA Programs, (September 2, 1992)
- 8) Memorandum to Environmental Operations Division, Environmental Analysis Division, Noise and Air Analysis Division, Nondiscrimination as an Integral Part of the Office of Environmental Policy's Daily Program Operation and Activities, (October 11, 1995).

Within a State DOT's range of activities, all of these environmental regulations and directives fall under what has come to be known as the "NEPA Umbrella" (Kross 1998; Smith 2002). Compliance with this broad range of environmental laws and directives listed above falls under the responsibility of the NEPA process as the specific project undergoes environmental review. In affect, compliance with these regulations during the

project development phases must be demonstrated within the NEPA environmental document. So while the actual NEPA legislation is rather brief, the environmental laws and regulations falling under the umbrella and directing DOT activities are very broad and comprehensive.

ISTEA Anyone?

The federal transportation legislation, re-authorized every six years, has been on the forefront of changes in the operation and environmental compliance activities in state DOTs. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) has been heralded as a divisive split between the old way of business and a new way of doing business for transportation agencies. Stommes and Brown (2002) report that ISTEA devolved much of the Federal Highway planning to the states. With this devolution, a comprehensive planning process based on public input was emphasized at the state level. Further, ISTEA emphasized the links between transportation, the environment and communities. ISTEA sought to integrate community development with transportation through the transportation enhancement program. In Missouri, all enhancement funds are allocated to bicycle and pedestrian trails, but there are twelve defined categories for enhancement funding. ISTEA represented a devolution of the transportation development process from the federal to the state and local levels and re-affirmed the emphasis on the interrelation between community and social variables and transportation. In 1998, the Transportation Equity Act for the 21st Century (TEA-21) reinforced the emphasis on local planning and the linkages between transportation and the environment

as well as community development. As stated by Stommes and Brown (2002 : 2),
“ISTEA and TEA –21 adopted a systemic approach to transportation that recognized its multiple functions, including its impact on the environment, the economy, and passenger and freight mobility.”

TEA-21 is now undergoing the re-authorization process and is expected to provide a similar emphasis on the interrelations between transportation, economic and community development and the environment. The next act is proposed as the Safe and Flexible Transportation Efficiency Act, or SAFETEA and was to be signed by October of 2003.

In response to the TEA’s, three interrelated changes for state DOT operation have followed. First, FHWA developed, and states are expected to follow an emphasis on CIA in order to assess the relationship between transportation and community, and ensure that transportation is an asset to communities rather than a disruptive factor. Secondly, public involvement became paramount for program success. Public involvement efforts needed to expand to better capture the community’s perception of the project and its impacts, and consider this input in transportation development. Third, in a broad sense, transportation planning and project development were expected to enhance, rather than conflict with the human and community components through CIA and greater public involvement.

Context sensitive highway design was developed to ensure that the facility fit in, and improved the community. Both CIA and public involvement were resurrected as “new emphasis” areas by the US DOT but in fact, have been part of transportation development by law since 1969 and by practice, as early as the 1950’s.

Environmental regulations as well as recent transportation legislation have emphasized, and re-emphasized the human and community component of transportation development. As such, the historical minimization of social impacts in transportation has been decreasing. The impacts included in the SIA/CIA and environmental justice requirements are gradually unfolding as a significant part of planning and project development.

History of the Environmental Clearance Process at MoDOT

Informants report that many DOTs, including MoDOT, did not immediately accept NEPA and its related requirements. With the initiation of NEPA in state DOTs in 1970, states took a variety of approaches to including NEPA in their work. Based on interviews with key personnel in MoDOT and the Missouri regional FHWA office, NEPA's introduction to MoDOT was accelerated by two issues. First was the workload and need for specialization within the archeology field and, later, in all environmental fields. Secondly, compliance with environmental regulations was quickly becoming the scapegoat excuse for project delays. Senior environmental managers report such comments as, "If you guys would quit looking so hard we wouldn't have these problems" (referring to environmental issues that delay a project). Or, "If we could avoid this NEPA thing, we could get more projects done." None the less, NEPA remained and MoDOT, just as other state DOTs, would have to comply.

The first trigger to spur the increased relevance of NEPA for MODOT was identified by FHWA and MoDOT employees as increased scrutiny of MoDOT's archeological studies.

The archeology trigger issue was related to President Nixon's 1970 order (known as Section 4(f) and 4(f) properties) that allowed for all significant historic sites to be considered eligible for the National Historic Record, as well as required greater oversight of historical and archeological sites. Previous to the order, only public sites could be considered for nomination. With this order, the list of possible historic sites expanded beyond the abilities of the department. In response, MoDOT contracted with the University of Missouri for archeological studies and also hired three archeologists by 1979. In 1978, an article appeared in newspapers across the state citing MoDOT's archeology work as wasteful and insensitive. Personnel recall that archeological sites were left open to the elements, looted, and equipment was abandoned at the sites. This was reported as a major black eye for MoDOT and represented the inability of such a limited staff to handle such a large workload. In response, the archeological staff was increased to six personnel. This represents a small but significant move towards expansion and specialization in environmental work at MoDOT.

The second trigger identified by MoDOT personnel and FHWA was the increased project workload and project delay associated with environmental compliance under the NEPA umbrella. The workload and need for specialization was increasing in all fields by the early 1980's as the organization worked to have projects environmentally cleared and on the shelf; ready to build as soon as funding was approved. Kross indicates that reconnaissance engineers, rather than biologists, sociologists, wetland specialists, etc, had previously completed environmental work. By the early 1980's, the number of projects and the associated environmental regulations resulted in an overload for the engineering

staff responsible for environmental clearance. The environmental component of project development became such a large part of their job that the engineering components of the process began to suffer. The NEPA umbrella, and the variety of regulations required under the umbrella were, in effect, requiring specialization to understand and manage environmental compliance. According to a recent study on decreasing the time spent on NEPA (streamlining), data for over thirty years of NEPA work indicates that environmental clearance consumes up to twenty-five percent of the time to complete a project (FHWA 2001).

Kross summarizes the early environmental years between 1970 and late 1980's as a reactive period. Environmental compliance issues associated with projects were uncovered later in the project development stages resulting in unexpected delays and increased costs on projects. Additionally, two large projects, the South Mid-Town Expressway in Kansas City, and the Page Avenue extension in St. Louis provided impetus to get more pro-active. In both cases, environmental compliance issues became so significant as to threaten the project. And, in fact, the South Midtown Freeway, Bruce Watkins Drive, was just completed in 2001 after a thirty year period. And the Page Avenue Extension is scheduled for completion in December of 2003 after a delay of nearly twenty years. Kross of MoDOT and Newman at FHWA indicate that these projects were major milestones in MoDOT's learning curve. The environmental compliance issues were not going away and delays on major projects tied up resources. More control over the environmental process was needed to decrease the risk associated with non-compliance that would likely result in project delay or increased costs.

Based on re-occurring project delays that were clearly linked to environmental issues, Wayne Muri, the Chief Engineer at MoDOT approached FHWA with the issue in 1990. Gerry Reihsen, the FHWA administrator at the time, suggested that MoDOT develop their own environmental clearance section as other states had done. Kross and Newman jokingly indicate that the other major event leading to establishment of a comprehensive environmental section was the fact that Arkansas had an environmental section since the early 1970's. Missouri was 20 years behind Arkansas!

Personnel from Planning and Project Development at MoDOT, and FHWA personnel all recognized project delay and control, the need for specialization, and national trends in other state DOTs as the major contributors towards MoDOT adoption of a more proactive environmental clearance scheme. While the need for an environmental compliance group within MoDOT had been established, the ramp-up of environmental specialists was still gradual.

It was not until 1993 that an Environmental services section was created at MoDOT. In 1993, the environmental staff increased from three personnel to fifteen personnel with additions in the areas of wetlands biology, threatened and endangered species biology, air quality, parkland impacts, and technical writing. Kross, who at the time was in charge of the Environmental section, reports that these "big issue" areas were taken care of first. The topical impact areas to have positions filled first were where the NEPA umbrella included permits, external agency buy-in, or mitigation. These areas were referred to as "show stoppers" or "fatal flaws" as the project implementation depended on clearance

external to MoDOT. In 1994, another wave of environmental specialists were hired and included a socioeconomic specialist and a agriculture/land use specialist. Additional technical writers were also hired to accommodate the increasing workload.

By all accounts, MoDOT had a fully staffed Environmental compliance section by the end of 1994. In fact, between 1994 and 1996, the MoDOT Environmental section was completing more work in-house than the majority of other states according to Neumann. Neumann and Kross also relate that at regional environmental meetings with other states, others saw MoDOT as ahead of the curve in terms of environmental compliance. Further, several state representatives commented that MoDOT was thinking ahead in hiring a socioeconomic specialist as this area was sure to be a “hot button” area in the near future.

The Role of Environmental Classification and the Clearance Process

Environmental project classification also plays a role in understanding the SIA and environmental justice process and its role in the overall environmental clearance process. As stated earlier, transportation projects are allocated into one of three environmental classifications, each with a corresponding level of analysis required. Classes of action as described in Title 23, Part 771-Environmental Impact and Related Procedures (FHWA, US DOT 1987) include Class I (Environmental Impact Statement), Class II (Categorical Exclusions), and Class III (Environmental Assessments).

Class I, the Environmental Impact Statement, represents the highest level of analysis for a project that is expected to have significant environmental impacts. The decision to include projects in this classification (as well as others) is made through consultation between MoDOT Design and Environmental management along with regional FHWA administration. Project examples of EIS level actions are provided in the CEQ guidance. Specifically listed are projects that involve: 1) A new controlled access freeway, 2) A highway project of four or more lanes on a new location, 3) New construction or extension of fixed rail transit facilities, and 4) New construction or extension of a separate roadway for buses or high occupancy vehicles not located within an existing highway facility.

Based on a review of EIS documents at MoDOT, EISs average between forty pages to hundreds of pages and go into great detail regarding a baseline inventory of the natural and human environment along with expected impacts and proposed mitigation. In Part 1502.7 of the CEQ regulations, it is recommended that these documents remain under one hundred and fifty pages, but can extend to three hundred pages under unusual circumstances.

A record of decision, known as a ROD, provides the final decision regarding Class I projects and is completed by regional FHWA administration. The ROD outcome is the basis of the decision to proceed with the project and includes a listing of any mitigation or special circumstances related to the project and its continuation.

Class II projects, or Categorical Exclusions known as CEs and CE2s in Missouri, represent the documentation for projects unlikely to have significant individual or cumulative environmental effects, and that are excluded from the requirement to prepare an Environmental Assessment (Class III, EAs) or EIS (Class I). Missouri is unique with the CE2 classification. CE2 classifications are intended to document projects with minimal environmental impacts, but that require slightly more documentation in order to support the no impact classification. Examples of projects likely to fall under the CE or CE2 classification include: 1) Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders or adding auxiliary lanes, 2) Highway safety or traffic operations improvements such as ramp metering or lighting, 3) Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade rail crossings, 4) Construction of bicycle and pedestrian lanes, paths, and facilities. Importantly, other projects can be classified as a CE or CE2 based on a project review and FHWA consensus.

CE and CE2 documents are generally three to ten pages in length and provide a cursory environmental analysis, presumably to the same scale as possible project impacts. Prior to 1997, social and environmental impacts were not considered for Class II projects. According to Neumann and Casey of FHWA, socioeconomic considerations were included after 1997 based on the increasing public scrutiny regarding all projects, as well as the new emphasis on environmental justice. They felt it was better to include the analysis rather than miss an impact area that would then delay a project. This demonstrates considerable foresight on the part of FHWA. According to MoDOT

records, CE classifications dominate over EA and EIS documents and comprise eighty to ninety percent of all project classifications. In 2002, MoDOT processed four hundred and ninety-four CE documents (98.8%), no EAs, and six EISs (1.2%). A FHWA study (2001) found that CEs and EAs comprise almost ninety-nine percent of all NEPA projects.

Class III projects, known as Environmental Assessments (EAs), were originally intended as a stepping stone to determine if additional analysis, and thus an EIS, was needed. These are defined as projects in which the significance of the environmental impact is unclear. All actions that do not fall in Class I or II become Class III projects. It is intended that if significant impacts are identified with the project at any point, FHWA administration will require the preparation of an EIS.

The desired result of an EA document is a Finding of No Significant Impact, or FONSI. EAs generally require approximately fifteen to sixty pages of documentation and often include mitigation. Frequently the mitigation is proposed in lieu of advancing to the EIS stage.

All projects administered by DOTs undergo evaluation through one of these classes of environmental assessment. The number of documents completed each year depends on the DOT's priorities regarding construction or maintenance activities. Similarly, the number of documents completed each year also depends on the level of analysis or classification of the projects. Based on administrative records at MoDOT, the

Environmental services section completes, within a range of eighty to several hundred CE or CE2's a year, between two and five EAs, and approximately one to ten EISs. It is often the case that more complex documents, usually EISs, are contracted out to engineering firms for completion. These projects usually take more than one year, and often several years to complete. Environmental staff at MoDOT are repeatedly asked to review and redirect consulting firms in the environmental compliance process. Most of these additional efforts are related to inadequate staffing of specialized personnel at the firms to deal with very specific resource or human component issues.

The time it takes to complete the environmental assessment of a project is of utmost importance to DOTs. FHWA (2001) personnel have estimated that the average amount of time to complete an EIS for a project is 3.6 years with most lasting from between 1.2 to 6 years. Importantly, it is estimated that the average length of time for all of the project development process is approximately 13.1 years with the high end of the scale at 36 years. NEPA clearance generally comprises 27-28% of the total project development timeline.

For agencies working to maximize their budgets, these lengthy project completion times are unacceptable. Similarly, as the public is involved with projects, organizational credibility is threatened when projects are seemingly strung out over time. In recognition of the possible project delays due to environmental compliance, MoDOT worked during the 1990's to get projects "on the shelf" and ready to build in order to gain control over this dimension of the process. According to Kross and Harvey of MoDOT, this was an

admirable tactic, but any project that had a shelf life over two or three years would need to be re-opened, and often, regulatory permits had expired, leaving the project in need of re-documentation.

Significance

Significance takes on a very specific meaning in the NEPA process and is rarely used in the actual environmental documentation. To do so would indicate a pre-determined outcome of the clearance process. For NEPA, significance relates to the context and intensity of the impact. To demonstrate the context dimension of significance in NEPA, NEPA trainers often use a wetland example in two different locations. In one case, one acre out of hundreds of acres of wetlands would be disturbed. In the second case, one acre out of three acres of a pristine forested wetland would be impacted. While both impacts are important, case two is undoubtedly more significant.

In terms of intensity of the impact, several classes of considerations are used in determining significance. For example, would the impact violate a law, is it adverse or beneficial, is the area of impact unique, and does it relate to parkland or a threatened or endangered species? In summary, environmental classification, and thus the scale of the environmental analysis, is based on expected project impacts and their significance, and negotiation between the DOT and FHWA regarding the project. In some cases, as more information becomes known to specialists and FHWA, as well as the general population, project classification can and does change.

A review of the overall NEPA process, as well as the historic development of the process at MoDOT, provides a background for understanding how the SIA process and environmental justice fit in, as well as how SIA and environmental justice are interpreted in the overall process. It also highlights the changing status of the SIA and environmental justice at the DOT.

NEPA and Environmental Justice at MoDOT

The focal point of this analysis, the SIA and environmental justice activities, predominantly take place in the Environmental Services section at MoDOT. This section falls under the Design Division of the Project Development Functional Unit at MoDOT. As the environmental justice executive order has relevancy in planning, programming and project development, there are several work units that have responsibilities to ensure the principles of environmental justice are carried out. For example, the Cultural Resources unit, also in the Design Division, could have significant environmental justice issues based on their legislated interaction with Tribal entities and Native American groups. So far, these issues generally involve the ownership of Native American artifacts and burial contents and have been handled through practices already established for these specific population groups. The issues have not developed into environmental justice issues. This situation is unlikely to continue. State DOTs, Wisconsin and Minnesota for example, have already subsumed their Tribal and Native American programs under the environmental justice umbrella.

The Planning business unit also has significant responsibilities in ensuring environmental justice, but at the statewide planning and programming level. At this level, the main focus of environmental justice lies in ensuring that the public has input towards MoDOT's statewide transportation plan. Specific projects as well as impacts are not known at the programming level, and the environmental justice issues tend to be related to funding allocation rather than project development and environmental impacts. Planning personnel report that, to date, their efforts have indeed focused on ensuring that high-level planning activities are open to, and accommodate the input from minority and low-income populations regarding the long-range transportation goals for the state. Planners from MoDOT, as well as from other states, have expressed concerns that environmental justice may turn into a battle between allocating scarce highway funding based on geodemographic population factors rather than engineering needs assessment. After discussion with MoDOT planners, they expect to continue to increase their efforts in public involvement for minority and low-income populations. At the same time, the long-range planning coordinator indicated that they feel strongly that the engineering and safety factors are priority factors in planning, but they will be watching other states to see how environmental justice unfolds in the planning areas.

After a review of MoDOT planning and project development operations and discussion with personnel in these areas as well as in FHWA, it is clear that the most pronounced implications of the environmental justice executive order reside in the SIA/CIA process of the Environmental Services unit. Thus, the most logical point of entry into

understanding environmental justice and SIA process occurs as the project moves from planning through the project development/environmental clearance stage.

The SIA Process

Previous to 1994, reconnaissance engineers completed any socioeconomic work with assistance from the Planning division. With the addition of the socioeconomic specialist in 1994, Kross indicates they were not quite sure of the range of issues that would be addressed in this new area, and not quite sure what the SIA process would entail. But they felt strongly that the impact areas in the SIA at MoDOT needed a “handle.” As this was a new position within the department, there was no internal guidance or structure to guide the work or place it in context within NEPA and with the other environmental impact specialties.

As with the all specialty areas involved in the NEPA process at MoDOT, the evaluation of a project begins with the submission of a request for environmental services from the district and project manager responsible for the project. These requests allowed for the project manager to specify the environmental impact areas they felt were relevant for the project. As could be expected, project managers were probably not the appropriate location for preliminary socioeconomic impacts to be identified. The assessment of these impacts was unfamiliar territory for most. As a result, the majority of requests for environmental services were identified as having social and economic impacts through a listing of the number of households that would need to be relocated. In fact, household and business relocations, along with route relocations around communities have been the

meat and potatoes of the SIA process according to Howland of MoDOT. Other topical areas included less frequently in the earlier SIA's included impacts to community services (police, fire, hospitals), access to schools - especially for pedestrians, a cursory evaluation of economic impacts, and a review of the public meeting comments.

Consideration was also given to possible Title VI issues, but the idea of disproportionate impacts, or special considerations to include minority or disadvantaged populations was limited prior to 1994 environmental justice executive order.

In 1991, ISTEA reinforced the SIA process as an important area for environmental analysis and FHWA began emphasizing community impacts and community input. The scope of events and variables to be considered was starting to expand in the socioeconomic area. Additionally, in response to "grandstanding" by certain environmental groups at structured meetings, the public comment forum for projects was changed to an open house format. Previously, public meetings for projects were structured with a presentation of the project by the responsible engineer, and then a microphone at the front of the room was available for public comment. It was often the case the environmental groups would seize the opportunity to "grandstand" with the microphone according to Kross. Environmental groups or individuals used the opportunity to promote environmental agendas, promote alternates that were not being considered, or berate the department. At the same time, it was becoming understood in the transportation field that many people, especially minorities and the disadvantaged, didn't feel comfortable at the meetings and were not likely to make a comment. With a change to the open house format for public meetings, impact stations were set up around

the room and people were encouraged to move around the room and review each display. They could then comment to the individual at the station, or submit a general comment sheet, or make use of a recoding device to record their comments.

Importantly, with the re-emphasis on public involvement as an avenue to understanding the community's perspective regarding projects, the meeting itself, along with comments provided at the meetings were transformed into "data" for the CIA process. Based on the emphasis provided by ISTEA, and then EJ, public meetings were now expected to be a key mechanism to gain, and then incorporate, public sentiment into project development and design. Previously, these meeting were more likely to be considered as a formality and a way to let the public know what had been decided rather than gather public input in order to make the decision.

With the environmental justice executive order in 1994, MoDOT's move to the open house meeting format, as well as staffing a socioeconomic specialist, supported the emphasis on environmental justice and CIA. While FHWA emphasized that environmental justice was only a re-emphasis of Title VI and not a new requirement, the level of analysis within the environmental document, as well as the public involvement requirements, were changing. Importantly for CIA and SIA, in order to understand impacts to a portion of the population and community, the level of analysis would have to be increased for all community analyzes. For example, before EJ and CIA, place level census data might have been used to establish a baseline demographic picture of the entire community. With EJ, practitioners needed to refine the analysis down to the census

tract or blockgroup to locate population groups in relation to impacts. Similarly, previous to EJ and CIA, schools may have been identified in the project area in order to avoid direct impacts to the facility and property. Under the new emphasis, not only were schools to be identified, but pedestrian travel patterns would also be investigated as well. From this perspective, compliance with EJ would necessarily lead to better CIA and SIA.

With the 1996 release of, *Community Impact Assessment: A Quick Reference for Transportation*, and the 1998 release of, *Community Impact Mitigation*, FHWA had raised the bar of the SIA process. In fact, practitioners now refer to most SIA portions of environmental clearance work as CIA rather than the original SIA. While the terms are used almost interchangeably, SIA refers to an examination of all of the associated social and economic impacts at all geographic levels. CIA refers to a more direct project impact analysis of the actual community and neighborhoods, and EJ refers to an analysis of the sub-population groups making up the community and neighborhoods.

It seemed that from 1998 though 2003, most state, regional, or national meetings related to transportation planning and NEPA included workshops or presentations on CIA and EJ or new methods of public involvement to accommodate environmental justice. With the additional emphasis also came additional scrutiny of the public involvement process and the contents and methods of the CIA included in the NEPA process. The NEPA umbrella had expanded to include a strong emphasis in this area. The SIA/CIA impact area had acquired additional interest, but it had not become one of the “show stoppers” or “fatal flaws” areas within the NEPA process.

As a result of the re-emphasis with CIA and environmental justice, two outcomes can be noted. First, compliance with CIA and environmental justice became more relevant for the DOT. More attention was being directed at these impact areas, but concerns were limited. Those impacts that “came with a stick” or delay remained more of a concern to the DOT. Secondly, the level of analysis and variables that were required to be analyzed for compliance with environmental justice raised the bar for all community impact investigation. As was the case with the other impact areas, regulations under the NEPA umbrella, and not NEPA per se, required a greater degree of specialization and increased the relevance of the impact area for the DOT. As the scrutiny increased regarding CIA and EJ, there was a corresponding increase in the detail of SIA analysis to address these impacts and demonstrate that the impacts were considered during the process.

In summary, the scale of the transportation system’s footprint on the landscape, public awareness of transportation impacts, and project delays resulting from a lack of control over the NEPA process resulted in the development of the Environmental Services section at MoDOT. Specialization in the environmental fields was necessary to complete environmental work on time and within construction budgets. And while the SIA area was originally perceived as a small portion of the overall impact process, federal emphasis in the areas of CIA and environmental justice elevated the status of the SIA/CIA field in the process.

The following case studies provide examples of how the SIA/CIA process has changed with environmental justice. These are significant case examples of the elevation of the

social, community, and human dimensions of infrastructure expansion as constraints to transportation development. Similarly, they provide unique organizational insight as to how organizations accommodate broad, undefined directives in order to ensure organizational success.

Chapter 6 - The Bill Emerson Memorial Bridge

Missouri DOT's first introduction to environmental justice on the project level occurred approximately two years after the 1994 release of the President Clinton's environmental justice executive order. During the summer of 1996, a Cape Girardeau resident and past president of the NAACP in the area, approached FHWA's Region 7 Civil Rights Director and, "expressed concern over minority participation in the project public involvement, noise impacts, access to parks, and longer response time for fire and police units" (for the neighborhood impacted) (Neumann 1996). The Cape Girardeau resident made the point that, "The highway is like a noose around that neighborhood, (comparing the highway to a string noose around his finger), it's getting tighter and tighter, cutting off the blood. Pretty soon that finger is going to die and fall off. The neighborhood is that finger." The complaint initiating the environmental justice concerns was based on the ongoing construction of the Bill Emerson Memorial Bridge, a major-river (Mississippi River), bridge-crossing project in Cape Girardeau, Missouri. According to Smith of FHWA, the complaint was originally expressed to FHWA employees at a U.S. DOT public event celebrating the construction of major bridges; in this case, using the Emerson Bridge as the location and background for the event. The event was intended to publicize the benefits that major bridge crossings provide to communities and their residents. Based on the post-NEPA complaint for a project with apparent SIA impacts, the EA for the Relocated Route 74 was selected as a case study.

In response to the complaint, FHWA organized an environmental justice review team to evaluate the project - its impacts, and anticipated impacts in relation to Title VI and environmental justice. As part of this environmental justice review, the previous project development process and EA were reviewed, current and potential impacts were assessed, and MoDOT's approach to environmental justice was evaluated. This case study of the original EA provides a unique opportunity to evaluate the NEPA, SIA, and project development process as it occurred before the environmental justice executive order. The case also provides insight to the corrective actions necessary to comply with DOT guidance regarding Title VI and environmental justice and in terms of actual SIA impacts to residents. Importantly, the environmental justice review for the Emerson Bridge documented in Chapter 7 was also intended to provide guidance to MoDOT in developing and implementing standard practices to ensure that the principles of environmental justice were fully instituted at the DOT in all projects. While MoDOT had projects in the past with Title VI implications, most prominently the South Mid-Town Freeway (Bruce Watkins Drive) in Kansas City, the Bill Emerson Bridge project represents MoDOT's first brush with civil rights issues under the guidance provided with the environmental justice executive order. Considered together, the evaluation of the EA presented in this chapter, and the EJ review for the EA presented in Chapter 7, provide a historical review of the development of SIA in the transportation setting.

The information reviewed for this case study includes administrative records regarding the importance and scope of the Bill Emerson Bridge project and the environmental document for the project. Additionally, MoDOT and FHWA employees were

interviewed regarding the project development and NEPA process for the EA, and the circumstances and events of the project not contained in administrative documents.

These interviews include discussions with Mark Kross, former environmental manager at MoDOT; Bill Graham, environmental compliance coordinator at MoDOT; Don Neumann, FHWA administration; Peggy Casey, FHWA Environmental Project Engineer; and Glenn Smith, FHWA Civil Rights Specialist. The case study concludes with a discussion of the implications of the experiences with the Emerson Bridge as they affected adoption of CIA and environmental justice practices and concepts at the DOT.

Scope and Importance of the Bill Emerson Memorial Bridge

Major river crossings represent the transportation system at its best, overcoming a physical barrier to allow for unprecedented mobility and access. With over 10,000 bridges in the state system, Missouri's road system would go nowhere without these structures. In fact, Missouri is ranked first in the nation in terms of the number of bridges over 1,000 feet in length with fifty-five of these structures (MoDOT 2003). Based on a generalized estimate, each county in the state has an average of approximately eight-seven state bridges. This need and prevalence of bridge structures throughout the state reflects not only the large number of streams and lakes, but also the extent of the transportation system. Bridges are vital to the state, and transportation agencies place great emphasis on providing and maintaining these structures, for without them, the system does literally lead nowhere.

According to MoDOT District 10 press releases and webpages regarding the bridge replacement, the original Mississippi River Bridge at Cape Girardeau was constructed in 1926 and provided one of the only structures crossing the Mississippi River in the southern portion of the state. Based 2003 traffic counts, over 14,000 cars use the original bridge daily with an expected volume of over 26,000 vehicles crossing the bridge by 2015. The existing structure is 3,595 feet long and twenty feet wide. This results in driving lanes approximately ten feet wide; which are not wide enough for school busses, RV's or tractor-trailers to pass in opposite directions without the possibility of knocking off mirrors. Through the five years prior to the EA, there were eighty-nine accidents on the original bridge, or approximately eighteen accidents on the bridge every year.

With over seventy-five years in service, the existing bridge is now rated as “structurally deficient and functionally obsolete,” an engineering determination that does not mean the bridge is unsafe but is in need of replacement or upgrade. The new structure now under construction will be one hundred feet wide and 4,000 feet long. The new bridge is also being constructed to monitor and withstand earthquakes. Measures to address concerns over earthquake damage and failure include additional structural support in the bridge piers, cable stabilization and drainage, and instrumentation on the bridge to monitor movement from an earthquake event.

The Bill Emerson Memorial Bridge, scheduled to open in December of 2003, was named in honor of the eight-term Southeast Missouri congressman who secured federal funding for the project. After his death in 1996, legislation was passed and signed by then

President Clinton to name the new bridge in his honor. It is anticipated that construction of the bridge will be completed in December of 2003 at a cost of over \$100 million dollars. This bridge represents a significant investment for the state and it is anticipated that the investment will provide returns to the state, as well as for the region and city of Cape Girardeau.

Realization of Environmental Justice Issues with the Cape Bridge Project

On August 26, 1996, Glenn Smith of the FHWA regional office, Civil Rights Administrator in Jefferson City, Missouri, sent a letter to Arthur Hamilton, Director, Office of Civil Rights, in Kansas City, Missouri. The letter outlined possible issues with actions taken to address environmental justice on the Cape Bridge project and EA. While the moniker of environmental justice was not part of the vocabulary or guidance regarding environmental clearance at DOTs during the planning and engineering phases of this project (late 1980's), there still appeared to be issues related to civil rights that needed to be addressed. In the letter, Mr. Smith explained that as part of his role in ensuring contractor compliance with equal employment opportunities, he was to review the construction company regarding its minority hiring and subcontracting for the Cape bridge project (as part of normal DOT contractor review processes). On his field visit, he would also visit the project area to see, "a highway/bridge project which allegedly goes through the heart of the minority community." In his letter to the Director of Civil Rights, Mr. Smith explained that at that time, Cape Girardeau had a population of approximately 35,000 and a minority population of 2,800.

Following the contractor compliance review with the construction firm working on the bridge project, FHWA and MoDOT employees accompanied Mr. Michael Sterling, Past President of the Cape Girardeau NAACP Chapter, on a tour of the project area. Mr. Smith explained that the roadway approaching the new bridge had been basically a city street and then expanded to a four lane limited access roadway. The limited access route would no longer allow movement onto the new roadway except at interchange locations and essentially would create a barrier splitting and separating the neighborhood and limiting access through the area. Mr. Sterling complained that the public hearings and opportunities to discuss or provide input on the roadway were limited for the impacted neighborhood. Mr. Sterling stated that, “There was very little if any black community involvement.”

Based on the tour of the project area and discussions with Mr. Sterling, Mr. Smith’s letter identified four issues of concern relating to environmental justice and community impacts. The issues included: 1) access to essential services such as police and fire protection appeared compromised due to the decreased neighborhood access, 2) noise impacts from increased traffic volumes were likely, 3) access to community facilities was decreased and pedestrian travel to such facilities appeared to be compromised, and 4) public involvement by the minority community appeared limited based on administrative records and comments by local residents.

Mr. Smith concludes his letter to the regional FHWA office by stating, “We must ensure that projects involving the minority community must have adequate notification of

hearings, and representation that clearly designates that Title VI and environmental justice impacts upon the minority community are being met.” Based on the report provided by Mr. Smith, a review of the Route 74 Relocation Project was scheduled for September 24, 1996. This case study provides a review of the 1991 EA for the Relocated Route 74, Bill Emerson Memorial Bridge Project. Through this review, the level of SIA integration in NEPA and DOTs, as well as the overall implementation of human dimension factors is examined.

The Cape Bridge Project and the Environmental Assessment

On July 22, 1991, FHWA representatives signed a Finding of No Significant Impact (FONSI) for job number 10-U-321, Route 74, Cape Girardeau County, Missouri: Sprigg Street to Mississippi River Bridge. In the text of the FONSI, FHWA states that:

The FHWA has determined that this project will not have any significant impact on the human environment. This finding of no significant impact is based on the attached environmental assessment, which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence that an environmental impact statement is not required. The FHWA takes full responsibility for the accuracy, scope, and content of the attached environmental assessment.

Environmental documents are intended to provide accurate and important information to decision-makers; they are also to be written at a level of understanding for the general public and with complete and analytic, but not encyclopedic, information. FHWA Technical guidance, based on direction provided by the CEQ, recommends document lengths of ten to fifteen pages for EAs. However, a review of EA length over the past nine years at MoDOT indicates that the ten to fifteen page recommendation is seldom if

ever achieved. Similarly, the preferred length of EIS's of less than 150 pages (CEQ section 1502.7) is seldom followed due to the breadth of issues that these documents must address.

The EA for the Route 74 relocation and Cape Bridge project consists of thirty-two pages of text and one hundred and twenty-one pages of agency coordination letters, public comment letters, maps, and special surveys to address biological impacts. Generally speaking, the length of the document, as well as the length of the various sections within the document, are to be proportional to the level of impacts in the specific impact areas. A review of the document sections provides information regarding the outline and contents of the document. The document contains the following sections; the length of each section is indicated following the section title.

- A. Description – ½ page
- B. Need – 1 and ½ pages
- C. Alternates Considered – 5 and ½ pages
- D. Discussion of Alternates – 2 and ½ pages
- E. Social, Economic and Environmental Impacts
 - a. Social and Economic Factors – 3 and ½ pages including 1 page table for cost comparisons of alternates
 - b. Natural Setting and Land Use Factors – 3 and ½ pages
 - c. Wetlands – 1 and ½ pages
 - d. Water Quality – 1 and ¼ pages
 - e. Floodplain Encroachment – 1 and ½ pages
 - f. Navigation – ¾ of a page
 - g. Air Quality – ¾ of a page
 - h. Noise – 1 and ¼ pages
- F. Cultural Resources – 3 and ½ pages
- G. Other Matters – ¾ of a page
- H. Comments and Coordination – 3 and ¼ pages

Section titles as well as the content of environmental documents have evolved over the years, thus these categories are not indicative of all documents within MoDOT or for

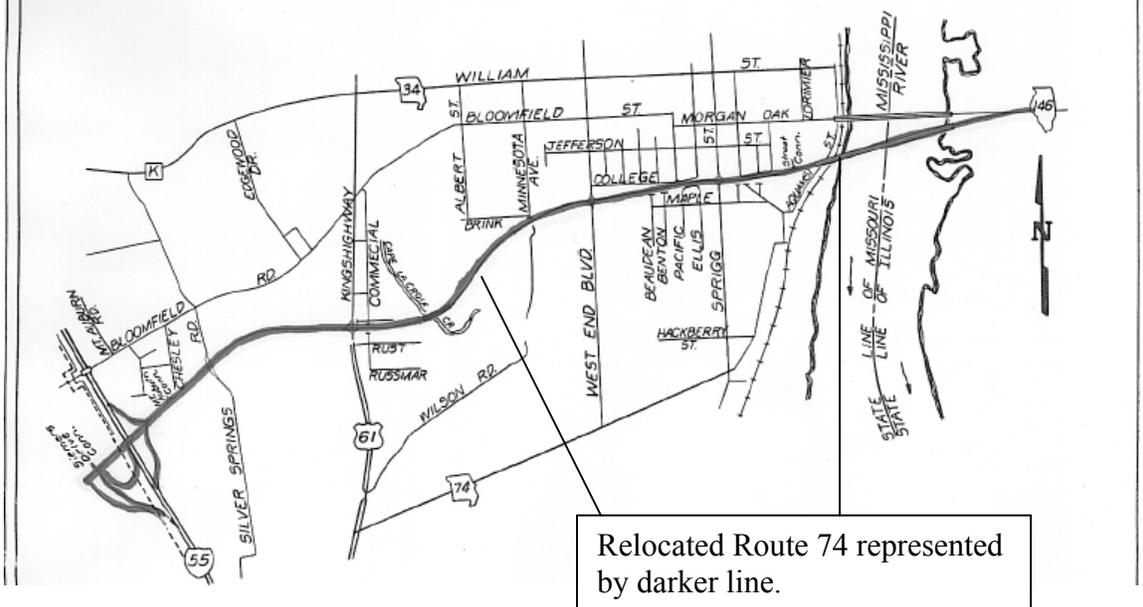
other agencies. Clearly the most relevant document text for the purposes of this analysis consists of the Social and Economic Factors section. Since ISTEA and EJ, the SIA section has been expanded to include a more thorough examination of community impacts (CIA), an independent section for environmental justice (EJ), and greater emphasis and more reliance on public input regarding the project and its impacts. The following section describes the contents of the EA that was presented as the rationale to go forward with the decision to select the preferred and constructed route.

The Route 74/Bill Emerson Bridge Environmental Document - Description and Need Portions of the EA

As stated in the environmental document, the proposed project is located in Cape Girardeau County, Missouri, and Alexander County, Illinois. The “major intent” of the project is to build a new bridge across the Mississippi River to replace Bridge No. K-948R1. The proposed corridor for the project is 4.3 miles long and extends from I-55 (the western limits of Cape Girardeau at the time), through the City of Cape, extending into East Cape Girardeau, IL. The map below depicts the route relocation that was distributed to the public

ROUTE 74 RELOCATION

CAPE GIRARDEAU MISSOURI



In the “Need” section of the environmental document, Bridge No. K-948R1 is described as a through truss structure 3,395 feet long and 20 feet wide. Constructed in 1926, the bridge is classified as structurally deficient and functionally obsolete. At the time of the environmental documentation, the bridge carried 10,450 vehicles per day and there had been eighty-nine accidents on the structure in the last five years. The EA for the project identifies three major need areas justifying a new bridge: 1) the bridge condition rating of structurally deficient and functionally obsolete, 2) increased traffic volume and inadequate road geometry for the approach to the span, and 3) safety.

Economic and community development and growth related to the bridge are not specifically listed in the “Need” section of the report, but are listed as a strong

justification for the new structure in the Public Comment portion of the EA. Bridges provide transportation connectivity that can encourage development. The Cape Bridge is the only highway bridge crossing the Mississippi River between Chester, Illinois, and Cairo, Illinois, a distance of approximately eighty-one aerial miles or one hundred and twenty-one miles along the road system. As such, the bridge plays a major role in connecting Illinois and Missouri residents for jobs, recreation, and personal reasons. Without the bridge, people and goods would be isolated on both sides of the river for nearly eighty miles, even though jobs and commercial centers are just across the river.

Structurally Deficient and Functionally Obsolete

“The chains on the guardrails and the frequent lane closures for work do NOT mean that the bridge is unsafe,” is what a bridge engineer will tell you according to a Research Bridge Engineer. The 77-year old Cape Bridge is classified by bridge engineers as Structurally Deficient and Functionally Obsolete. In laymen’s terms, this terminology indicates that the bridge was not designed to carry the traffic loads it currently carries (Structurally Deficient). The classification of functionally obsolete indicates only that the bridge does not meet current federal bridge design standards. However the bridge is considered “fracture critical” meaning that if a structural component of the bridge fails, the entire bridge may fail. Biennial bridge inspections are conducted for all state bridges in order to ensure that bridge structures are safe. And because of the condition of the 77-year old Cape Bridge, spot inspections are conducted on critical components on a more frequent basis. And while the general public sees the dilapidated condition of the bridge,

it is unlikely to fail. However, drivers and engineers alike will concur that there is no question that it is time to replace the bridge.

Traffic and Geometry

Besides the structural deficiencies and functional obsolescence, the combination of traffic patterns and volumes that contribute to congestion in the area resulted in the identification of the need for replacement of the bridge. Based on engineering standards, none of the current approaches to the Cape Bridge provide an approach that is an “acceptable geometric manner.” The Missouri approach to the current Cape Bridge is on, what amounts to, city streets with state road designations. Approaches to the current bridge include William Street (Route 34), Sprigg, and Morgan Oak streets (Route 74), and Spanish Street (Route 177) and are all actually Cape Girardeau City streets marked as state facilities. Traffic traveling on William Street approaching the bridge is required to execute a 90-degree left turn onto Morgan Oak Street to approach the bridge. Traffic traveling north on Sprigg Street must make a 90-degree turn onto Morgan Oak Street, and traffic on Route 177 headed south must execute a 90-degree left turn onto Morgan Oak Street. Travelers coming from the Illinois side of the bridge must execute similar movements as they enter Missouri. Considering that the facility is a state facility with approximately seven percent truck traffic at the time of environmental documentation, the geometry of the access to the bridge caused re-occurring turning radius problems for large trucks.

Traffic volumes for the bridge approach on the Missouri side are also problematic. With over 10,000 vehicles a day crossing the bridge, over seven hundred of which are large trucks, the expected traffic growth would paralyze the downtown area in Cape Girardeau.

Safety

The safety issues discussed and considered in the EA are not related to the possibility of bridge failure, but relate to the traffic accident frequency and pattern of traffic traveling the segment of the route that includes the bridge. On page two of the EA, accident rates for the current facility and approach are calculated and compared to accident rates for comparable routes and structures for the five-year period from January 1, 1983, to December 31, 1987. According to page one of the EA, there were eighty-nine accidents on the bridge itself over the five-year period from January 1983 to December 1987.

For standardization and comparison, accident numbers for the route were converted to accident rates per hundred million vehicle miles (HMVM) traveled for six segments along the current route. Considering the section of the current roadway that includes the bridge, the accident rate was found to be 1038.4 per HMVM. The statewide rate based on comparable facilities is 315.32 per HMVM traveled. Thus, the accident rate for the current Cape Bridge is nearly 3.3 times greater than for a comparable facility across the state. According to the EA, page two, "All segments of state highways which will be affected by the proposed project have an accident rate which exceeds the statewide

average except for the section of Route 74 from Route 61. The accident rate on Morgan Oak between Sprigg Street and Spanish Street is ten times the state average.”

Aside from the engineering standards that clearly identify the need for a new bridge structure, it is clear to the public that the bridge is too narrow, very old, and that traffic levels exceed the capacity of the area. There is no contradictory engineering data to refute the need for a new bridge nor is there any record of a public or agency challenge to the need for a new structure.

Alternative Solutions for the Replacement of the Cape Bridge.

As directed by NEPA, in evaluating any proposed project, all logical solutions (alternative alignments) for the established project need should be considered. This can go so far as to consider transit solutions, traffic management, and simply doing nothing. Physically there are an infinite number of lines that could be drawn from point A to point B (the logical termini of the project) to represent alternative routes for the new location of the Cape Bridge and its approaches. Fortunately, this multitude of lines, or alternative routes, can quickly be narrowed down to several logical solutions based on an initial impact scoping of the project area and a rigorous determination of the purpose and need for the project. Early scoping allows for identification of potential impacts that would threaten the project and thus should be avoided. A well defined purpose and need statement for the project provides for refinement of the project footprint to best match the requirements of the improvement. The preliminary alternates are then presented to the

public and carried forward in the environmental clearance and project development process.

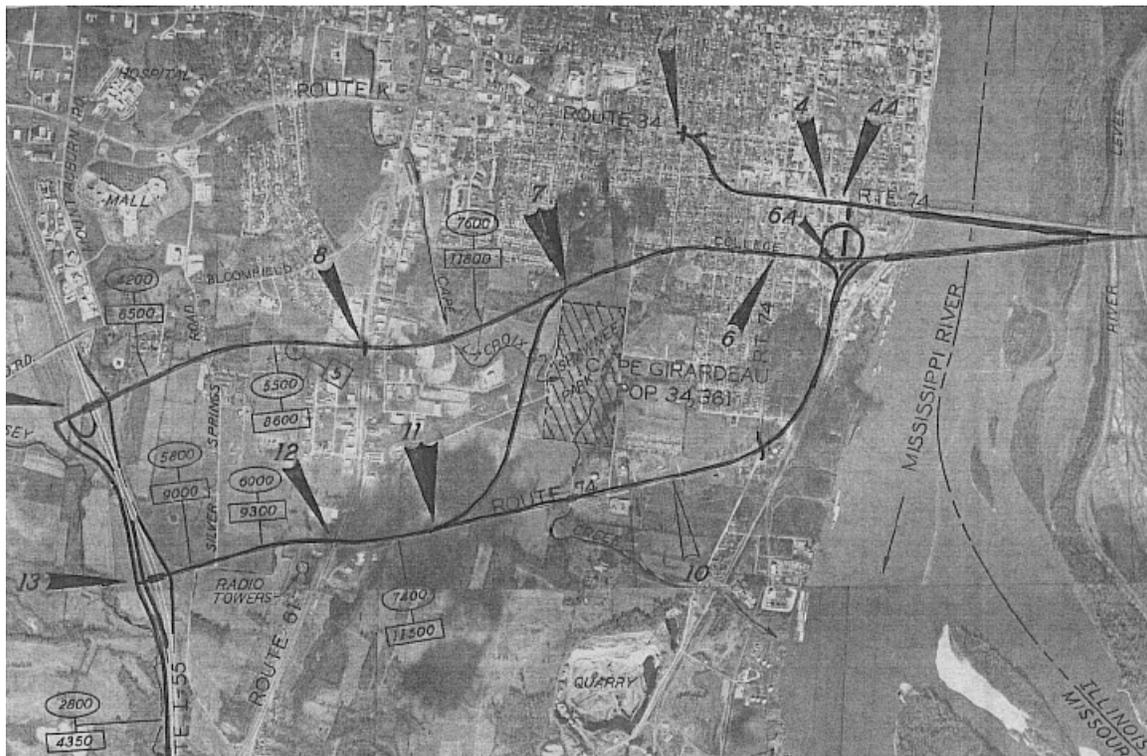
Discussion of the alternate selection process begins on page three of the EA. Four, “alternate actions” were considered and carried through in the EA for the project area. Five other suggested alternatives underwent a preliminary analysis but were discarded from further consideration. The five discarded alternates were eliminated based on their inability to solve traffic congestion on Williams Street, possible impacts to historic homes, impacts to neighborhoods, school and parkland impacts, and extensive natural systems impacts on the Illinois side of the river.

Of the four alternates considered, they are listed in the document as:

- 1) Alternate 1. No Build – This alternate leaves the bridge and approaching streets as they are with traffic routed over city streets and the current bridge.
- 2) Alternate 2. Red Line – This alternate begins at I-55 south of Cape Girardeau and travels easterly, south of the developed areas of the community. As the proposed alignment nears the river and railroad, it heads north along the river to Morgan Oak Street. At this point, Morgan Oak Street would be expanded and traffic would be directed across a new bridge immediately south of the current bridge.
- 3) Alternate 3. Green Line (Preferred Alternate) – This alternate begins at I-55, north of the Red Line and heads northeasterly across farmland to the edge of development in southern Cape Girardeau. At this point, the new Rt. 74 assumes

the path of College Street and heads directly towards the river, south of the current bridge, where it crosses the river on the new facility.

- 4) Alternate 4. Green Line with Future Blue and Red Line Connection - This alternate incorporates the most westerly portion of the Red Line (original Rt. 74), and then heads northerly to the Green line alignment just west of Cape La Croix Creek. From this point, the alternate would follow the Green Line location and cross the new bridge. The following map was included in the original EA to depict the proposed alternates. The lowest continuous line on the map, beginning with point 13, then to point 10 and then point 6, represents the Red Line. The Green Line begins with the intersection above point 13, then to point 8 and then point 6. The lines shown for points 4 and 4A, and from points 11 to 7, represent the Blue and Red Line connections for the Green Line alternate with future Red and Blue Connectors.



In the “Discussion of Alternates” section beginning on page eight of the EA, the benefits and impacts of the alternative alignments are summarized based on the content of the remaining document. The No Build alternate will have no adverse affects on the natural or cultural setting of the area. However, failing to act can be expected to perpetuate the problems and hazards with the current route. As stated in the document, “The No Build alternate (Alternate 1) stands to hamper economic development, compromise public safety, consume energy resources, and waste time through delays.” It is not regarded as a “feasible or prudent alternate.” The Red Line alternate (Alternate 2) will address the need for a new bridge and provide connectivity with I-55, but congestion on William Street would not be reduced. According to page nine of the document, approximately fifty-eight households and sixteen businesses would be impacted by this alternate. The costs of the Red Line are estimated at \$48,494,000 on the Missouri side of the river and \$27,000,000 for the Illinois side.

The Green Line, or preferred alternate (Alternate 3), would provide a direct connection between I-55 and the new bridge and into Illinois. As stated in the EA, “Its position allows for better movements to the west and is more compatible with the origin and destination traffic study. It would allow for reduction of congestion on William Street unlike the anticipated results if the Red Line were built.” The preferred alternate would require the relocation of approximately seventy-nine households and twelve businesses, and impact farmland and “wooded lowland” on the Illinois side. As stated on page ten of the EA:

Of all the alternates considered, the Green Line is the most feasible and prudent alternative to provide a new bridge across the Mississippi River at

Cape Girardeau with a connection to I-55. The total social, economic and environmental impacts for this alternate are anticipated to be less than those for any other alternate. This alternate is the best way to address the needs cited. Therefore, the Green Line was selected as the Preferred Alternate.

This statement from the EA could be considered bold, given the impacts that were not well represented in the document. A more thorough analysis of the number of residential displacements and the social context of these impacts, noise and access issues, along with the lack of public input were not well represented in the EA. But even for the resource impacts that were thoroughly addressed, they still take a back seat to the ultimate safety and mobility goals of the project. Ultimately, it appears that the impacts from the various alternates present design challenges in every case. Thus, given that the Green Line impacts are not overwhelmingly more significant than any of the other alternates, and that the Green Line appears to present the best traffic and mobility solution, the green line was characterized as the, “most feasible and prudent alternate.”

Alternate 4, the Green Line with future Blue and Red Line connections, follows existing Route 74 south of Cape Girardeau and heads west. Just south of Shawnee Park, this alternate heads north on new location where it transitions into the Green line just north of Shawnee Park and east of Minnesota Avenue and travels easterly across the future bridge. This alternate would require the relocation of thirty-five households and three businesses as well as impacts farmland and forest wetlands along Ramsey Creek. The cost for Alternate 4 is estimated at \$48,575,000 for the Missouri side and \$27,000,000 on the Illinois side. While this alternate has the least impacts on area residents, it fails to address the high volume traffic located in the north and west quadrants of the project area.

For the purposes of the EA, only the Preferred Alternate, the Green Line, is carried forward in the environmental document. The additional three primary alternates, along with the five alternates previously discarded, were eliminated based on their failure to address traffic needs and environmental impacts including potential impacts to historic properties, wetlands, community services, and adverse business impacts. Based on this approach to the EA, an extensive environmental study is only described for the preferred alternate.

Additionally, it is important to note that the information presented in environmental documents is subject to change as the planning and design process move forward. The environmental document is submitted and approved during the preliminary design stages of the project. Often it is the case that a larger or conservative “footprint” is established at this point in the document process. The larger footprint represents the project design team’s best idea of where to locate the facility. While the larger footprint decreases the specificity of the analysis, it does allow for “tweaking” of the final design to allow for the best engineering design as well as better avoidance of the impacts that fall within the footprint corridor.

Interestingly, the loss in specificity in the analysis due to a larger footprint, especially considering the SIA, is often cited as one of the reasons that primary SIA data should not be collected in the environmental document process. In numerous agency meetings, federal as well as state representatives point out the difficult situation of contacting property owners to collect household/SIA data when the final alternate may not impact

them although they fall in the corridor footprint. Many feel that the contact may cause undo alarm among residents who may not be impacted or relocated. Further, strict interpretation of previous FHWA technical guidance only required secondary data for SIA analysis, and while public involvement was required, these efforts were not intended nor did they provide primary data as impact data. Thus, the reliance on secondary data, such as census data, and an apprehension about discussing project impacts such as household displacement with people who may not experience direct impacts, has led to an avoidance of direct contact with impacted residents, such as household visits. This reliance on secondary data and fear of unnecessarily alarming residents has been used as a scapegoat by DOTs for inadequate environmental justice analyses, in that successful environmental justice and CIA analysis is based on primary data: face to face interaction with impacted citizens.

The lack of specificity in the preliminary footprint and CEQ regulations that only require secondary data for the SIA tend to minimize the level of grounded, primary information available for the environmental document. This “old way” of doing business flies in the face of the spirit and new directives provided in the environmental justice and CIA guidance, regulations that focus heavily on interaction with stakeholders.

The Environmental Assessment – Social, Economic and Environmental Impacts

The Social, Economic and Environmental Impacts section of the environmental document begins on page eleven of the EA and describes the environmental impacts including social and economic factors for the proposed Route 74 improvements from I-55

in Missouri to East Cape Girardeau in Illinois. As this dissertation focuses on incorporation of CIA and EJ principles and practices, using the Cape Bridge project as a case study of SIA work prior to the executive order, this discussion focuses on the evaluation of the social and economic impacts section of the document. However, a brief discussion of the other impact areas is included to provide a context for the evaluation of the impacts and to provide a greater understanding of the scope and focus of the EA for the Cape Bridge project.

Social and Economic Factors

The discussion of the social and economic impacts associated with the proposed project consist of approximately two and one-half pages of narrative and a one page table detailing the cost, length, and displacement impacts of the alternate routes. The two and one-half pages of text consist of ten paragraphs of SIA narrative. The introductory paragraph provides for justification of the project, six paragraphs address relocation impacts, and one paragraph addresses impacts to neighborhoods and impacts to minority and handicapped populations. Of the last two paragraphs in the SIA section, one paragraph introduces the table of construction costs, alternate length, and displacements, and the final paragraph addresses changes to local and through vehicular access.

In the first paragraph of the SIA section, the purpose and need for the project are again presented. On page eleven of the EA, the authors state that:

The proposed facility will provide a safer travelway as a new bridge is built to replace the deficient, obsolete span and as the traffic patterns on the routes approaching the span are improved. Congestion on William

Street will be reduced as through traffic is removed from that facility. The through traffic will travel more efficiently within the area. Reduction of delays will lessen expenditures of time, money, and resources of users of the facility.

Interestingly, the justification and need for a project are nearly always reiterated in the SIA section of environmental documents while the justification is not generally included in other impacts area discussions. This is based on the notion that the project justification and the project itself are in fact a social and economic benefit and thus a justification for the project. Decreasing traffic congestion and increasing safety, and road-related development are considered social and economic benefits, however the right-of-way acquisition generally results in impacts as well. In natural resource impact areas decreased traffic congestion and delay, and increased safety are accompanied by some habitat change, usually in the form of right-of-way acquisition for road use, which then results in direct or indirect impacts to the flora and fauna in the area. The decreased congestion and driver safety, generally accompanied with increased traffic volumes, are of little benefit to the raccoon or black bear crossing the road.

According to page eleven of the EA, construction of the Green Alternate would impact up to seventy-nine households and twelve businesses. The seventy-nine residences include approximately two hundred and thirty-two persons. The document indicates that the homes in the area are moderately priced relative to the Cape area. However, there is no comparison of the size and price of the available replacement housing provided in the document. Additionally, there is no mention of whether relocatees could be accommodated near the neighborhood, or if relocation throughout the larger area would

be necessary. The document does provide that a survey of available households and rental units in the Cape Girardeau area was conducted, and that adequate replacement housing as well as rental properties are available in the area. In summary of the displacement impacts, the document states that, “No known or suspected problem relocations are anticipated for the affected neighborhood along the Preferred Alternate.”

Business displacements are also included in the discussion of relocation impacts. The document indicates that twelve businesses will be displaced and that the businesses have the following “character”: office machine sales, vacant commercial building, beauty equipment, marine equipment repair shop, electrical repair shop, outdoor advertising firm, publishing company, welding supply, carpet store, veterinarian office, auto repair garage, and mobile home sales. The document further states that approximately fifty-one people are employed at these businesses. As evidence that the business relocations will not cause relocation problems, the EA indicates that forty-nine vacant commercial buildings are available in downtown Cape Girardeau along with other commercial vacancies along Route. 61. Based on the number of commercial vacancies in the area the document states that, “No unusual problems are anticipated with the business relocations.”

The majority of the remaining text discussing relocation impacts addresses the relocation policy used by MoDOT and FHWA. As stated in the document on page eleven, “This program conforms with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (42 U.S.C. 4601). Relocation assistance

under this program will be made available to all relocatees without discrimination.” As discussed in the EA, the relocation assistance act, known by practitioners as the URL, is designed to make payments to help offset “some of the expenses” experienced by relocated residents and businesses. The program also provides relocation assistance in the form of “advisory assistance” to owners and tenants who are displaced.

The URL includes such accommodations as:

- 1) Actual and reasonable moving and searching expenses for a replacement business of farm.
- 2) Re-establishment expenses for a farm, non-profit organization or business not to exceed \$10,000.
- 3) Displaced homeowners may receive up to \$22,500 for a replacement housing payment which includes increased housing cost and incidental closing cost.
- 4) Residential tenants may receive up to \$5,250 to enable them to rent or purchase a replacement dwelling.
- 5) The program provides that no person will have to move from their dwelling until they are provided with decent, safe, and sanitary replacement housing that is within their financial means.

These five accommodations are in addition to the act of purchasing or condemning the properties at their fair market value.

For the majority of transportation projects, not only in Missouri, but nationwide, the URL provided the only SIA-related mitigation for impacts to communities, neighborhoods, and residents. While there are exceptions, not until 1991 with the ISTEA did SIA mitigation go beyond replacement housing and expand to include community enhancements such as park improvements, biking and walking trails, and efforts to address impacts to the social fabric of impacted communities. The extreme cases here are exemplified by complete reconstruction of a neighborhood in a new location (North Carolina DOT), or placing a roadway underground with a “cut and cover” process, and then creating a park on the

surface to provide neighborhood connectivity (Michigan DOT). Additionally, the efficacy of the URL is often called into question. The rules governing relocation are fairly rigid as listed above and, as a result, unusual and “problematic” circumstances tend to go through the process like any other. And while the URL generally provides replacement housing, neighborhood structure and quality are not replicable through relocation. Further, low to moderate income residents are often saddled with new mortgages after relocations when previous to the action they were living without the burden of a new bank note. Relocation is a very personal impact and undoubtedly carries sociological and psychological as well as economic consequences.

Neighborhood impacts and impacts to protected populations are addressed in one brief paragraph on page twelve of the EA where it states:

The proposed alternate will neither separate or isolate businesses and homes nor spilt any neighborhood or ethnic groups because of the limited but partially open access which will be provided. The alternate does not impact any separate minority group as the racial character of the area is mixed. North of Morgan Oak in the area of several other suggested alternates, the populations are more segregated. Of the 79 households of 232 persons which might be affected, 48 persons are in minority groups. Forty-five persons are elderly or handicapped.

In the citation above, the “more segregated” populations north of Morgan Oak are mentioned to indicate that the other alternates would have had greater impacts on minority neighborhoods. In the context of the 1980’s and Title VI regulations, this level of impact documentation represented the normal level of attention towards minority, and human dimension impacts in general at MoDOT. These issues were just not identified as problems. In fact, the environmental studies coordinator at MoDOT, Bill Graham, indicated that this level of SIA and Title VI analysis was beyond the normal scope of

work at the time. More attention was given to census data and relocation impacts with this analysis than with most projects. In fact, very little if any of this information would have been collected and presented had it not been for potential parkland impacts in the corridor. Parklands are related to the SIA analysis in that parkland takes are only allowed provided that no other feasible or prudent alternate is available. Thus, for this project, in order to determine the legality of a public-use parkland take, it must be demonstrated that the other available alternates would have greater impacts, and do not provide feasible and prudent options. Thus, SIA (relocation impacts) were examined to a greater degree than normal to establish the relative impacts of the alternates considering the possible impacts to parklands.

Access in and through the neighborhood, and to a small degree, the splitting of neighborhoods are also addressed in the final paragraph of the Social and Economic Impacts section on page fourteen. The EA states that, "Access will be available at most public roads which intersect with the Preferred Alternate." The document states that "established travel patterns and accessibility" within and through Cape Girardeau will experience only minor disruption. The EA does document that travel on College Street from Fountain Street west to near Benton Street will experience "some disruption" as well as "some disruption" for those streets crossing the Preferred Alignment. Traffic movement during construction will also be affected but appropriate detours will be provided. A site visit to the construction area in 1996 revealed that the north to south travel patterns are eliminated for approximately one mile through the area. The EA provides that the greater distance of travel to cross the new facility may be more of an inconvenience to

local traffic (rather than a severe disruption) due to the “rural nature of the area”. These access and neighborhood disruptions, especially for the streets previously connecting College Street on the north side of the new Route 74, and Maple Street on the south side of the new Route in the neighborhood can be seen on the project area map below. The new Route 74 is represented by the dark line that separates College and Maple Streets. This road acts as a barrier, disrupting previous vehicular and pedestrian movement from the north to the south side of the new Route 74.



Of the issues discussed in the SIA section of this EA, it is apparent that the neighborhood disruption related to road closures of crossing routes and the splitting of the neighborhood with the expansion of College Street had not been adequately addressed. When driving through the project area and pre-existing neighborhood, it is clear that the neighborhood was cleaved in half by the relocated route. Further, access to schools, to parks, and to other neighbors appears more dramatic than stated. Project managers assumed that residents would walk parallel to the new route to reach signalized intersections, and then cross the new Route 74. However, even the presence of a typical five foot high hurricane fence along the road’s ROW was not enough to keep residents,

especially children and adolescents, from climbing the fence and crossing the four lanes of roadway at the point nearest their destination.

On two field visits to the area in 1996 and again in 1997, I observed people crossing the fence and then the highway, but there were also several other locations along the fence that had been pushed down from people climbing over. Basically, the new route divided a previously connected neighborhood with documented pedestrian movements. This dangerous pedestrian situation has continued and was noted by MoDOT District 10 planners in 2000. The possible safety issues with random pedestrian crossings through the neighborhood became so prominent that federal transportation enhancement funds were dedicated and allocated to provide for an elevated pedestrian crossing to eliminate self-selected crossings along the new Route 74. Mitigation for these hazardous pedestrian crossings had been brought up at the EJ review and site visit in September of 1996. However, at the time, it was agreed by MoDOT and FHWA that the cost of an elevated facility was prohibitive considering the traffic levels on the opened, but not finished Route 74. Mitigation for the pedestrian crossings of the road was to be left to future community input through coordination with Mr. Sterling. Mr. Smith of FHWA reported that Mr. Sterling later moved from the community and the planned re-assessment of the need for an elevated crossing from the community never materialized.

When I questioned MoDOT District 10 planner Steve Duke about the planned elevated crossing, he indicated that the planned pedestrian bridge was based on MoDOT personnel observing numerous dangerous crossings by children as well as adolescents. They felt

something needed to be done before a child was injured or killed. Mr. Duke was not aware of the environmental justice issues associated with the project.

The lack of emphasis concerning the social impacts in the EA and the project development process for the Relocated Route 74 project is characterized by the absence of any substantive narrative to discuss the splitting of the neighborhood, the lack of attention to minority, elderly and handicapped persons, the lack of any analysis of the general demographic background of the area, the failure to address impacts to community services, and the lack of any link to public and community involvement in this section of the EA. Further, the overall brevity of the SIA section reflect the lack of emphasis on SIA issues in the NEPA process during this time period at MoDOT. Additionally, a review of EA and EIS documents completed by MoDOT from 1986 through 1994 reflects a median length of SIA sections in documents of three pages and often less. Generally, project costs and relocations were the only SIA variables included in the analyses. Further, CE documents at MoDOT generally did not include any SIA analysis at all until 1998, yet made up to ninety-eight percent of all DOT environmental documents based on a review of all document types through the same time period. A 1997 North Carolina Study (Center for Transportation and the Environment, 1997), as well as a review of the 2002 completed environmental documents at MoDOT confirms this ratio of CE's to EA's and EIS's with over ninety-eight percent of the environmental classifications falling into the CE category.

While the SIA is to be included in environmental analysis and documentation anytime other impacts require analysis, it simply was not a priority impact as evidenced by the scope and sophistication of the SIA provided in environmental documents. SIA was not considered or addressed as a “fatal flaw.” SIA impacts generally would not draw the ire and intercession from other agencies that would require project changes, increased costs or project delays. Thus, SIA was not sufficiently staffed or integrated into the DOT, and SIA impacts were not considered significant in themselves, or as threats to project completion.

Interviews with MoDOT and FHWA personnel indicate that the first SIA specialist was employed at MoDOT in 1994 – over twenty-four years after NEPA was established and required multidisciplinary analysis. Previous to 1994, the SIA analysis was completed by employees with engineering, natural science, and archeology backgrounds. During the late 1980’s, at the time of the Route 74 EA documentation, there was not an integrated approach to the environmental analysis that included a SIA specialist as directed in NEPA and CEQ regulations. The incongruence between the SIA analysis and actual impacts are discussed further in the following chapter with the discussion of the FHWA evaluation of the EA and SIA.

Discussion of Natural Setting and Land Use Factors

Pages fourteen through twenty-four of the EA discuss the issues of the natural and biotic setting - terrestrial communities, geology, soils, land use, wetlands, water quality,

floodplains, air quality, and noise. The discussion of these impact areas are bolstered by documents included in the appendices of the EA such as a herptofaunal survey, threatened and endangered species census and analysis, wetlands analysis, and noise analysis. Also included in the appendices are extensive documentation of inter-agency coordination to reach agreements regarding the level of biotic and terrestrial impacts, along with avoidance, minimization, and mitigation strategies. It is apparent that appropriate specialists addressed these impacts. The wetland, noise, and biological analysis are thorough and exacting, as compared to the social and economic impacts.

Examples of the historic conditions, background and contextual information, current assessments, and extensive agency coordination are included below to demonstrate the degree and level of analysis for the natural impact areas.

Regarding the natural setting of the project area, the EA states:

The proposed improvement is situated in the Ozark Highland of southeastern Missouri. Terrain is rolling within Missouri as elevation ranges from 317 feet above mean sea level (amsl) at the Mississippi River to 430 feet amsl at Silver Springs Road near I-55.

The document further states that:

The geological formations crossed by the proposed improvements are the Platten formation of the Ordovician System in the uplands and the alluvium of the Quaternary System in the lowlands. The Platten formation is a dense limestone; it is quarried south of point 10 and east of point 14. The alluvium dates from the Pleistocene; it occurs within the valleys of the Cape La Croix Creek and the Mississippi River.

Soils on the proposed alternate include Menfroe Silt Loam in the uplands and Haymond Silt Loam, Wakeland Silt Loam, and Commerce Silty Clay Loam in the uplands.

These details of soils, historic land formation, and elevation can be contrasted with the SIA components of the analysis in that the EA provides a baseline of natural conditions, yet community characteristics, population dynamics, and stakeholder perceptions are omitted. This is likely a reflection of the presence of appropriate environmental specialists in these areas, as well as a reflection of regulations regarding natural resource impacts that include project related consequences relating to these types of impacts. No such regulations, save the URL, existed for SIA impacts. It can be argued that Title VI was certainly relevant under the circumstances; however, the Act was not well operationalized at the time. And according to FHWA employees, Neumann, McDonnough-Bragg, and Casey, the lack of operationalization of Title VI was the impetus for executive order 12898 in 1994. And as stated in the FHWA, “Transportation & Environmental Justice Case Studies” (2000: ii), “Some transportation practitioners are concerned that environmental justice is a new set of requirements thrust upon state and local agencies. The truth, however, is that the recipients of Federal-aid have been long required to certify, and the U.S. DOT must ensure, nondiscrimination under Title VI of the Civil Rights Act of 1964 as well as many other laws, regulations, and policies.”

Mitigation for impacts to the natural setting are listed on page seventeen of the EA. As stated in the document, mitigation for these impacts will include:

Selective clearing will be done; it will be confined to construction limits to preserve all existing natural growth. Such action will minimize surface water runoff and soil erosion. Contract specifications limit the surface area of erodable earth material exposed by clearing and grubbing, excavation and borrow and fill operations.

The MHTD’s tree replacement policy provides for two trees to be planted for each tree of six inches in diameter or larger that is removed by

highway construction. New trees will be planted as close as possible to the area in which the trees were removed. Tree species will be selected to restore or improve the appearance of the affected area.

Other mitigation that was mentioned in the document includes avoiding tree-clearing activities during the breeding season of the Mississippi Kite. If tree removal could not be avoided during the breeding season of March through August, a qualified ornithologist would be contacted to walk the corridor alignment to ensure that active nests or young would not be affected.

Wetlands and water quality impacts are considered as one of the most critical fatal flaws when completing environmental work. Considering the Missouri side of the Cape Bridge project, the document states that the U.S. Army Corps of Engineers determined that no jurisdictional wetlands under Section 404 of the Clean Water Act exist. However a 404 permit would be required to place fill near Cape La Croix Creek. And on the Illinois side of the river, “numerous areas of hydric soil are indicated by the Soil and Water Conservation Service (now Natural Resource Conservation Service) for Alexander County, Illinois, and the National Wetland Inventory maps,” and while most of the area would be spanned by the bridge, clearing activities would occur.

The document states that, “Avoidance of these wetlands areas is not considered feasible or prudent. No avoidance alternative can be identified that will avoid impacting the areas identified above without also impacting other wetland areas.” The conclusion of the wetlands discussion concludes, “Based on the above considerations, it is determined that there is no practicable alternative to construction of the proposed action within wetlands

and that all practicable measures to minimize harm resulting from such use will be employed.” Additional external agency influence over impact determination and impact management can be seen in the water quality and navigation dimensions of the project’s impacts. Water quality impacts reflect possible impacts to the Mississippi River, Cape La Croix Creek and Ramsey Creek. The document states that:

At the Mississippi River a Section 404 Permit will be required from the Corps of Engineers. Action to acquire that permit will include coordination with the Missouri Department of Natural Resources for Section 401 Water Quality Certification. The same procedures will be necessary for the bridge at Cape La Croix Creek and the stream redirection and culvert work on Ramsey Branch. The United States Coast Guard is a cooperating agency for this project because the Mississippi River is a navigable waterway. Therefore a Coast Guard bridge permit will also be required.

This permitting and oversight role of the Corps of Engineers and Missouri Department of Natural Resources literally results in design control over proposed projects to afford continued river navigation and adherence to federal water resource laws. And as presented below, external agency oversight and regulatory power exists in all natural resource impact areas. Similar interagency coordination and oversight does not exist in the SIA area for projects.

The document concludes that the proposed improvement will not substantially modify or impound any stream. Mitigation to protect water quality is included in the job specifications for contractors and requires immediate temporary or permanent pollution control measures. The EA states on page twenty that, “The Missouri Department of Conservation has listed best management practices for maintaining water quality in a letter included in the appendices. These practices are cited within the construction

specifications.” In summary the document states that the project will not adversely affect water quality because of the measures listed in the document.

Floodplain Encroachment is discussed in the document in the context of Executive Order 11988, Floodplain Management, which pertains to any actions that might occur in a floodplain. On page twenty, the document states that National Flood Insurance Program maps were used to identify encroachment on the 100-year floodplain of the Mississippi River, Cape La Croix Creek, and Ramsey Branch. After a discussion of the point-by-point floodplain encroachment of the route across the landscape, the EA indicates that the flood plains of the Mississippi River and Cape La Croix Creek will be spanned by bridges, and that no regulatory floodplain exists for Ramsey Branch. Impacts in the floodplains are characterized by tree clearing and associated habitat removal. Tree replacement and surveillance for the Mississippi Kite will provide the needed mitigation.

It is stated in the EA that impacts to navigation on the Mississippi River will be managed through cooperation with the U.S. Coast Guard. As a cooperating agency, the Coast Guard was involved in detailed development of the project to ensure navigational interests are protected. The Coast Guard’s interest involves not only the construction of the new bridge but also the removal of the old structure. The document ensures that through the interagency cooperation with the Coast Guard, navigation interests will be considered and protected.

Air Quality impacts were evaluated in the project area via a microscale air quality analysis using the “graphical method of the CALINE 3 model.” This method is cited as a means to determine carbon monoxide concentration produced by “mobile source emissions.” This section of the document, page twenty-four concludes that, “This project is in an area where the State Implementation Plan (SIP) does not contain any transportation control measures. Therefore, the conformity procedures of 23 CFR 770 do not apply.”

Noise impacts associated with construction activities and future traffic levels were also discussed. The document states that, “The proposed facility is predicted to create a noise level of 69 dba LEQ at 50 feet from the centerline of the near lane.....this is based on the 20 year traffic forecast.” Abatement criteria for noise impacts for residential areas are listed as 67 dba LEQ and 72 dba LEQ for commercial areas. While noise impacts in residential areas exceed the abatement criteria, the document states that no mitigation is necessary.

Because of the access which will be provided to the new facility, any noise attenuation structures along College Street would not provide significant reduction to the noise impacts. Residential receptors within the section between Benton Street and I-55 are isolated; with a normal setback, noise abatement measures are not proposed. The noise levels anticipated at commercial locations are not considered to exceed the abatement criteria. The noise associated with actual construction will not create any significant impact.

Residents are located immediately off of the ROW line on the south side of the new Route 74 and set back one city street on the north side. The document provides that residential noise levels will exceed abatement criteria, but the impacts are dismissed due

to the difficulties in noise abatement. As discussed in the following chapter, noise mitigation, generally in the form of noise walls, is costly and ineffective if the walls are interrupted by roadway intersections. When the FHWA and MoDOT EJ review was conducted, noise impacts along residential areas were noted as exceeding 67 dba, and as a result, noise impacts were identified as an impact area that would need reexamination in the review of the 1991 EA. This reevaluation is discussed in the following chapter discussion the EJ review conducted in 1996.

Cultural Resources

Cultural resource impacts are discussed beginning on page twenty-five of the EA and consist of three and one-half pages of text. At MoDOT, and within the context of NEPA, cultural resources generally include consideration of archeological sites and historic properties, and historical events tied to a property.

Cultural resource impacts were cited in interviews with FHWA and MoDOT personnel as one of the impact areas that prompted the establishment of an environmental section (which includes the cultural dimension) at MoDOT. Every project goes through a rigorous archeological and historic property analysis. The Missouri Department of Natural Resources (DNR) evaluates project level impacts and can create a fatal flaw for MoDOT if the cultural impacts are not adequately analyzed and avoided, minimized, and mitigated based not only on regulations, but the personal perspectives of agency employees. Based on the author's eight years working in the NEPA process at MoDOT,

it was observed that cultural resource impacts and the required relationship with the DNR are frequently cited as a problem and an issue that can slow down a project. Projects have been re-designed to miss questionable historic properties, project are frequently delayed due to the need for agency concurrence regarding impacts, and in general, MoDOT brushes with historic properties tend to be long, drawn out negotiations with an ever-present threat of project delay.

The cultural resources, wetlands, navigation, and threatened and endangered species impact areas are controlled by external agencies with permit requirements, along with requirements for interagency coordination and buy-in. The difficulties in acquiring environmental clearance and interagency buy-in for these impact areas are reflected in the effort and level of analysis included in environmental documents. The potential fatal flaws associated with these impact areas are also reflected in the historic and current staffing of MoDOT's Environmental/Cultural working groups. The cultural resource section has over sixty employees with the many these employees possessing advanced degrees in archeology, architectural history, and history. The wetlands group includes five natural resource professionals with biology and aquatic biology backgrounds and a GIS specialist. And farmland and SIA impacts are allocated statewide coverage with one employee in each area.

The number of Cultural Resource employees also reflects the hands-on work required to test project corridors for archeological and historic sites. For archeological sites, preliminary analysis requires surface examination and "shovel testing." Later analysis, if

a historic site is suspected, requires full archeological investigations, reporting, and burial or archival of artifacts.

Similarly, with potential historical architecture, the full and complete history of the structure must be collected and reported. Mitigation can include avoiding the property through re-design of the transportation project, documentation and curation of the site before destruction or even moving the building. In the case of the Cape Bridge project, the EA points out that proposed alternatives were eliminated from consideration based on historic properties. The EA states:

In Missouri, the Preferred Alternate affects no recorded cultural sites or properties listed or eligible for listing on the National Register of Historic Places (NRHP). As noted in the section “Alternates Considered”, NRHP properties located north of Morgan Oak influenced the consideration of alternate routes leading to a river crossing north of the existing bridge.

In this case, the potential of impacts to historical properties along Morgan Oak eliminated alternatives in this area from consideration due to the project constraints, delays and costs associated with minimizing and mitigating for impacts to historic properties.

Unfortunately, this comes at the expense of the neighborhood in the College and Sprigg Street area. Impacts to archeological sites have a similar effect on projects. In fact, a continuing joke among project development personnel is that landowners “salt” property with Native American artifacts so that the arrowheads are found in highway location reconnaissance studies. The area would then be avoided. The archeological investigation was summarized in the EA as:

An intensive Phase I cultural resources survey of the proposed corridor was conducted by MHTD archeological staff in December 1990. The survey was conducted following initial background research at the

Archeological Survey of Missouri, the State Historical Society of Missouri, the Missouri State Library, and the Office of Historic Preservation, Missouri Department of Natural Resources. The Phase I survey involved a thorough examination of the project corridor for Prehistoric and Historic archeological sites, using pedestrian survey and shovel testing techniques. Historic Architectural sites were photographed.

Based on this survey work, two prehistoric Archeological sites were identified in the project corridor. In order to determine if the sites are eligible for the National Register of Historic Places, the EA states that a limited level of hand excavation and possibly, backhoe trenching would be conducted.

In terms of historical architecture, on page twenty-eight, the EA states that all structures impacted by the project have been evaluated, and that they include, “an eclectic mixture of architectural styles, although none from their outside appearance exhibit any unique or outstanding architectural merit.” Finally the document states that the State Historical Preservation Officer (SHPO) determined that none of the structures were eligible for inclusion in the National Register of Historic Places.

In summary of the cultural impacts, the EA states that:

All cultural resources and their potential significance will be addressed according to the regulations (36 CFR 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470). Identified cultural resources will be evaluated according to the Department of the Interior’s “Standards and Guidelines for Archeological and Historic Preservation”, in consultation with the Missouri State Historic Preservation Officer. An MOA (memorandum of agreement) will be prepared for impacted significant cultural resources, and it will be executed by the MHTD, FHWA, Missouri SHPO, and the Advisory Council on Historic Preservation.

It is clear from the cultural resources process for the Cape Bridge project that the high level of interagency coordination and acceptance of potential project impacts is indeed reflected in the appropriate number of Cultural Resource staff, and that many on the staff have advanced degrees in historic preservation and archeology. Further, the level of analysis and effort extended in identifying and avoiding, minimizing, and mitigating for impacts for cultural resources demonstrates that it, along with wetlands, and threatened and endangered species represent the resource areas most likely to generate a fatal flaw for project clearance. These are the environmental impact areas that can cause project delays, cost increases, or termination. Accordingly, the agency invests higher levels of resources towards the control of these impacts through staffing of appropriate personnel, greater support for research in these areas, higher levels of interagency coordination, and in the overall alternate selection. This situation, as evidenced by the environmental work for the Relocated Route 74 project concluding in 1991, is much the same today.

Other Matters Section

The section entitled “Other Matters” on page twenty-nine of the EA includes a discussion of National Landmarks, parkland and 4(f) considerations, hazardous wastes issues, and a brief discussion of the ROW for disposal after completion of the project. Importantly, based on the National Historic Preservation Act of 1966 and the 1966 US DOT Act, 4(f) stipulates that US DOT agencies may not approve funding for use of publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, for a transportation project, unless an analysis of alternatives indicates that there is no prudent or feasible alternative to the use of the land. This section is one-

half page in length and consists of four paragraphs of text. Since the early 1990's with the ramp-up of the environmental section at MoDOT, parks and recreation areas are avoided to the maximum extent possible in order to eliminate this influence in the project development process.

The document states that no existing parklands or other Section 4(f) lands will be affected by the proposed alternate. Further, the document states that no public parks funded by the Land and Water Conservation funds (Section 6(f) funds) will be affected by the proposed alternate. However Raney Park and Shawnee Park are both near the proposed alignment with Raney Park immediately adjacent to the new route. And while both parks were not considered under Section 4(f) and Section 6(f) in the EA, they were considered in the post-project EJ review. It appeared that access had been modified to the parks, thus making it more difficult for pedestrians, especially children, to reach the park areas. Both of these parks and the associated impacts to access are discussed further in the following chapter. It is important to note that the traditional environmental regulations (4(f) and 6(f) stipulations) designed to protect parklands, did in fact protect the land but failed in adequately considering user access to the parks in this situation.

Additionally, efforts to address parkland impacts have expanded since the development of the 1991 EA. In 1993, a parkland specialist was employed by MoDOT to identify parkland impacts and address mitigation. With a parkland specialist on staff (M.S. degree in recreation and park management), access issues, park boundaries, and the nuisances of interagency coordination for the use, diminution, and control over park

resources would be expected to be handled more efficiently. Since that time, impacts to parkland have garnered an individual section in environmental documents. Parkland impacts have become one of the more contentious issues as demonstrated by the Page Avenue project in District 6 during the early 1990's. In this case, Creve Cour Lake Park was impacted by the Page Avenue Bridge. Due to the parkland impacts, as well as the related lawsuits, and very vocal opposition, the environmental document was forwarded to the Department of Interior for review and a decision regarding the impacts. MoDOT was unable to remain in control of the project's destiny at this point, and the Department of Interior intervened, requiring a 3:1 acre mitigation of parkland impacts. In the end, MoDOT added over 1,000 acres to the park with an overall mitigation cost of over ninety million dollars. It is fair to say that parkland impacts have become much more prominent for MoDOT. While not reflected in the Cape Bridge EA, impacts to public parkland can now be considered as another area where parkland impacts provide for a fertile area for fatal flaws that can delay, stop, or add enormous mitigation costs to a project.

Hazardous waste impacts represent another area where the importance of impacts has elevated since the late 1980's. A hazardous waste specialist has been staffed at MoDOT since 1992. Hazardous waste impacts are represented by impacts to Brownfields, dumps, and waste sites such as those found in Superfund programs (CERCLIS: List 8).

Environmental clearance for hazardous waste impacts generally involves identification of impacts to the sites within or near the proposed project and assurances that the site will not become a greater environmental concern due to project impacts. In the EA, the CERCLIS Superfund listing and the Missouri DNR report, "Confirmed Abandoned or

Uncontrolled Hazardous Waste Disposal Sites in Missouri,” were referenced to identify sites in the project area. No sites were identified in the immediate project area.

Finally, in the Other Matters section, disposal of the old Route 74 along with William Street is discussed. The EA states that both roadways will be offered to the City of Cape Girardeau for use in their local transportation system.

Comments and Coordination Section

Considering the current emphasis on stakeholder input regarding EJ and CIA in environmental documentation, this section provides a dramatic example of how public involvement was previously conceived and conducted. The Comments and Coordination section consists of a little over three pages of text and discusses communication efforts and comments with Illinois DOT, all relevant resource agencies, the impacted community and its group constituents, and public location and design meetings held with the community and interested parties. The following text summarizes the contents of Comments and Coordination section detailing efforts carried out during the project development process for the Route 74, Bill Emerson Memorial Bridge EA.

The EA reports on page twenty-nine that an agreement was reached between IDOT (Illinois DOT) and MHTD (MoDOT) in 1984 to share the cost of a new bridge across the Mississippi River. Following this interagency agreement, a pre-location meeting was held for the bridge replacement (from Sprigg Street east into Illinois) on May 4, 1985.

The meeting was held in the Arena at Cape Girardeau and it is reported that approximately 60 people attended. The EA states on page thirty that:

A sketch plan indicating four possible corridors was presented as an exhibit at the meeting. The corridors included the Red Line, the Green Line, a corridor north of the present bridge, and an alignment about 4,500 feet south of that bridge. Local residents and other concerned persons were asked for information about historical and archeological sites, public lands and parks, unique flora and fauna, wildlife habitat, noise sensitive areas, cultural features such as proposed residential and commercial developments, community values, social impacts, schools, utilities, cemeteries, and other environmentally sensitive matters.

The public did not express a preference for any specific corridor. A crossing near the existing bridge was believed necessary for the businesses of Cape Girardeau and also the community of East Cape Girardeau, Illinois. Some preferred a location connecting to the existing Route 74 south of the city to reduce truck traffic through residential neighborhoods and the central business district. Concern was expressed about commercial traffic passing near churches and the older historic buildings if the northern alternate was selected. Information generated at the pre-location meeting influenced the choice of location and design of the proposed improvement.

The meeting was considered “typical” in attendance and input but had little if any participation from the potentially affected neighborhood. There are no records of public comment regarding, and from the impacted neighborhood in the administrative records, including the public meeting transcripts, and the EA. Nor is there any mention in the records, or in the recollections of project personal, of conducting a meeting in the neighborhood. All of the public meetings for the Relocated Route 74 project were held at the Arena, located in the northwest quadrant of the intersection of Business Loop 55 and Route 34. This location was out of the immediate project area, held in the evening, and bus service was not available to the location. Finally, public sentiment, especially from the impacted neighborhood is not addressed in the SIA portion of the EA. Interviews with MoDOT and FHWA personnel suggest that the lack of public input at pre-location

meetings was not unusual. Meetings prior to the 1990's consisted of the "DAD" approach; Decide, Announce, Defend. The consensus at DOTs at the time was that the best alternate had been selected by those who know best; transportation engineers. And engineering staff still makes this assertion today; transportation engineers are the best candidates to design roads for traffic, structural qualities, and longevity. As one consequence, the public involvement for the Relocated Route 74 project played a small and insignificant role in site selection.

Further, the structure of public meetings was not especially conducive to gather input in that the District Engineer would present the project to the public, outline goals and constraints, and then request public comments. Public comments could be made by walking to the front of the room and the audience and addressing the engineers at the front of the room with a microphone. Fortunately, for those uncomfortable with public speaking, written comments could also be submitted. None-the-less, this form of public meeting generated comments from only the most vocal of publics. A more detailed discussion regarding the public involvement process for the Relocated Route 74 project is presented in the following chapter that presents a 1996 FHWA/MoDOT review of the original EA.

Interestingly, around the same time that the 1991 federal transportation reauthorization (ISTEA) called for greater public participation and more creative and inclusive public involvement, MoDOT changed the previously formal meetings to an open house format. Under the open house format, impact and issue displays are set up around a conference

room, and people can go from table to table to discuss particular impacts with those manning those stations. Comments are recorded at the stations and written and recorded comments are also allowed.

While the change to the open house format coincided with the greater public involvement directives of ISTEA, informants report that the changes occurred at MoDOT for a completely different reason. With the previous format of allowing people to speak in front of an audience, certain groups such as the Sierra Club took this as an opportunity to promote their environmental concerns and promote alternate routes, no routes, or mass transit. The formal, microphone method provided a chance to promote political and environmental causes at the project's and MoDOT's expense. While the change to the open house format eliminated the chance for "grandstanding", it should have also made more people comfortable making comments on a personal level to staff manning the various impacts stations. It is assumed that most people would prefer to have personal contact, rather than moving to the front of an audience and speaking in front of a large room of people. The open house format was also designed to make attendance at the meeting more convenient. Rather than having to attend the meeting in its entirety to see all that was proposed, the open house was arranged so that the public could come and go as needed to address their schedules and interests. At the same time, there was a movement to locate project related meetings within the areas impacted and close to public transportation rather than relying on residents traveling out of their neighborhoods to participate.

The time and location of public meetings are also of concern in understanding how the Cape Bridge project was developed, and in understanding how public involvement has recently been directed under the CIA and EJ guidance. These issues will be addressed in the following two chapters.

The next comments and coordination activities listed in the EA are reported to have occurred in October of 1987 when the project was circulated through the Missouri State and Local Federal Assistance Review Process. The document states on page thirty that:

The Southeast Missouri Regional Planning and Economic Development Commissions and the City of Cape Girardeau provided comments supporting the proposed project. This completed their review.

Finally, the document addresses the comments and coordination most pertinent to stakeholder involvement and ensuring democratic input in the NEPA process; public hearings. The document states on page thirty that:

The location public hearing for the proposed action was held on January 19, 1988 at the Arena in Cape Girardeau. Approximately 350 persons were in attendance with 19 persons making verbal comments. Numerous other written comments were received. Comments from attendees indicated overall support for the proposed bridge and highway improvement but were divided on what form the improvements should take.

The EA summarizes the public comments as a contradictory desire for high-speed access to I-55 along with provision of local access to protect business interests. Comments from the Regional Commerce and Growth Association (RCGA) are listed in the document as representing this theme of increased mobility as well as increased access. However, the RCGA also voiced concerns over changes in access to local fire and police protection as well as impacts to schools.

The Cape Girardeau Parks and Recreation Department is also cited in the EA as representative of the substantive comments provided at the location public hearing in 1988. The Parks and Recreation Department expressed concern regarding the Shawnee Park area. At the time of the meeting the park was undeveloped. The land had been donated to the City for parkland purposes but could be used for public roads. Raney Park, located at the southern edge of the new route as it starts to span the river, was not mentioned in the public meeting.

The next meeting discussed in the EA was a design public hearing conducted at the Arena in Cape Girardeau on February 7, 1990. The document states on page thirty-one that approximately three hundred people attended the meeting with sixteen persons making verbal comments. Considering that the selected/preferred alternate was known as early as April 1988, comments at these meetings can be considered informed rather than speculative regarding the actual location of the new route and the potential impacts. The document states that:

The majority of attendees were in favor of the proposed action. The city of Cape Girardeau requested additional access west of I-55 from the proposed Rt 74. The planned I-55-Route 74 interchange was revised to provide the requested access. A minor shift in the preferred alternate alignment in the vicinity of the Lutheran Home was made at the request of the facility's administration.An intersection will be constructed to provide access to and from commercial retail areas. The precise location of the downtown connection will be coordinated with the city as design work is finalized.

Considering the alignment accommodations made based on public comments, one can only speculate whether impacts to neighborhoods and people would have received the same consideration had these voices been represented, or been provided comfortable means to participate in the public meeting process. And based on discussions with

Neumann and Smith of FHWA, and Mr. Sterling from the Cape Girardeau community, there was just not any minority neighborhood participation in the project development and public meeting part of this project. Further, there is no evidence of public notice of the project for the impacted neighborhood beyond the normal documentation of public notices in local newspapers.

The document concludes with consideration of comments and coordination on page thirty-two. Readers are directed to the appendices of the document to review the coordination letters received during the process. A summary of the interagency coordination with IDOT, Missouri Department of Conservation (MDC), the EPA, and the U.S. Corps of Engineers (COE) is detailed in a paragraph on page thirty-two of the EA. The document states that early location coordination with IDOT occurred in 1986, and that coordination concerning the evaluation of cultural resources and “possible threatened or endangered flora and fauna” occurred between June 1987 and May 1990.

Coordination with MDC consisted of agency comments regarding potential impacts to “previously sighted” rare and endangered flora and fauna in the project area. Further, MDC suggested management practices for maintaining water quality during construction. The document cites coordination with EPA as consisting of comments regarding hazardous waste sites and ensuring that the preferred alternate would not impact any sites of concern.

The COE is listed as a cooperating agency in preparation of the environmental document. The document states that the COE's interest in the project was in regard to the placement of bridge abutments on the Illinois shore and the extent of jurisdictional wetlands in the project area. The document states that all comments from the agencies are addressed in the appropriate section of the environment document and are also documented in the appendices via correspondence between the agencies.

Appendices

The appendices of the Cape Bridge EA reflect the emphasis on environmental areas that could possibly generate fatal flaws and that require interaction with other agencies and stakeholders. It is apparent from both the contents of the EA and the contents of the appendices that impact areas likely to pose impediments to project completion due to permit requirements, interagency concurrence, and a variety of stringent federal and state regulations, garner more attention, effort, analysis, and mitigation over those impact without such external influences. This bias towards regulated environmental impacts (where environmental includes the human and built environments) stands, regardless of the level of actual impacts associated with the project. In the case of the Relocated Route 74, with its dramatic neighborhood impacts, these impacts were only briefly discussed. In this case, the actual significance or type of impact appears to be less of a driver of decision-making, than does the potential for complications due to external agency oversight of other impact areas. And while the level of analysis and agency coordination for these primary impacts may vary based on the level of impacts, the SIA components

do not. For SIA impacts, the level of analysis and comment included in the environmental documents tends to remain static regardless of the level of SIA impacts, and the attention in this area tends to be consistently low. Based on the Cape Bridge EA and a review of other environmental documents at MoDOT, this is not an isolated incident. According to interviews with Mr. Kross at MoDOT and Mr. Neumann at FHWA, this bias can be seen throughout the history of NEPA at MoDOT. The agencies and the corresponding impact areas that can create a fatal flaw, or act as gatekeepers to approval, influence the analysis and consideration of environmental impacts. This represents a success in terms of the external reform for resource protection brought by NEPA. However, for the impact areas without such external enforcement, such as the SIA, this normal way of doing business has resulted in a deficiency in the valuation of SIA impacts in the process.

As further evidence of this gradient of importance of the various impact areas, the appendices were examined and classified into the impact areas that they are intended to address. Of the one hundred and twenty-one pages of comment letters and coordination in the appendices of the EA, there are forty-eight pages (or nearly forty percent) of letters and reports addressing “flora and fauna” impacts associated with the project. Notably this includes a twelve page natural history report, a four page breeding bird survey, a nine page herpetofaunal survey and six pages detailing a river mussel survey. This parcel of coordination letters and reports reflects work with Illinois and Missouri resource agencies as well as coordination with the DOI.

Navigation issues and agency coordination with the Coast Guard represent the next highest level of coordination for the project. The ten pages documenting coordination with the Coast Guard are less reflective of the gradient of emphasis on environmental impacts and more indicative that the project represents a major river crossing with well-documented navigation interests. If the project did not involve a major river crossing, this dimension of the document would not be included.

Coordination with IDOT represents the next most documented coordination activity in the appendices of the EA. There are eight pages of letters documenting support and concurrence between MoDOT and IDOT regarding the contents of the EA as well as the concept and need of replacing the Cape Bridge. This level of coordination reflects the shared responsibility for the project as it involves both states. If the road and bridge had not been a joint project between states, this coordination would not have been necessary.

Impacts to cultural resources and wetlands are represented by seven pages of coordination letters, maps and reports each. The Illinois Department of Historic Preservation, Missouri DNR, and Southern Illinois University at Carbondale (a subcontractor for cultural work in Illinois) were the agencies represented in the EA to document the efforts to protect cultural resources. The COE comments are representative of the wetland and wetland/water quality impacts addressed in the document.

Required correspondence through the Missouri Federal Assistance Clearing House, Office of Administration, State of Missouri, represents four pages of documented

coordination. This is intended to ensure that all agencies and partners in the state are aware of the project activities and are given a chance to comment. Coordination through the clearing house is more of an agency formality than indicative of actual coordination to address environmental impacts. Based on this coordination, both the City of Cape Girardeau and the Southeast Missouri Regional Planning and Economic Development Commission used the opportunity to indicate full support for the bridge project and identified the new bridge as a vital component to continued economic growth for the city and region.

Other impact areas represented in the appendices include three pages of coordination letters with the EPA regarding hazardous waste sites, three pages addressing farmland conversion with the Soil Conservation Service, which included a soils map and farmland impact rating sheet, and a two page letter from the “VELO” bicycling club of Cape Girardeau along with MHTD’s response to consider bicycle access on the new bridge. Additionally, only two comment letters from local residents were received and included in the appendices that reflected concern over neighborhood impacts. The letters were from a father and son opposing the preferred alternate based on impacts to the family’s house along Sprigg Street. The two letters also questioned whether noise impacts were adequately addressed, and emphasized the possible impacts to access at Jefferson School and to emergency vehicle access.

Finally, a one page location map of the project area was included for reference to readers of the EA. Transportation environmental documents typically include location maps and

are not indicative of special circumstances or impact analysis in the environmental document.

Similar to the contents of the environmental document, the coordination letters and special studies documented in the appendices of the EA reflect a gradient of emphasis for the various environmental impacts. Those impact areas most likely to create a fatal flaw for the project, either through lack of interagency buy-in, or direct regulation, are necessarily emphasized. However, given the level of neighborhood and community impacts as well as the potential link to Title VI regulations, the lack of analysis and coordination with impacted residents represents a notable absence of consideration of these impacts. As stated, this lack of attention to these impacts is not isolated to the Cape Bridge EA; there is a notable absence in nearly all MoDOT environmental documents up to the time of the hiring of the SIA specialist at the agency in 1994.

While Section 102 of NEPA requires agencies to make use of both the natural and social sciences when there are expected human impacts, and the CEQ guidance in 1973 and 1978 reinforced the inclusion of “social and economic effects” when physical environmental impacts are present, the SIA impacts have not been well operationalized in Missouri. Freudenburg (1986: 453) argues that, “Like many provisions of the Act (social and economic impacts are to be included in the analysis), however, those dealing with the social sciences were not immediately grasped.” As documented earlier in the document, the environmental impacts with robust regulatory contexts were paramount in the determination of the need to establish an environmental section at MoDOT. This

historical development of environmental analyses continues and reflects the bias towards impacts with “teeth” in environmental documents. This bias is further reflected in the action or inaction of avoidance, minimization, and mitigation of these impacts.

A Prudent and Feasible Alternate?

Based on review of the Environmental Assessment and FONSI for the development of Bill Emerson Memorial Bridge, interviews with MoDOT and FWHA employees, and field visits to the project area, it is apparent that the environmental impacts related to the project are treated on more of gradient of potential risk to the completion of the project, rather than to the degree and significance of the impact related to the proposed project. More to the point, biological impacts related to threatened and endangered species, navigation issues, wetlands and water quality impacts, and cultural resources tend to be impacts of primary importance. SIA impacts and farmland impacts were treated as secondary impacts, and public involvement was non-existent for the most directly impacted area. Informants confirm that this is a historic pattern related to the impact’s potential to impede the process of environmental clearance and thus the project.

Directly related to the lack of SIA analysis in the document, the level of neighborhood impacts, especially the splitting of the neighborhood with the improvement of College Street, are noticeably absent. The lack of an environmental specialist with social science expertise in the SIA field during the Cape Bridge development process likely led to the dismissal of this very apparent impact. The document states on page twelve that, “ The

proposed alternate will neither separate or isolate businesses or homes nor split any neighborhood or ethnic groups because of the limited but partially open access which will be provided.” Had input from residents been acquired, it is likely this impact would have been redefined. The lack of efforts in involving the impacted residents likely contributed to overlooking the neighborhood impacts. Based on administrative records, only two comments were made during the public hearing process regarding impacts to the neighborhood.

Considering current guidance regarding public involvement for EJ and CIA, holding the public meeting at the Arena along with the formal meeting format likely inhibited neighborhood participation. The Arena location was outside of the immediate neighborhood, and may have not been a comfortable location for the minority population to attend; they would be out of their neighborhood, in the other part of town, according to Smith of FHWA and Denson of MoDOT. Additionally, FHWA personnel indicate that at the time of environmental documentation, the public, especially the minority public was unlikely to feel that their comments would be heard or considered. DOTs were not considered especially responsive to public input.

The Cape Bridge EA provides an ideal case study demonstrating the role that SIA and Title VI played in earlier environmental work for MoDOT. The EA also provides a baseline example that can be compared to current EJ and CIA guidance. Considering the current guidance and emphasis, how should the NEPA process and organization be structured in order that these important impacts are given adequate consideration?

The following chapter provides a case study of the FHWA/MoDOT Environmental Justice Review of the Cape Bridge project development and SIA process. While EJ EO project stipulations are in no way retroactive to the project, as Mr. Neumann commented during the review process, the review of the EA will provide hands-on guidelines to make sure MoDOT addresses EJ correctly in the future.

Chapter 7 - Environmental Justice After the Fact – Late Adoption of Title VI and SIA

In the previous chapter, the 1991 EA for the relocation of Route 74 in Cape Girardeau County was examined as a case study of the environmental clearance documentation process. Within the EA, the community and social factors considered in NEPA work are representative of work at MoDOT, and in this field nationally, prior to the greater emphasis placed on CIA beginning with ISTEA in 1991 and with EJ in 1994. This chapter consists of a review and analysis of the informal EJ complaint regarding the Relocated Route 74 EA. The analysis provides insight as to how the emphasis on SIA and CIA environmental process changed based on ISTEA and EJ. It further provides insight on the early guidance provided to DOTs regarding EJ. Overall, the affects of ISTEA and EJ can be understood as elevating the status of the CIA field within transportation development. Yet the CIA field, which harbors the EJ analysis for projects at MoDOT, appears to lack adequate attention in the NEPA and project development processes.

Based on a complaint by a Cape Girardeau resident concerning minority neighborhood impacts and lack of minority public involvement related to the partially constructed relocation of Route 74, the FHWA planned an Environmental Justice Review of the project for September 24, 1996. The review included personnel from both FHWA and MoDOT and consisted of a site visit along with a meeting in a District 10 project office near the construction site. The Cape Bridge EA would also be reviewed at this meeting and would provide the baseline from which to assess the scope of the environmental

documentation and predicted impacts, the actual impacts, as well as any needed impact mitigation.

In most cases, once a project has been environmentally cleared, the scope of environmental work would primarily consist of completing resource mitigation requirements. Additional environmental scrutiny would not come through NEPA but through environmental regulations addressing construction related activities such as the disposal of waste oil, tires, and related equipment, erosion control on the site, or the regulation of the timing of activities to protect flora and fauna. Almost exclusively, environmental work following the completion of an environmental document deals with biological and natural resource concerns. Thus, the complaints regarding minority participation and minority neighborhood impacts were unusual for several reasons. First of all, SIA type impacts and Title VI impacts generally have not produced increased scrutiny on transportation projects. From 1994 through 2000, there were no SIA or EJ issues with projects at MoDOT that significantly delayed or complicated a project. SIA impacts had to that point not produced any fatal flaws for projects at MoDOT. Secondly, from a practical standpoint, why would an agency conduct an EJ review after the project corridor (neighborhood) has been dismantled, especially considering that the EJ executive order has no retroactive specifications?

According to Smith of FHWA, part of the reason for the delayed complaint and the review was related to the 1994 release of the EJ EO three years after the environmental work. Also, project construction had already begun, and its related impacts were now

visible in the area. Mr. Sterling made the complaint about minority impacts with the Relocated Route 74 project after learning of the Federal DOT emphasis on EJ through his NAACP affiliations. According to Smith, when Mr. Sterling heard of the emphasis on EJ, he recognized deficiencies in the project development process used for the Relocated Route 74 project and the neighborhood impacts. Mr. Sterling then made the complaint in person when visiting with Smith at a U.S DOT function in the Cape area. This occurred in the early part of 1996.

According to Neumann, and as detailed on page two of the, Environmental Justice Review, Relocated Route 74, Cape Girardeau, Missouri, the environmental justice review would serve two purposes, he states:

Although the Environmental Justice Executive Order was signed about three years after the project Environmental Assessment (FONSI July 22, 1991) the basic concepts of Environmental Justice for minority populations are the same as those for Title VI. Requirements for Title VI applied at the time of the development of the environmental assessment.

This review is intended to determine the extent of compliance with Environmental Justice/Title VI Concepts during the development of the Environmental Assessment (EA) for Relocated Route 74. Both anticipated and actual effects on the minority community are addressed.

A review of Environmental Justice/Title VI for Relocated Route 74 will also serve as guidance for future environmental document analysis by the Missouri Department of Transportation.

Based on the correspondence and discussions between the Jefferson City FHWA Division office and the FHWA Regional Administration in Kansas City, an environmental justice review for the Route 74 relocation project was planned for September 24, 1996. On September 9, 1996, a letter was sent by Gerald Reihsen, FHWA

Division Administrator in Jefferson City, to the Kansas City FHWA office, the MoDOT headquarters, as well as the MoDOT District 10 office. The letter simply announced the review scheduled for the 24th and provided draft guidelines for the upcoming review. Interestingly, an actual invitation to the meeting was only offered informally to the Environmental section at MoDOT. At the time, EJ had not yet found a clear home at MoDOT. The MoDOT Environmental unit, and for that matter, no unit within MoDOT, had taken responsibility for ensuring the principles of EJ were carried out. FHWA had initiated action with the district office in order to solve the EJ issue at the only source that seemed to have administrative responsibility with the impacts and the project.

This lack of involvement by the Environmental section demonstrates the vagueness of the actual location of responsibility and the process of ensuring the principles of EJ at MoDOT. As Kross, the Environmental unit manager at the time stated in a discussion, MoDOT was unsure of where EJ fit in at MoDOT and even if it fit in the Environmental section. He indicated that EJ naturally seemed to fall in the socioeconomic section of the Environmental section after he had more exposure to what EJ was about. But originally, they really did not have any idea how it would fit in.

The draft guidelines for the review of the Route 74 relocation included in the letter from Gerald Reihsen of FHWA were intended to provide a baseline of understanding to FHWA and MoDOT personnel of what was expected and what would be considered in the review. The outline provided in the Reihsen's letter is reproduced below:

Guidelines for Review of Route 74 Relocation. Cape Girardeau, Missouri.

A. Public Participation

1. Advertisements for Public Comments

- a. Describe solicitations for public participation
- b. Did minority individuals/groups have access to the advertisements?
- c. Were minority newspapers utilized?
- d. Were minority groups contracted?

2. Public Hearings and Meetings

- a. Describe formal meetings and hearings held
- b. Describe informal meetings with individuals and groups.
- c. To what extent did minority individuals or groups participate?

B. Location of and Impacts to the Minority Community

1. Show location of minority community prior to project construction.

2. Show location of minority community subsequent to project construction.

3. Relocation Impacts

-To the extent available, provide details on the number of:

- a. Minority residences in Cape Girardeau?
- b. Minority businesses in Cape Girardeau?
- c. Non-minority households in Cape Girardeau?
- d. Non-minority businesses in Cape Girardeau?
- e. Minority residences relocated?
- f. Minority businesses relocated?
- g. Non-minority residences relocated?
- h. Non-minority businesses relocated?

To the extent available provide data on items listed in 3(e) to 3(h) above for the Final Environmental Assessment Alternates.

- a. Red Line Relocation Impacts
- b. Green Line Relocation Impacts
- c. Green Line with Red Extension Relocation Impacts
- d. Green Line with blue and Red Extension Relocation Impacts

C. Emergency Services – Compare response time prior to and subsequent to construction.

1. Ambulance
2. Fire
3. Police

D. Cost of Each alternate in Final Environmental Assessment

- a. Red line
- b. Green Line
- c. Green Line with Red Extension
- d. Green Line with Blue and Red Extension

- E. Meets Project Needs (Yes or No) and Serves Traffic Needs (1=poor, 4=best)
 - e. Red Line
 - f. Green Line
 - g. Green Line with Red Extension
 - h. Green Line with Blue and Red Extension

F. Other Environmental Impacts Considered for Alternates

G. Rationale for Selected Alternate (Green Line)

The review outline included in the letter provides for an examination of the project development process and impacts with attention to disproportionate impacts, efficacy of public involvement, as well as changes in the neighborhood. Based on the EJ EO, the potential for disproportionate impacts, ensuring public participation, and minimizing neighborhood impacts are the areas that NEPA can play a role in ensuring that the principles of EJ are instituted. The disproportionate dimensions of the impacts are addressed in sections B and C by comparing population, housing, and business characteristics of the larger community of Cape Girardeau and the project area. The “softer” dimensions of neighborhood impacts; as engineering staff defines them, are addressed by examining the project location and location of minority residences before and after the construction began. Consideration of mitigative measures also falls under these sections of the agenda.

The public involvement directives were to be examined within section A. The disproportionality of the preferred alternate and relation of the impacts relative to other impacts for the project would be evaluated with sections B through F of the review outline. While the list of issues to address with the EJ review appears extensive, the

majority of the information in the review should have normally been included in the environmental document and project records for the project

Environmental justice and Title VI issues, and specifically those associated with the Route 74 Relocation, along with the necessary scope of the analysis and significance of these impacts in the NEPA process, were introduced to MoDOT through the field visit to the impact area in Cape Girardeau and through the examination of the EA - its findings and its shortcomings. This site visit and review of the EA for the project provided the materials and context for the FHWA Environmental Justice Review. The Environmental Justice Review was coordinated and authored by FHWA employee Don Neumann, P.E. Based on the review process, a report was issued which was reviewed by MoDOT and FHWA employees who had participated in the review and provided concurrence with the findings. FHWA employees who participated in the site visit included; Don Neumann, Programming Engineer; Ken Bechtel, Environmental Specialist; and Glenn Smith, Civil Rights Director. MoDOT employees who attended included; Candy Case, Title VI Specialist; Larry Rohr, District 10 Project Manager; Hoyt Kyle and Shelly Gordon, District 10 Construction unit; and Ernie Perry, Socioeconomic Specialist.

The Environmental Justice Review provides an assessment of which impact areas were addressed in the environmental and project development processes, which impacts should have been addressed, and an analysis of the how Title VI and EJ were, and should be, included in the analysis, especially for projects after 1996. The document not only provides a basic overview of how to ensure compliance with the regulations and

guidance, but also begins delineation of how the organization should best align itself to assess and deal with impacts related to EJ and Title VI. The following discussion follows the format of the Environmental Justice Review as the impact assessment and implications of EJ are assessed.

The Environmental Justice Review

The Environmental Justice Review generally followed the draft guidelines documented above and that were included in the notice of the review on September 9th. The FHWA and MoDOT employees participating in the review began the daylong review at MoDOT District 10 field office in Cape Girardeau. After reviewing the guidelines for the review, the maps for the project, and the original 1991 EA, the group then toured the project area together. While the minority composition of the area was the trigger for the review, the most notable impact was the degree that the neighborhood had been divided in two by the new four-lane facility. Neumann, Smith and myself agreed that the new road had cleaved the neighborhood, and that this was one of those cases that if you ever wondered what neighborhood impacts such as the splitting of neighborhood looked like; it could be seen with this project. After the tour of the project area, the group stopped at the eastern end of the open portion of the project and observed traffic as it traveled on the new Route 74, and discussed the impacts to the neighborhood. Based on discussions in the van, it was clear that impacts to the neighborhood had occurred. It was not a question of whether there were impacts or not, but the question became one of what to do about the impacts.

The group then returned to the field office and began discussing what they had seen on the tour, what information was in the EA, and what should be done to correct the situation. All participants agreed that additional sidewalks and noise analysis were needed. The idea of an elevated pedestrian crossing was raised by Glenn Smith, but it was decided that since the road was not connected to the new bridge yet, it would be difficult to estimate the new road's impact on pedestrian access in the area. Thus information to justify such an expense was not considered available at the time. At the conclusion of the meeting, District 10 personnel were assigned the task of sidewalk design and construction to mitigate for impacts to pedestrian access, and contacting emergency services to assess the impacts of the roadway to emergency vehicle access. The Environmental unit was assigned the task of re-assessing the noise impacts and further developing public participation practices for project development. FHWA was assigned the task of writing the report for the review, and re-assessing the need for an elevated crossing. It was decided that Glenn Smith would report back to Mr. Sterling on the review of the project and also involve Mr. Sterling in future contacts with the neighborhood to establish whether an elevated crossing was needed.

The Environmental Justice Review is thirteen pages in length and includes four attachments as supporting data. The review consists of an introduction that includes a background, review of objectives, and review approach. A Findings, Conclusions and Recommendations section includes consideration of the alternates, neighborhood impacts, relocations, water quality, air quality, noise, and public participation. The four attachments consist of: A) Review of guidelines, description of findings and traffic

service, B) Photographs of the project area, C) Correspondence from the police and fire departments documenting response times, and D) Census data tables for the city of Cape Girardeau.

Introduction and Background

In the introductory paragraph of the report, the document states that Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations,” was signed on February 11, 1994. Importantly the background information states that, “The Executive Order (EO) does not extend existing federal law, under Title VI of the 1964 Civil Rights Act, which prohibits discrimination on the basis of race, color, or national origin from participation or consideration in any programs or activities receiving federal aid.” In effect, the EJ EO had no legal basis for action; it was intended to reinforce agency responsibilities under existing guidance.

According to McDonnough-Bragg of FHWA, EJ is not and should not be interpreted as a new set of regulations, but a reinforcement of what we should already be doing as required as early as 1964 through Title VI.

In the second paragraph of the report, the EO is summarized and discussed in relation to NEPA. Neumann cites from President Clinton’s memorandum accompanying the EO to identify the purpose of the EO. The document states on page one that:

The EO is intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority communities and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment.

Neumann proceeds to discuss how President Clinton's memorandum directs NEPA to accomplish the goals of the EO. He states that:

The memorandum discusses the use of the National Environmental Policy Act process to accomplish the goals of the EO, especially in (1) the assessment of the environmental, economic and social effects of federal actions on minority and low-income communities, (2) the identification of appropriate mitigation measures in consultation with affected communities, and (3) the improvement of public participation in, and accessibility to, the process and planning documents.

At the time of the EJ review in 1996, DOT guidance on EJ was still in development. The EO had not yet been operationalized in DOT activities and oversight. In order to facilitate the review, existing regulations and guidance along with the intentions of the EO would need to be interpreted for the Route 74 review. Neumann states on page one,

Neither USDOT strategy nor a proposed USDOT order explicitly addresses what actions are necessary to comply with the EO for transportation projects that began before the issuance of the EO. In the absence of any more specific direction, this Environmental Justice Review drew upon EO 12898, Title VI, NEPA and the USDOT strategy for assessing environmental justice impacts to consider the following factors:

- The planning and public participation efforts used to assure a nondiscriminatory planning process under Title VI provisions,
- The identification of impacts associated with the Relocated Route 74 and whether they have disproportionately high and adverse effects on minority population, and
- The consideration of mitigation and enhancement measures to avoid or minimize any disproportionately high and adverse impacts.

Additional background information in the review included a description of the project and a review of the concerns that prompted the review process. The project is described as, "Relocated Route 74 consists of a new four-lane divided highway extending from I-55 in western Cape Girardeau, Missouri, easterly across the Mississippi River on a new bridge, to East Cape Girardeau, Illinois." At the time of the review, construction on the

project was complete from Kingshighway to Sprigg Street and the bridge structure was beginning to take form. The sections from I-55 to Kingshighway, and from Sprigg Street to the bridge were scheduled later in the construction process and had not yet begun.

Route 74 Environmental Justice Concerns

As stated previously, it is unusual for a SIA type impact to draw attention during and, especially, after the NEPA process. It is also unusual that the EJ review was undertaken for a project that clearly existed before the EO (which did not include any requirement for previously completed projects). Within the EJ Review, the discussion of the informal complaint was headed as, “Route 74 Environmental Justice Concerns.” Neumann states in the report that the concerns were raised in the following manner:

Mr. Michael Sterling, past president of the Cape Girardeau chapter of the NAACP, contacted the Region 7 EEO Specialist and the Civil Rights Director about the impacts of the partially constructed Relocated Route 74. He expressed concern over minority participation in project public involvement, noise impacts, access to parks, and longer response time for fire and police units. He did not file a formal Title VI complaint.

And while the NEPA process is intended to identify potential impacts before construction, and it would seem that these impacts should have been included, it is still difficult to use a “crystal ball” to fully understand the impacts prior to construction. It would be convenient to suggest that the impacts related to the relocated Route 74 were just not measured correctly or could not be identified. But based on this review and analysis, the SIA impacts of importance were either just not considered in the EA, and where they were considered, adequate emphasis was not placed on them. As demonstrated in the EA, one paragraph on page twelve summarizes the neighborhood

impacts by stating, “The proposed alternate will neither separate isolate businesses or homes nor split any neighborhood or ethnic groups because of the limited but partially open access which will be provided.” In this case, the significance of the neighborhood impacts were not identified. Further, there is no evidence of direct public involvement with the impacted neighborhood in the EA or in the administrative records. In this case, information from the most impacted public was not collected or considered. Data and observations to date indicate that the lack of attention to the SIA and EJ impacts were probably most related to the lack of social science professionals on the environmental staff who would have identified these types of impacts and their importance. At the time of the Route 74 document, CIA type impacts were identified and analyzed by employees with backgrounds in physical science and engineering.

Based on my attendance at over ten regional and national CIA practitioner meetings and seminars since 1994, I would suggest that there is an overall industry-level lack of attention towards CIA/SIA related impacts. Importantly, most of the confusion of the CIA and EJ process at these meetings was expressed by engineers or planning professionals. These same individuals were responsible for CIA and EJ analysis at their respective DOTs. Again this is indicative that this work is not even being completed by social scientists in most DOTs.

The post-NEPA analysis of EJ impacts was unusual but was justified by the prior existence of Title VI guidance which was the basis for the EJ EO. FHWA employees have a common message when it comes to Title VI and EJ, and it is repeated in nearly

every EJ presentation FHWA personnel make. To paraphrase: EJ is not new, it simply restates the intentions of Title VI and similar guidance. And we (DOTs and FHWA) have failed to address these impacts and issues so the EO is intended to get transportation back on the right track. Thus, conducting the EJ review would serve two purposes. First, it would address the minority community impacts as directed by Title VI which should have been part of the process originally. Secondly, the review would provide a learning experience for MoDOT. The review would expose MoDOT as to which EJ components should be included in the NEPA process and then it would set baseline expectations of how all projects would be handled in the future with regards to the EJ EO.

Review Approach

The EJ review was to be staffed by FHWA and MoDOT employees. The FHWA review team consisted of: Don Neumann, Team Leader, FHWA Missouri Division Office; Glenn Smith, Civil Rights Director, FHWA Region 7; and Ken Bechtel, Environmental Specialist, FHWA Region 7. MoDOT participants included: Candy Case, Title VI Specialist, MoDOT Support Center; Ernest Perry, Socioeconomic Specialist, MoDOT Support Center; Shelly Gordon, District 10 MoDOT; Larry Rohr, District 10 MoDOT; and Hoyt Kyle, District 10 MoDOT. As further evidence of the lack of importance placed on SIA impacts at the DOT, there were no senior level officials from MoDOT attending the review. In contrast, meetings of this nature for natural resource impacts commonly include not only Environmental staff, but also senior management from the Design division. The senior management participated in the natural resource meetings in order to ensure that the mitigation or project changes likely to be suggested by outside

resource agencies did not threaten the project. There was no such threat in the case of EJ for the Relocated Route 74 project. Further, while the guidance and FHWA emphasis allocates a great deal of importance on public participation, no local residents were included in the review of the EA.

Copies of the Relocated Route 74 Environmental Assessment/FONSI were supplied to all team members for review prior to the field meeting. On September 24, 1996, the review was held at a project office in District 10 near the project area. Participants agreed on the review guidelines, and the team then toured the project area. Following the project area review, a meeting was held at the field office to discuss the findings and recommendations that had been discussed during the day.

As a follow-up to the meeting, Mr. Smith of FHWA contacted Mr. Sterling to discuss the meeting. Mr. Smith reported that Mr. Sterling was generally satisfied with the findings of the team. It was agreed that FHWA would remain in contact with Mr. Sterling to provide additional information as needed. No additional information is available in project files regarding this planned contact, and Mr. Sterling has moved from the area.

The findings of the meetings, tour, and discussions are discussed below as they were presented in the EJ Review document. The first portion of the review consisted of examining the environmental document and visiting the project area to ensure the stated impacts reflected the project area and project impacts.

Findings, Conclusions and Recommendations

The findings of the review began with a discussion of the four alternates considered in the EA, which included the No Build, Red Line, Green Line, and Green Line with future Blue and Red line connections. Based on the emphasis of the review, it was clear that the primary purpose of the project was to move traffic efficiently and safely. After the traffic criteria were met by the proposed alternate, other impact areas and considerations would then be incorporated into the analysis.

The No Build alternate (Alternate 1) was briefly summarized, and it was concluded that the current low Level of Service (LOS) and high accident rates would have been perpetuated and traffic needs would not have been accommodated. However, there would be no additional impacts considering construction would not have been initiated.

Alternate 2, the Red Line with Extension, was also evaluated initially on its ability to solve traffic problems. The review found that the Red Line was aligned to handle traffic movements to and from the southwest. However, the Red Line would also perpetuate traffic congestion as through traffic would compete with local traffic near the entrance to the bridge. In terms of SIA impacts, it was reported that the Red Line, “goes through the middle of several blocks,” implying that neighborhood impacts would be more severe for this alternate. The Missouri cost for the Red Line alternate was estimated at \$48,494,000.

Alternate 3, the Green Line, was referred to as the preferred alternate and represented the construction activities present at the time of the review. On page six of the review, it was

stated that, “The Green Line best serves traffic needs” and avoids splitting minority neighborhoods between Williams and Jefferson Streets. The review further stated that the preferred alternate;

By following College Street, the Green Line separates a predominately minority neighborhood for approximately 6 blocks (2 blocks east of Sprigg Street to 4 blocks west of Sprigg Street). In the 6 blocks, full access to relocated Route 74 is provided by an at-grade intersection at Sprigg and Route 74 and one-way access at three other streets.

The cost of the Green line in Missouri was estimated and \$46,043,000.

Alternate 4, the Green Line with future Blue and Red Line connections, was briefly described with little mention of environmental impacts and traffic suitability. This brief discussion of the Green Line with future connections, the No Build, and the Red line reflected the fact that the project was already under construction as the Green Line. Thus impacts for the discarded alternates are somewhat of a moot point. Considering that the construction was in progress, the comparison of the alternates was overshadowed by the analysis of the process of identifying and mitigating for impacts for the Green Alternate. The focus of the review was on the deficiencies of the selected alternate and what should be done about the impacts, rather than what would have been, had another alternate been selected for construction.

The next two pages of the review consisted of local and through traffic distribution maps to describe traffic movements. The traffic maps demonstrated the need for specific solutions to solve the traffic congestion and safety issues associated with the movements in relation to the mobility provided by the various alternates. Other environmental

impacts, especially SIA and EJ impacts, are discussed in the following sections of the document.

Impacts to Minority Neighborhoods

Neumann states on page nine of the document that the EA did not identify minority impacts since the general project area was considered “a racially mixed area.” He states further, “However, the area is predominately minority, and consequently the minority community was affected.” During the field visit to the project area, it was clear that the six-block area had been divided by the relocated Route 74. Minority population or not, the partially constructed Route 74 resulted in neighborhood impacts that were not identified in the EA.

Whether a project area is eligible for consideration as a minority community or not has not been clearly defined by the available guidance. Based on Title VI directives and on the language contained in the EJ EO, there is no measure, percent, or number of minority or low-income residents that triggers classification as minority project area. Thus, the Cape project was identified as “racially mixed” rather than a minority community based on a non-majority percentage of minority residents. Thus, there appeared to be an assumption at that time that a minority population can be identified when the percent minority exceeds the percent non-minority. In the case of Route 74, as the percent of minority population did not exceed fifty percent of the total population, it was considered a racially mixed, rather than minority population. Under the guidance provided by EJ, the percent again is not defined. If minorities or low-income populations are present, the

spirit and intentions of the guidance must be met. The lack of a trigger to identify minority and low-income status for a project area has been one of the most difficult issues raised by practitioners across the country. Based on my interaction with practitioners across the country, I found many practitioners claim it is difficult to get past the need for a specific percent or number of people in the population in defining a minority or low-income area.

The review next states that the Green Line had less impact on minority neighborhood cohesion than the Red Line. The review summarizes the splitting of the minority neighborhood in comparison to the potential alternates and states; “The Green Line follows the southern edge of College Street for 6 blocks through a minority area. This is less disruptive than the Red Line, which runs through the middle of 11 predominately minority blocks. The Green/Blue/Red line has the same impacts as the Green Line.”

The review also points out that the relocated route basically separated the neighborhoods south and north of College Street, but that the separation was mitigated by an at-grade intersection at West End Boulevard and Sprigg Street. Additionally, three local access points would be provided to the new route, and a sidewalk outside of the ROW runs along most of College Street. So while pedestrian as well vehicle access across the Relocated Route 74 was not eliminated, it did become much more problematic.

Pedestrians would now have up to a six-block section of the area they would no longer be able to cross within the neighborhood area. This area was bounded by intersections, which allowed crossing of Route 74 at West End Boulevard on the west, and Sprigg

Street on the easterly end. Cross streets that were divided by the new Route 74 include Beaudan, Benton, Pacific and Ellis. Thus, residents could walk to the end of their neighborhood area to cross Route 74, but would not be able to cross the road within their neighborhood.

Access to parks in the area was also considered in the EJ review and was one of the impacts identified by Mr. Sterling. Based on the location of Shawnee Park to the south and outside of the project area, the review team determined that access to the park had not been restricted. Because the park is not immediately adjacent to the route, access time for vehicles and pedestrians would remain much the same. Access to Ranney Park, at the southeasterly edge of the project area where the bridge span begins, would be limited for approximately two blocks following completion of the Relocated Route 74. Since this park is located right at the Sprigg Street and Route 74 interchange, changes to access are limited. No provisions for sidewalks to the park were included in the original design for the project. In the map below, Shawnee Park can be seen as the rectangular block under point 7. Ranney Park is located to the right of point 6, on the south side of the Relocated Route 74 and is identified on the map with an arrow.



Access to the public school at Ranney and Locust Streets was not significantly affected according to the EJ review. Neumann states that access to the school prior to and subsequent to the construction was along Jefferson, Maple, Walnut and Sprigg Streets. These points of access would not be affected. However, residents east of Ranney Street would be required to walk an additional two blocks to reach Sprigg Street for access to the school.

One of the most costly mitigation solutions discussed to address the separation of the neighborhood was the installation of a pedestrian bridge over the new Route 74. It was agreed at the meeting that while the bridge might be needed, access to cross the road was indeed available. Thus, the provision of the pedestrian bridge could probably be avoided. Further, as the new Route 74 in the impacted area was less than a year old, pedestrian

travel habits had not been established or observed enough to determine the need for such a structure.

However, field visits to the project area in 1996 revealed that several crossing points along the roadway were being self-selected by residents. While visiting the site on three different occasions, residents (usually teenagers and children) were observed crossing the four-lane expressway to avoid the longer walk to the intersection at Sprigg Street. Since that time, District 10 personnel have observed similar circumstances and have allocated transportation enhancement funds to provide an elevated pedestrian crosswalk at mid-block. Based on my discussion a District 10 Planner, the need for a pedestrian overpass was identified independent of the EJ issues and review. The project need was identified based on the safety concerns of children and teenagers jumping the five foot hurricane fence and then running across four-lanes of traffic. When asked about the project and if it was related to the EJ Review, the district planner indicated he was not familiar with the review or its contents.

Mr. Sterling also expressed concern about police and fire response times for the project area after construction. Neumann states on page ten of the review that, “The access to minority neighborhoods prior to and subsequent to construction of relocated Route 74 is the same. Access from Police and Fire Stations is south along Sprigg to east-west streets such as College and Walnut. In fact, Fire and Police protection has been enhanced from Sprigg Street to Kingshighway due to higher speeds and safer travel on the expressway.” The EJ review document includes as attachment C letters from the police and fire

departments in Cape Girardeau supporting these conclusions regarding emergency access to the area.

Relocations are one of the most sensitive issues besetting projects which require space beyond the current ROW. Neumann summarizes the displacements estimated in the EA and presents them in Table 1 of the review. The table is reproduced below:

Displacements		
	Residences	Businesses
Red Line	58 (33 minority or 56%*)	16
Green Line	79 (48 minority or 60%*)	12 (1 minority or 8%)
Green/Blue/Red	68 (48 minority or 70%*)	5

*Percents added by author

Importantly, Neumann points out in the review that the Green Line was modified to reduce community impacts in the final design of the project.

The green line was shifted during detailed design to reduce impacts to the minority community, although the EA anticipated that 48 minority residences would be relocated, only 25 were actually relocated. This is a 48 percent reduction in impacts.

Neumann addresses the disparate impact potential of the project by comparing anticipated relocation impacts of the project to the population characteristics of the larger Cape Girardeau area. He presents that:

The latest census data in Attachment D shows a total population in Cape Girardeau of 34,438 people. The minority population is 3,334 people or 9.7 percent. Minority housing units shown in Attachment D amount to 1,059 of the 13,442 units or 7.9 percent. Consequently there is a disparate impact since minority residences comprised 48 of 79 units or 60.7 percent of Green Line residences.

However, based on the actual number of households relocated after final design modifications, twenty-five out of sixty-six residences, or thirty-eight percent of the total relocations were minority. Thus, based on efforts to reduce impacts to residents in the final design stages, total displacements were reduced from seventy-nine to sixty-six households, and of this number, minority household impacts decreased from forty-eight to twenty-five households. Based on Neumann's analysis, this still represents a disparate impact when compared to the overall population composition of the community.

It is important to consider the scale of comparison for the disparate analysis. Progressive work in the area relies on GIS based perspectives to compare impacts among alternatives. Using the City of Cape Girardeau for comparison could be seen as misguided as the project did not have alternates that would impact all of the community. However this is somewhat irrelevant as the impacts were characterized as disparate in the final analysis and would probably have been only more or less so disparate. Additionally, given the nature of the differential spatial patterns of neighborhoods and communities, no standard for comparison exists. The level of geography most relevant for the analysis is best determined by field observation by an experienced practitioner, the scope of the project, and the nature of the project area.

Further it is important to note that on most projects, relocation impacts are estimated on the conservative side; meaning that the estimates are high. The DOT seeks to get environmental clearance for the reasonably widest width of ROW, expecting that final design changes will occur. During the final design process, the alignment and needed

ROW are generally reduced as engineers and designers try to minimize impacts and projects costs associated with ROW acquisition and mitigation. Changes in impacts also stem from unexpected engineering and geological circumstances, as well as public input that require refinement of the alternate to accommodate these factors. It can be concluded that the scope and complexity of most transportation projects are such that the actual and final impacts are somewhat fluid and difficult to predict with complete accuracy.

Business relocations were also considered in the EJ review. Neumann reports:

One minority business was relocated. Eleven non-minority businesses were relocated. This 1 to 11 ratio is higher than the 22 to 2500 minority/non-minority businesses citywide (based on 1994 Chamber of Commerce data).

Based on Nuemann's disparate analysis for residential areas, the business impacts would also be considered disparate. Nine percent of the businesses relocated were minority as compared to a city-wide minority composition of .88 percent.

Still the most striking results considering neighborhood impacts were identified in the field visits to the area. The project had cut through the center of a residential area, and where there were once tree-shaded lots and the appearance of a cohesive neighborhood, there was now a four-lane limited access facility. Where only a city street and their front yards had previously separated residents, now the minimum separation was the width of the new road and ROW consisting of approximately ninety feet of pavement, shoulders, and clear zone. In the areas where additional ROW was needed to accommodate slopes, the distance from houses on each side of the new Route 74 is up to three hundred feet.

And besides the distance, a five-foot chain link fence borders the ROW on both sides, and a concrete median barrier runs the centerline of the roadway. Minority impacts or not, the general class of neighborhood and community impacts had been mentioned in the document but clearly not given the weight they deserved considering the significance of the impacts.

The EJ review next covers the environmental impacts of water quality, air quality, and noise impacts. These impacts are discussed for at least two reasons. First, other impacts areas beyond the CIA or SIA area are linked to SIA and CIA impacts in a secondary manner. Thus, if these impacts are identified, it is also likely that they have an additional effect on neighborhoods and the community beyond decreasing water or air quality. Secondly, impacts in these other areas played a role in determining the selection of the preferred alternate and thus aided in justification of other impacts. In this sense the impact analysis could be considered an integrated impact assessment. One where the various impacts are weighted (although not in a formal manner) and considered together in selecting the preferred alternate.

Neumann states on page eleven of the document that construction alternates have “essentially the same water quality impacts to the minority areas.” Water quality impacts reside mainly with the construction of the bridge itself and would occur no matter where the structure was located. Impacts to air quality are of most concern in air quality non-attainment areas which generally are limited to the larger urban areas in Missouri. In non-attainment areas, projects must be shown not to add to the air quality problems in the

region. Cape Girardeau is not in non-attainment. Neumann states that air quality impacts to minority areas are the same for all of the alternates. Specifically, “Carbon monoxide emissions from mobile sources will be 1.18 parts per million (ppm) in the year 2010. The National Ambient Air quality Air Standard is 35 ppm.”

While air quality and water quality impacts were not considered as pivotal in the neighborhood and minority impacts for the project, noise impacts reported in the EA did exceed the FHWA limit for noise abatement criteria (69 versus 67 dBA), but no mitigation was proposed due to the intersections in the roadway which would decrease the effect of noise walls for sound attenuation. Neumann provides the following table to present the noise impacts:

Location	Measured LEQ dBA	Predicted LEQ dBA	Abatement Criteria dBA
College Street at Willow and Ranney Streets	60	69	67
College Street at Benton Street (south)	62	69	67

Neumann’s summary of the noise impacts states:

A 7 to 9 dBA increase is shown along College Street. These sound increases are very discernable; a 10 dBA increase is a doubling of noise levels. The EA states that noise attenuation structures along College Street would not provide significant reduction in noise impact. However, the Federal highway Administration (FHWA) abatement criteria is 67 dBA for residences which is exceeded along College Street.

While the noise impacts are clear based on this analysis, mitigation for noise impacts is difficult. Providing structures for noise abatement are costly relative to the protection

provided. Additionally, public perception of noise walls, the most common mitigation strategy, is not favorable. While residents do not appreciate the noise, based on experiences with several projects, residents presented with the opportunity for a sound wall tend to express dislike for the idea of a concrete wall at the edge of in their yards. Common complaints expressed by residents on other projects include: feeling boxed in by the wall, having their view of the landscape eliminated, while others have complained that a sound wall would shade their house and yard ruining gardens and making yards dark. Further, complete buy-in from impacted residents is required in order to construct noise walls, as the structure must completely span the area to provide noise abatement. The strategy developed to address noise impacts is further discussed as part of the discussion of the outcome of the EJ Review.

Public Participation

As noted repeatedly in the EJ guidance and EO itself, public participation is one of the key tenets of ensuring the avoidance of disproportionate impacts to low-income and minority populations. As pointed out by FHWA regional employee, Mary McDonnogh-Bragg, “The old way of doing business included community leaders, businessmen, and elected officials. The new way of doing business includes everybody, and we will have to make extra efforts to include those that have historically been excluded.” Based on the EJ Review team’s analysis of the public participation efforts for the Route 74 Relocation, Neumann finds the public participation to be limited and almost to the exclusion of the neighborhood area most impacted. The EJ Review documents a

Prelocation Meeting, a Location Hearing, and a Design Hearing. It summarizes the meetings as follows:

Prelocation Meeting

This meeting was held April 4, 1985. It was advertised in newspapers, radio stations, and a TV station. Advertisements in a minority newspaper was impossible since none existed. About sixty persons attended this meeting.

Location Hearing

Legal notices were placed in the Southeast Missourian and Cash Book Journal [local newspapers] in December 1987 and January 1988. The hearing was held on January 19, 1988 at the Arena in Cape Girardeau. Approximately 350 persons attended. The Green Line was supported by the general public.

Design Hearing

A legal notice was placed in the Southeast Missourian on January 5, 1990 and January 30, 1990. News releases were given to newspapers, radio stations and TV stations. The hearing was held on February 7, 1990 at the Arena. Approximately 300 people attended. The project was heavily supported by the general public.

Neumann next summarizes the effectiveness of this public involvement effort and states;

The minority community had access to the newspapers, radio advertisements, and TV broadcasts. No special public relations efforts were made to target minorities in the neighborhood affected by the project.

There was considerable input from the general population in Cape Girardeau but limited input from the minority community. Individual members of the community suggested the project be routed away from the predominately minority areas. Issues regarding access to Shawnee Park, noise and response time for fire and police were not voiced by the minority community.

When questioned about the extent of public involvement needed when projects affect minority and low-income populations, FHWA regional employee McDonnough-Bragg states that public involvement is not new. To paraphrase McDonnough-Bragg, 'We as an

industry have just not done it right.’ Her comments provide a good summary of the public involvement efforts for the Route 74 Relocation. The efforts were made, but the most intimately impacted area was not included based on the old way of doing business. There was clearly a lack of participation by the most negatively impacted residents for the Relocated Route 74 project.

Current CIA and EJ guidance for public involvement stresses that there may be barriers to participation by minority and low-income groups. The lack of, or different information networks, distrust of the agency, and a feeling that one could not affect the project are all cited by McDonnough-Bragg as reasons for the failure of most agencies to adequately capture minority perceptions of the project in design and development stages. In response to the difficulties in achieving participation by non-traditional stakeholders, DOTs are called to go where the people are rather than expect them to come to DOT sponsored meetings. In the Cape Girardeau situation, efforts should have been made from the onset of the project to go beyond the then current practice of newspaper notification of public meetings and standardized meeting formats.

In response to the lack of public involvement with the Relocated Route 74, MoDOT has looked for more effective ways to capture the sentiment and concerns of the public. For example, in a 2000 project in Scott City, south of Cape Girardeau, flyers were handed out door-to-door in the impacted neighborhoods to ensure that residents were aware of the opportunity to participate in the public meeting conducted at the YMCA building within the neighborhood. And in a North Carolina case (NCDOT: 2001), practitioners worked

with the local grocer to set up an interview table in the store on those days of the month when food stamp credits were made on low-income residents' accounts. In exchange for an interview with DOT personnel regarding the project and its impacts, residents received a liter bottle of soda, which was purchased by the DOT from the store in exchange for allowing the DOT space in the store. One of the major findings of the NCDOT report was that traditional public involvement techniques do not work for every segment of the population. Practitioners need to be creative and go beyond normal practices.

Just as important as the methods to solicit input, are what the DOT does with the information. Will the DOT use the input, does the input represent a legitimate determinant of the impacts of the project for the DOT? As shown with the review of EA for Relocated Route 74 project, even while MoDOT and FHWA held a meeting concerning neighborhood impacts and the lack of public involvement for the project; and what to do about it, members of the community were not invited. Thus, practitioners and advocates of better public involvement talk of "sincere" and "meaningful" public involvement. In order to achieve high levels of valuable input, DOTs are called not only to expand the practices used to solicit input from residents, but it is even more important that they do something with the information. The old way of doing business would certainly not provide the solution to need for greater and inclusive public involvement.

EJ Review – Conclusions and Recommendations

Based on the content of the environmental document and the EJ Review, it is clear that the purpose and need of the project -moving traffic- are foremost, and that the impacts

that could generate “fatal flaws” resulting in project delays are most relevant to those preparing and developing the project. To prioritize the issues, traffic accommodation holds the highest priority. If an alternate does not provide a solution to the traffic needs, the alternate is likely to be rejected. Similarly, a great deal of time and money is allocated to mitigating impacts for an alternate that does serve the traffic needs as seen in the cases of the Bruce Watkins Drive in Kansas City and the Page Avenue Extension in St. Louis. The next most important factor are the impacts that could delay or add significant costs to the project, followed lastly by impacts to people, neighborhoods and communities. If an alternate has fatal flaws or impacts that could delay, or add significant cost to the project, DOTs attempt to identify these in the early project scoping process so as to avoid the impacts or the alternate. In the case of SIA impacts, my experiences suggest that they are merely part of the paperwork. SIA is an impact area to consider after the traffic problems and fatal flaws have been worked out. ISTEA’s directive of community enhancement, CIA’s emphasis on understanding and including people, and EJ’s emphasis on including people, avoiding impacts, and mitigating when needed followed the route relocation in time. But as they directives reflect the earlier guidance, the SIA considerations should have been included to a greater degree in the EA. It is apparent that the most negatively impacted public was not heard and did not have a voice in determining the development of the bridge and approach locations.

As the EJ complaint was not formal, and the EO presents no retroactive directives, this review was intended to address Title VI issues that were present at the time of project development, make the situation right, and provide MoDOT with an understanding and

tools necessary to ensure such circumstances did not occur again. Neumann concludes on page thirteen of the EJ review that:

The Environmental Assessment developed for the Relocated Route 74 project is in conformance with FHWA Technical Advisory T6640.8A “Guidance for Preparing And Processing Environmental and Section 4(f) Documents.” The EA covered the basic environmental impacts and proposed mitigation including those for Environmental Justice/Title VI. The selected preferred alternate [Green Line] has lower minority community impacts than the other alternative.

The documents and circumstances substantiate that the Green Line did indeed have fewer minority impacts; however, the minority community had little if any voice in project development. Further, impact avoidance and mitigation, especially for relocation and neighborhood impacts, were minimal. Neumann identifies these areas that “could have been given more detailed analyses” starting on page thirteen of the review document. He identifies the following impact areas and mitigation needed to address these impact areas.

Minority community access to Shawnees Park has not substantially changed due to the project. Travel distances remain the same. Travel times by some of the minority community have been substantially reduced due to expressway access at Sprigg Street. Once construction is complete, access to Ranney Park will be reduced.

Recommendation: To facilitate park access [to Ranney Park] a sidewalk should be constructed on both sides of Relocated Route 74 from Sprigg Street east.

Minority community access to [a] school in the southern project area has been marginally affected by existing construction. Access has been and will continue to be along Sprigg Street for residents west of Sprigg Street. However, residents east of Sprigg will have to walk one to two blocks to Sprigg instead of walking directly south.

Recommendation: Due to modified access to the school, sidewalks along Relocated Route 74 are recommended from Sprigg Street east.

Fire and police protection has not been substantially changed. Depending on location, response time by police units has been reduced due to their ability to use a higher speed, safer expressway. Fire units used Sprigg Street to access minority areas prior to construction and will continue to use Sprigg Street upon completion of the project. In Attachment C, letters

from both the Fire and Police Departments conclude that emergency service response times have not increased.

The public involvement process could be improved to ensure greater minority involvement. In particular, Environmental Justice/Title VI concepts argue for a more pro-active process.

Recommendation: When preliminary studies indicate possible impacts to minority and low income populations, the State's public involvement process should be modified to ensure greater minority input. Modifications could include:

- Send flyers to homes in minority neighborhoods to advertise public meetings.
- Survey minority neighborhoods to determine their concerns.
- Education activities such as presentations on impacts at schools and/or churches.
- Community meetings on a neighborhood basis.

The Missouri Division Office [FHWA] has agreed to stress the need for comprehensive Environmental Justice analysis in environmental documents.

The noise analysis in the Environmental Assessment was minimal.

Recommendation: Additional noise measurements should be taken in minority areas to compare predicted levels with current level. The need for noise barriers should be evaluated in accordance with MoDOT noise policy.

The EJ Review identified some fairly basic concepts that should have been included in the original process and would now be corrected and carried forth in future projects to ensure that the principles of EJ and Title VI would warrant the consideration necessary. Access to parks and schools, decreased access by police and fire departments, public involvement and noise impacts were identified in the informal complaint and addressed by the review. Field visits to the project area confirmed the presence of impacts to access, noise, and the neighborhood, and based on administrative records and informants, the public involvement process was lacking as stated. Fire and Police access times were found to have been improved with the new roadway.

Importantly, the scope of the changes to the neighborhood should have triggered additional consideration and mitigation. While no pre-construction photographs were available in project files, the photographs below provide insight as to the separation and landscape changes after construction. It is important to consider that previously the neighborhood was arranged on a grid consisting of tree lined streets and single-family homes.



VIEW OF SIDEWALK LOOKING EAST, NORTH SIDE OF ROUTE 74.





HOUSING SOUTH OF ROUTE 74, NORTH END OF BEAUDEAN STREET.

Based on the author's six years working in the Environmental section at the DOT, these photos could be from any project. By this, it is meant that SIA and CIA impacts in general have historically received little attention. Impacts to neighborhoods have either been missed or not given the consideration warranted by transportation impacts. And whether the community was minority or non-minority, impacts to neighborhoods and communities have been given little attention. These community and neighborhood assessment impacts are defined in the 1996, *Community Impact Assessment- A Quick Reference for Transportation*, in the following manner.

Community impact assessment is a process to evaluate the effects of a transportation action on a community and its quality of life. The assessment process is an integral part of project planning and development and shapes the outcomes of a project. Its information is used continuously to mold the project and provide documentation of the current and anticipated social environment of a geographic area with and without the action. The assessment should include all items of importance to people, such as mobility, safety, employment effects, relocation, isolation, and other community impacts.

So while traditional analyses at MoDOT focused on relocations and the cost efficiency of the project, the social and collective patterns of the people within the geographic area in the context of the project have not been examined. They are only mildly reflected by relocations and project costs. But project impacts are more than relocations and project costs; they include real changes to how people interact, their futures, and their outlook about their environment in which they live. These impacts have not been identified and dealt with under the old way of doing business.

FHWA employees as well as MoDOT management concur that without the new emphasis on EJ and CIA, the lack of attention to the SIA component would likely have continued. CIA emphasized the importance of leaving a community a better place than it was before the project. Residents should find access to the neighbors and local markets unaffected. If the quaint nature of a neighborhood is important to the residents, steps should be taken to preserve the setting. EJ emphasized the importance of public involvement, impact avoidance, and mitigation, especially for minority and low-income residents. In this case, not only should DOTs do good CIA work, but the efforts to identify the social and collective patterns of minority and low-income groups may require more work for DOTs to ensure that these patterns and circumstances are understood by the engineering culture. FHWA, as the signer of the environmental documents, and thus ultimately responsible, had to “lay down the law” regarding CIA and EJ in order to draw more attention to these impacts and the importance of them. The Relocated Route 74 project provided the avenue from which to educate the DOT regarding the scope of the issues, and their responsibilities in complying with these “softer” issues. And in the

absence of any other regulatory “stick”, pressure from FHWA was and remains as the regulatory context of enforcing these concepts and practices. Importantly, in the last five years, the “stick” to enforce the concepts and intentions of EJ has expanded through civil law suits against DOTs and FHWA. Baida and McDaniel (2003: 21) point out transportation projects face the potential of civil law suits based on project activity:

These projects implicate a number of federal laws, regulations, and policies that impose an assortment of administrative and legal obligations for both regulators and those they regulate.

In a February 2000, Workshop on Title VI –Environmental Justice, held in Arlington, VA, and sponsored by the American Association of State Highway and Transportation Officials, American Public Transit Association, and the Association of Metropolitan Planning Organizations, three states presented on lessons they had learned from civil rights lawsuits over transportation planning and project development. Georgia, Illinois, and two cases in California were presented as case studies of the civil rights legal ramifications of transportation. And in, *Environmental Justice in Transportation: Legal Background* (2000) five case studies are presented where DOTs were sued over non-compliance with Title VI assurances. The one thing most in common among these presentations was the speakers’ warning of “Do it right the first time, because you don’t want a law suit over this.” And As Mary Williams from the Wisconsin FHWA office explained the WISDOT experience in 2000, “One Court Order! You don’t want to go there.”

Lawsuits are challenging the old way of doing business and appear to be a threat to project completion in certain cases across the country. Based on information gathered by the author while attending regional and national meetings, it appears that the threat of a lawsuit may be the trigger that encourages DOTs to increase their knowledge and efforts in the CIA and EJ areas. FHWA employees comment almost in unison that, ‘You do not want to endure a lawsuit over EJ. Get on top of these issues before it happens and threatens a project.’

Rational for the Green Line

In attachment A of the EJ review, the rational for selection of Green Line is presented.

Neumann states that:

[The Green line] Provided an additional east/west route that the other alternates did not provide. Red Line could not alleviate heavy traffic congestion from William Street. The Green Line received support from the Cape Girardeau Chamber of Commerce, Southeast Regional Planning Commission, Cape Girardeau County Commission and the City of Cape Girardeau.

It is apparent that the context and impacts of the project can be explained in a manner more consistent with the intentions of CIA and EJ guidance. However, the basics of SIA/CIA and Title VI/EJ were not effectively completed and presented in the original EA. And to the degree that they were included, the scope of the impacts was not considered beyond a tertiary consideration compared to the purpose of the project and the other more formalized impact areas.

MoDOT's Response to the EJ Review

Based on my discussions with MoDOT managers and the experience of the EJ review, the organization was unsure both how or where EJ fit into the project development process and the implications of the new guidance and EJ Review. In the environmental office at MoDOT, the review did not seem to threaten management, and staff was encouraged to attend if they were interested. In the case of other regulated environmental impacts, management, up to and including Division Engineers, would have attended similar reviews to ensure project completion. In this case, the only Project Development representation was the socioeconomic specialist. Based on these reactions, it can be concluded that EJ had not been identified as an important component of the environmental process, and that a minimal threat was perceived from the EJ complaint.

Mr. Neumann sent copies of the EJ Review to the Regional FHWA office as well as to the MoDOT Project Development office and District 10 office in November of 1996. The District 10 Design staff was identified as the work group with responsibility to comply with the construction-related suggestions contained in the review. The Environmental unit in Jefferson City was charged with additional noise analysis and developing guidance related to public involvement and SIA, and FHWA was to write the review report and maintain contact with Mr. Sterling. The threat of non-compliance was not specified, but the review did state that future projects would be under additional scrutiny concerning EJ impacts. The Environmental section at the MoDOT main office in Jefferson City maintained contact with the District to assist with any difficulties that

might have resulted from the review. Communication between MoDOT and FHWA continued and resulted in several concrete activities to correct the situation.

On September 12, 1997, MoDOT's Environmental section sent a letter to Mr. Neumann stating that they had accepted commitments regarding EJ for the Relocated Route 74 project. The letter confirmed that MoDOT would construct sidewalks, alter its public involvement effort to ensure minority participation, reassess noise impacts, and provide additional landscaping to beautify the corridor. MoDOT's letter to FHWA indicated that the three main recommendations included in the EJ Review were planned and included:

- 1) Construct sidewalks on both sides of Relocated Route 74 from Sprigg Street east to facilitate pedestrian access to a school and park,
- 2) Modify MoDOT's public involvement process to ensure minority input, and
- 3) Take additional noise measurements in the project area to compare predicted noise levels with current levels and evaluate the need for noise barriers in accordance with MoDOT noise policy.

The socioeconomic specialist at MoDOT also suggested that the agency address the landscape changes in the neighborhood. Based on the road's sterile footprint, and considering the character of the old bridge approach with landscaping and flowers, more could be done to make the new bridge a community resource. In the letter, MoDOT states:

In addition to these agreed upon recommendations, MoDOT personnel are pursuing coordination of landscaping/beautification of the bridge approach with Cape Girardeau community leaders and representatives of the project area. The new Bill Emerson Memorial Bridge will provide benefits to the entire state; it is also expected to become a community resource for Cape Girardeau. As such, enhancements such as trees, shrubs and flower

plantings, as well as general landscaping will add to the bridge and the surrounding neighborhood.

Additionally, the mitigation completed and planned for the Relocated Route 74 project was described to ensure that all involved were still in agreement as to the scope of the needed work. The letter states:

In summation of our efforts to fulfill the commitments made with Federal Highway Administration, the following activities have been completed:

1) Construct Sidewalks on both sides of Relocated Route 74 from Sprigg Street east.

Sidewalks have been constructed from Pacific Street east to Sprigg Street on the north side of Relocated Route 74. This section of sidewalk was completed to replace sections of sidewalks removed along College Street [It is MoDOT policy to replace existing sidewalks]. As part of the environmental justice review, sidewalks have been added to the construction plans to provide continued travel from Sprigg Street east. With the completion of this section of sidewalk, sidewalks will be provided on the north side of Relocated Route 74 from Pacific Street east to Sprigg Street and from Asher Street west to Sprigg Street. On the south side of Relocated route 74 sidewalks have been added to the construction plans from Sprigg Street east to N. Ranney Street to provide access to Ranney Park

2) Modify MoDOT's public involvement process to ensure minority representation.

MoDOT has altered its public participation process to ensure greater minority participation. Specific instructions have been added to the MoDOT Design Manual to address minority inclusion in the public participation process. Additionally, changes to the overall public participation format have been made to increase the role that the public plays in project decisions. Preliminary feedback from the public suggests these efforts have been successful. [Manual changes included moving to an open house meeting format from the old hearing style meeting, locating meetings in the project area, using media outlets other than traditional sources to increase communication with non-traditional residents, encouraging project managers to attend a wider range of community meeting to increase exposure, and contacting the main office environmental staff if problems are suspected.]

As agreed, we have also taken a proactive stance on including a comprehensive environmental justice analysis in our environmental

impact evaluation and documentation. This includes early project scoping, analysis of project impact in relation to the population of stakeholders, and mitigation of impacts. A comparison of MoDOT's environmental justice analysis procedures to the established guidelines and work done in other states indicates our efforts generally exceed required and established procedures. We will continue to pursue higher standards of public participation and environmental justice analysis in future projects.

3) Take additional noise measurements and compare predicted with actual levels.

Noise measurements were taken at three locations along Relocated Route 74 to replicate those measurements taken from the original environmental document. Noise levels do not exceed those predicted in the original analysis nor does the analysis indicate the need for noise abatement based on MoDOT's noise policy. [However, at the time of the second noise analysis, the bridge was not complete and the roadway had not reached the predicted traffic levels. Additionally, noise abatement may be needed, but intersections and slopes along the ROW would have prevented successful noise abatement with traditional structures according to MoDOT's noise and air quality specialist].

In summary of the efforts by MoDOT, the letter concludes that the experiences of MoDOT staff in carrying out the recommendations were positive. Steps were taken to further reduce community and neighborhood impacts and a model for public participation and EJ analysis was being developed.

It can be concluded from the original Relocated Route 74 EA, the EJ Review and site visits that the SIA/CIA and civil rights components of the environmental process and transportation project development are still in their infancy at MoDOT, thirty-plus years after NEPA and Title VI. And based on national experiences, the same can be said for the SIA/CIA and EJ process across the country. As stated in CIA Guidebook (1999), "In the past, consequences of transportation investments on communities have often been ignored or introduced near the end of the planning process, reducing them to reactive

considerations at best.” And according to McDonnough-Bragg, and as argued in, *Transportation and Environmental Justices Case Studies* (2000), EJ and CIA are restatements of the 1964 guidance provided by Title VI and the 1969 guidance provided by NEPA. Transportation as an industry has failed to fully include human dimension concerns in transportation development. Kennedy (1999: 4) argues that the human dimensions of transportation development are just now coming to the forefront in transportation. She argues:

There is clearly a protection of “environmental rights” that is promulgated in NEPA and Executive Order 11514 that has sparked civil rights activists over the past decade to question “human rights” in the equation of human rights vs. environmental rights. Have we as professionals overlooked the protection of society (human rights) and communities in the “environment” when balancing the impacts studied under NEPA in coming to our final decisions and conclusions? On one side of the equation many governmental agencies feel they have addressed “human rights” through the adherence of NEPA and the Civil Rights Act, yet, on the other side of the equation civil rights activists feel “human rights” have been ignored under NEPA and only the “environmental rights” have been protected.

While ISTEA and EJ have increased agency awareness of the human-dimension concepts involved with project development, the impacts are still ill-defined and not highly prioritized as compared to natural resource impacts. As demonstrated in the EA and its review, SIA/CIA impacts are considered only as an after-thought to the engineering needs to address traffic and traffic safety needs and to those environmental issues (natural resource issues) which could delay a project through regulatory action. Construction alternatives for projects are filtered based first on their ability to solve traffic needs, secondly, those alternates with fatal flaws are given closer scrutiny and avoided if

possible, and lastly, human dimension impacts are weakly documented and rarely mitigated save the relocation of households and businesses.

CIA and EJ in the Environmental and Project Development Process

Considering the previous chapter's discussion of the NEPA process, and this chapter's outlining of the CIA/SIA and civil rights components of transportation project development, it is apparent there are several historical and organizational barriers to increased consideration of human-dimension components. Findings based on the three case studies (The MoDOT environmental process setting, the Relocated Route 74 EA, and The Relocated Route 74 EJ Review) indicate the following conditions are paramount to this lack of adoption:

- 1) The historic context of NEPA and CIA in a predominately engineering organization minimizes the environmental, and especially social impacts, to a secondary consideration after the transportation engineering constraints are addressed.
- 2) To the degree that environmental issues inform transportation project development, those environmental issues with regulatory enforcement are of most importance to the organization. For SIA/CIA type impacts, organizational interest is minimal unless there are external regulations that could lead to project delay.
- 3) Based on 2 above, the organization's risk perception of non-compliance causing project delay is directly related to the regulatory onus placed on the organization by outside agencies.

- 4) The importance of public involvement beyond the traditional scope of consideration requires as much social science direction as it does media activity. Public involvement now requires a social science perspective in order to identify non-traditional population groups and find creative ways to ensure their inclusion in the process.

Based on these findings, there is a clear need for increased relevance of social science consideration in the transportation development and NEPA process. Without increasing the regulatory control over CIA/SIA type impacts, internal reforms are the most likely means with which to increase consideration of these human-dimension impacts in transportation development and required NEPA process.

Culhane et al. (1987:245) describe the institutional concepts of internal and external reform in their seminal examination of the content and accuracy of EISs. They describe internal reforms as driven by an influx of environmental specialists into an organization who then struggle to increase the agency's efforts in area beyond their primary purpose – in this case transportation. Eventually, environmental reforms would be incorporated into the agency's everyday actions.

They describe the external reform process as an opening of the decision-making process to the public (and other agencies) that would then have a say in the overall development of the project. And while Culhane et al. conclude that indicators of internal and external reform within agencies have little power in explaining the accuracy of EIS, it is apparent

from this analysis that these types of reforms are paramount in determining the effort and consideration given to impacts. This is especially relevant for SI/CIA type impacts as there are no rigorously enforced regulatory means to force compliance (given that Title VI guidance has been given little weight).

Based on the documents reviewed for this analysis and my eight years working in the review and development of environmental documents, it is evident the lack of staff with social science backgrounds in the social science field dramatically decreased the scope of consideration given to human-dimension impacts. This includes a minimization in the types of impacts considered and in the importance placed on these impacts as they are identified. Additionally, based on this analysis it is clear that external agency demands and public comment can have a significant influence on CIA/SIA environmental protection efforts. Lacking any regulatory schema, public involvement and oversight pressure from FHWA represent the primary means to increase consideration of SIA/CIA type impacts. Considering the reporting and regulatory process for natural resource impacts, EJ and CIA lack any real regulatory forcing mechanism. And it is apparent that increased efforts in this area are based on the non-formalized mechanisms of internal and external reforms.

Again, barring any increased regulatory schema with proscriptive intentions, internal reforms in DOTs to increase the relevance of SIA/CIA and EJ impacts would need to include staffing of personnel with social science backgrounds. This is likely to increase the relevance of human-dimension impacts. From the external reform standpoint,

FHWA's role in encouraging greater efforts in EJ analysis and documentation plays a significant role in increasing impact relevance. Further, changes in the means and outcomes of public involvement logically would provide additional external reforms that would provide for greater emphasis on human-dimension impacts.

The case studies included in the previous three chapters identified implementation pathologies related to internal and external reform concepts described in previous research. These concepts are related to the successful adoption of NEPA, and thus play a role in environmental protection (using the broad NEPA definition of environment that includes the human environment). This leads to the question of the status of this process in DOTs on the national level. What cutting edge practices are DOTs using across the country and which practices represent best management practices? The following chapter provides a review of current EJ and CIA guidance and DOT practices and policies regarding the implementation of EJ. This analysis will establish a baseline of practices and policies and in doing so allow for consideration of the steps that most likely lead to an increase in the role that human-dimension/community impacts in the project development and the NEPA process.

Chapter 8 – Implementing Community Impact Assessment and Environmental Justice

The previous chapters have examined the development and status of SIA/CIA and Title VI/EJ in the NEPA process based on the MoDOT organizational setting and the Relocated Route 74 project. The Route 74 and Bill Emerson Bridge project represent a very large-scale transportation project costing over \$100,000,000. The project had apparent community and social impacts that were only partially addressed in the original environmental assessment. And based on a review of environmental documents from the 1970's and 1980's, and the author's experiences working in environmental clearance at MoDOT for eight years, the EA for the Relocated Route 74 project can be considered as typical of SIA NEPA work at MoDOT from the early 1970's through the early 1990's. The SIA/CIA and Title VI/EJ issues were not extensively or completely addressed by previous NEPA work. It is often the case that very little information exists in the project files beyond household and business relocations and the cost of the proposed alternates.

The following analysis looks to identify those organizational circumstances, policies, and practices used by DOTs, as well as CIA and EJ practitioners across the country to establish a baseline comparison of the level of commitment and risk avoidance, towards which DOTs are working. In short, how far are other DOTs going to ensure compliance, and what are others doing that states can quickly adopt to ensure compliance? To a degree, this analysis develops a framework for the ideal type of organizational culture and commitment that a DOT should strive for to address the CIA/EJ impacts associated with transportation development projects. Simultaneously, this analysis identifies the

relative level of effort and commitment necessary to reduce risk of non-compliance and thus ensure transportation project delivery.

This analysis and discussion is based on the experiences of the MoDOT EJ working group, a review of FHWA's efforts to promote adoption of CIA and EJ, a review of three State DOT policies addressing EJ, and two recent NCHRP surveys of State DOTs regarding CIA and EJ activity within their departments.

The EJ Working Group at MoDOT

As an attempt to establish a standardized group of policies and practices to ensure MoDOT civil rights compliance, a group of MoDOT and FHWA employees began meeting in early 2001. This "EJ working group" consisted of middle and upper management from the following MoDOT divisions: Planning, the Inspector General's office, Construction Contract Compliance, Public Information and Outreach, Multimodal, Environmental, and Project Development. Don Neumann, Programs Engineer, and Peggy Casey, Environmental Engineer, represented the FHWA at the meetings. Based on the EJ group's cumulative experiences in the industry, they realized that the level of effort towards complying with the spirit and intentions of CIA and EJ varied widely across DOTs and that there did not appear to be a quick or easy answer.

The EJ working group came to have several goals. First of all, as civil rights activities occurred throughout the department, the meeting would allow all of the individuals to come together and learn what the others do and the degree that civil rights/human

dimensions permeate the department. The Construction division had disadvantaged and women's business enterprise requirements, disabled access was a concern for the Inspector General's office, and Planning had slightly different EJ concerns than did the Environmental group. Similarly, Public Information and Outreach and the Environmental group were starting to consider how they should accommodate limited English speaking populations at project meetings.

Secondly, the group determined that their main goal was to identify the necessary level of organizational commitment, and thus, the level of risk avoidance the DOT should strive for in the area of CIA and EJ. In doing so, the group would also develop a proposed, department-wide civil rights policy manual and then make recommendations to MoDOT senior management regarding the efforts and risks associated with adopting the various levels of effort. The group came to realize that in order for senior management to make a decision regarding the department's level of commitment, they would first need to be made aware of the risks of inadequate EJ analysis and documentation, and the degree that civil rights regulations affect the department. As the Construction division representative stated, "Before they make a decision they need to know the risk involved. Is this something they can let go, or do they need to increase its importance?" The risks that were identified by the group included costly litigation, project delay, project termination, or project cost increase, and unfavorable public perception.

Another realization of the EJ working group was that the CIA and EJ directives, while not (yet) forcefully regulated, presented the greatest risk to the department at the planning

and environmental clearance stages. This is the point where people become affected by department policies, programs, and projects. Additionally, this is the area where the least standardization of policy and practices was available for guidance.

Based on the determination that Planning, and to a greater degree, the Environmental/Design unit would most likely bear any future consequences of inattention to these areas, it became clear to the group that not having an employee in the socioeconomic specialist position in the Environmental division was problematic. Since the author left the position in 2000, the position remained unfilled until an employee within the Environmental section began to train for and work in the area in the summer of 2003. The educational background of this employee was not in the social sciences but general agriculture. The employee had previously held the positions of Ag Land Specialist and Document Reviewer in the Environmental section and has been employed at MoDOT since 1993. All members of the group agreed the work has been “risky” since 2000 and the lack of a Socioeconomic Specialist made people slightly uncomfortable with the coverage of CIA and EJ impacts. In a discussion with two Civil Rights employees in the department, there is still concern regarding the coverage provided by the new Socioeconomic Specialist since he does not have the educational background or work experiences they see as necessary for this position. The group reasoned that this was a specific job area that required a social science educational background and would not be adequately covered by the engineering or natural science backgrounds found in the Design/Environmental division. The group felt it was just a matter of time before a project slipped by without adequate attention. This would result

in either costly project delays, or a lawsuit. Both of these results would then lead to increased costs and unfavorable public perception

It was also apparent to the various civil rights practitioners in the working group that MoDOT was not alone as a DOT in regards to the lack of direction in establishing a “bullet proof toolbelt” of policies and practices. Based on their cumulative attendance at industry conferences and training and in keeping up with industry standards, the group felt that other State DOTs, as well as the consulting firms doing much of the environmental work for DOTs, were in a similar situation. CIA impacts, inclusive of EJ, were considered a gray area: one where little attention was warranted unless a project became politically controversial. EJ added an element of risk to this lack of attention considering the emphasis placed in this area by federal agencies and the potential of a civil rights lawsuit brought on by the inattention.

Still, EJ appears to be only slightly more important than SIA/CIA in terms of organizational relevance for DOTs and neither EJ nor SIA/CIA has received a high level of concern. Even with a massive training and publication effort by the FHWA, DOT staffs seem bewildered about the requirements associated with adequate analysis and mitigation of CIA and EJ impacts in transportation projects.

Based on the evidence presented in the previous chapters, the internal and non-regulatory, external reforms appear to be the point of entry for sensitizing DOTs regarding CIA and EJ issues. Internal influence through appropriate staffing, training, and organizational

emphasis would ensure the human dimension issues are identified, analyzed, and avoided, minimized or mitigated. External influences through FHWA involve coaching the DOT through difficult projects, SIA and EJ training, and requiring appropriate analysis and documentation in environmental documents. Both the internal and external reforms for SIA point to greater and sincere public input to the project development process in order to adequately assess SIA issues. Thus, additional external reforms would also result from meaningful public involvement that invokes an additional layer of external influence on transportation development. Short of additional forcing regulations for the SIA area, DOTs would need to take charge of the process before another agency dictates how SIA should be handled. The FHWA external influences are non-regulatory as compared to natural resource impacts in that natural resource regulations come with defined impact levels and mitigation and processes. Natural resource impacts come with known consequences for the project and organization

The EJ working group came to the conclusion that the lack of Environmental and Planning staff with a social science background, teamed with no regulatory forcing mechanism for adequate SIA/Title VI analysis has lead to an inequitable status of the importance of these impact types at DOTs that would eventually lead to a lawsuit in the worst case scenario. SIA/CIA and Title VI/EJ impacts simply have not received the attention and investment warranted, and relative to the other impact areas.

However, there are several states that have made great strides in the development of policies and practices to address CIA and EJ. The FHWA has developed extensive

literature, websites, and networking/training opportunities to increase the relevance of CIA and EJ issues at DOTs. And recent research has begun to provide documentation of the successful methods and policies used across the country. This analysis reviews these areas with the intention of bringing to light the practices and policies used by cutting edge organizations, and recommended by relevant guidance and research. This analysis answers the question of what the DOT organization, culture, and effort should reflect; in order to best comply with the intentions of NEPA, ISTEA and EJ regarding these human dimension impacts.

FHWA Efforts to Educate and Promote

Based on the numerous meetings and conference presentations, and the internet presence and guidance from FHWA, FHWA's efforts to promote CIA and EJ would seem to be more than adequate. The word is out for EJ and CIA, but the implementation of the policies and practices is foreign to most DOTs. One thing that became clear during this analysis was that while it took from 1994 to 1997 to for U.S. DOT to issue an order to comply with EJ (U.S. Department of Transportation Order on Environmental Justice, Federal Register: April 15, 1997, Volume 62, Number 72), since that time there have been intense efforts by FHWA to promote and increase the adoption of sound CIA/SIA, and EJ policies and practices. As pointed out in the previous chapters, the CIA and EJ areas have yet to fall under stringent regulatory guidance; thus, FHWA's role as an external reform component to the DOT is imperative to increased action in these areas, as States themselves are not responding through internal initiative. The FHWA's outreach efforts to increase awareness and practices relevant to CIA and EJ are summarized below.

Beginning in September 1996, the FHWA Office of Environment and Planning released what has become known as the “little purple book”, or *Community Impact Assessment – A Quick Reference for Transportation* (FHWA 1996). This is an easy-to-use document intended as a “primer for transportation professional and analysts,” and does a good job of organizing the CIA process and practices. The primer is forty pages long. This hands-on guide includes ten chapters that follow the process from the beginning to the end of the project. The chapters consist of: 1) Introduction, 2) Defining the Project, 3) Developing a Community Profile, 4) Collecting Data, 5) Analyzing Community Impacts, 6) Selecting Analysis Tools, 7) Identifying Solutions, 8) Using Public Involvement, 9) Documenting Findings, and 10) Resources. This booklet is widely available and has been distributed at nearly every meeting the author has attended where there was both a presentation on CIA and a FHWA representative on hand. It is also available on the FHWA’s CIA website as discussed below.

The next major publication to increase the presence of CIA and EJ in DOT work became known as the “the large purple book,” or the *Community Impact Mitigation – Case Studies* (FHWA 1998). Published in May 1998 by FHWA, this was another practitioner guide that was widely available and also available on the FHWA website. The document provided five case studies that addressed transportation projects that dealt with impacts in the areas of: 1) Community Mitigation and Enhancement, 2) Community Cohesion, 3) Community Preservation, 4) Community Reconstruction, and 5) Community Revitalization. While these areas seem normal fodder for community development professionals, this terminology and focus represents a human dimensions emphasis in

transportation that allocates a greater level of importance to giving communities due consideration during transportation projects. However, most traditional DOT employees felt that the case study examples were too grandiose. All of the examples included in the mitigation examples were extremely costly by any standard of mitigation costs. Additionally, all of the examples seemed to have very dramatic, pointed and direct problems rather than the more common, and more ambiguous highway impacts designers would see everyday. However, the CIA mitigation publication did open the door for consideration of mitigation solutions far beyond the normal relocation process.

Next in the series of widely available human dimensions guidance for DOTs was the FHWA's, *Transportation and Environmental Justice – Case Studies*, published in December 2002 (FHWA 2002). The practitioner guidance consisted of an introduction to the EO and concepts and then provided ten case studies. The case studies each addressed a different component of transportation impacts and included cases that highlighted: 1) Early Public Involvement, 2) Data Sources, GIS Analytical Methods, and MPO Regional Coordination, 3) Title VI Administrative Complaint, Mitigation and Enhancement Plan, Housing of Last Resort, Collaborative Planning, 4) Data Sources, Analytical Techniques, Benefits and Burdens Assessment, Alternative Dispute Resolution, 5) Project Planning, Development, Right of Way, Public Involvement, Mitigation and Enhancement Activities, 6) Partnerships, Enhancements, and Public Involvement 7) Use of Data Sources, Analytical Techniques, and Public Involvement, 8) Partnerships, Enhancement Activities, and Public Involvement, 9) Tribal Consultation and Cultural Resources Assessment, and 10) Community Impact Assessment and Public Involvement.

While the case studies are thorough in organization and coverage, eight out of the ten studies are either on the east or west coast. The remaining two are located in the highly urbanized Great Lakes Region. From a mid-west perspective, most practitioners wonder if these types of problems are just urban problems, unlike those they encounter. And based on discussions with project designers and managers, the case studies are the extreme cases, and do not represent the everyday cases that they see in their work. Possibly because of the level of detail and commitment required to read the case studies, this document is not as familiar to environmental practitioners as the “purple books.”

Probably the most notable and advertised dimensions of the CIA and EJ guidance provided by FHWA is their Internet web presence. Transferring information and guidance on the web has been widely adopted by DOTs, and the FHWA sees this as one of the quickest and easiest ways to get the right materials to the right people. Within the FHWA website at, <http://www.fhwa.dot.gov/index.html>, there is the Planning, Environment and Realty site (<http://www.fhwa.dot.gov/hep/index.htm>), the EJ site (<http://www.fhwa.dot.gov/environment/ej2.htm>), and the Community Neighborhoods and People site under NEPA (<http://www.fhwa.dot.gov////////environment/nepa/comm2.htm>). Additionally, all guidance, white papers, and the “RE:NEPA” site are available. The “RE:NEPA” site is a virtual bulletin board where users can post questions about the NEPA process or EJ for example, and practitioners from across the country, as well as resource professionals from FHWA can provides guidance or direction. As McDonnough-Bragg explained about the availability of FHWA guidance at one of her

frequent CIA and EJ presentations, “We do everything on the web, we have found it to be one of the best ways to get this information out.”

The documentation and coverage on these sites is very thorough. On the EJ website alone, there are six sub- links that discuss the following as they pertain to EJ: 1) Overview – presentation of the guidance and principles of EJ, 2) The Facts – presentation of the regulations and background that stands behind the need for EJ, 3) Case Studies – a web version of the Transportation and Environmental Justice Case Studies publication, 4) Effective Practices – additional links to the Effective Practices CD-ROM and a list of State DOT case Studies, 5) Training – a list of training contacts and link to the NHI (National Highway Institute, the source of most standardized transportation training), and 6) Resources – a list of weblinks and personnel contacts to answer any and all questions regarding EJ.

In the “Community, Social Issues and Environmental Justice” portion of the RE:NEPA website, there have been ninety-nine comments posted between December 2001 and September 2003. Based on the questions and comments on the website, nine categories of issues in this area were identified. The areas and the number of questions and responses per each are where categorized as: 1) Impact definition, significance and mitigation – thirty-nine comments, 2) Defining populations – eighteen comments, 3) Nature of disparate and adverse impacts – five comments, 4) Court Cases – six comments, 7) Language barriers – six comments, 8) Available data, conferences, and guidebooks – twenty-three comments, and 9) Statutory background – three comments.

Based on the comments on this website, the top three issues of most concern to practitioners include impact 1) Definition, significance and mitigation, 2) Population characteristics, and 3) Data and resources to learn more about the issue.

The questions and comments on the website were posted by a variety of sources that work in the SIA area and represent employees in state DOTs, contractors working for transportation agencies, planning organizations, and concerned citizens.

As presented, the level of publications and web-presence by the FHWA regarding CIA and EJ regulations, policies, and practices is substantial. As a practitioner in the field, there has not been a question about practice or regulatory intention that I have not been able to find discussed on one of these many pages. To further its efforts, FHWA has had a substantial presence in support of SIA/EJ at almost every meeting that could include a presentation on CIA and EJ. FHWA also worked with practitioners to develop the CIA working group that has organized the development of the “purple” publications.

Considering the FHWA presence, Mary McDonough-Bragg, an Environmental Program Manager from the FHWA Resource Office in the Olympia Fields, Il., office has been the voice of EJ and CIA for FHWA. She has not only worked to forward the cause of CIA and EJ in the Midwest, but also nationally. When asked, McDonough-Bragg estimates that she has made around ten presentations or training sessions a year since 1997 when she began her job in the Illinois office. While she was not quite sure of the exact number, she has made approximately sixty presentations between 1997 and 2002. She states that

originally the formal course she taught was titled, “Fundamentals of Environmental Justice” but that FHWA quickly changed the course name to “Fundamentals of Title VI and Environmental Justice” to reflect that EJ was re-stating the emphasis of Title VI and not a new set of rules as was interpreted by DOTs. When questioned about the number of presentations she had made, McDonnough-Bragg was quick to point out that the work of getting the word out on these issues not only included the presentations she made, but also the frequent phone calls and personal technical assistance she has given to States and metropolitan planning organizations. She emphasized that this personal technical assistance happened weekly or even daily, rather than several times a year.

Similarly, the regional FHWA office in Jefferson City has provided training on EJ and CIA. Glenn Smith from the Jefferson City FHWA office has provided CIA and EJ training specifically for MoDOT on at least four occasions. In 1996, Smith arranged for a three hour training session that included a viewing of the FHWA training video, “Transportation and Environmental Justice,” with the MoDOT Environmental and Planning personnel at the FHWA Jefferson City office. And again in 1999, a half-day session was held featuring the video along with presentations by Smith and Casey of FHWA at the Jefferson City office. This presentation was then repeated in 2001 at the MoDOT St. Louis and Kansas City offices and representatives from the metropolitan planning organizations were also in attendance. Less obvious, but just as important, are the informal discussions between MoDOT and FHWA personnel, as well as FHWA’s participation with MoDOT on the EJ working group and their assistance on specific projects impacts.

In summary, FHWA efforts in informing DOTs and providing standards of practice for CIA and EJ have been substantial. The documentation is available from FHWA in a format that nearly anyone desirous of learning the field could follow. The concepts and directions for a suitable analysis are provided. And as the regulatory component of CIA and EJ has been rooted in FHWA's role in the review and approval of environmental documents, their perspective on the adoption of effective practices cannot be underestimated. To the extent that FHWA can provide guidance materials and outreach, the material and network is there.

It is too soon to tell if several more years of practice must pass before the results are apparent, or if this guidance is falling on deaf ears. As it is now, the state of the practice is still lacking, as evidenced by the experiences at MoDOT and based on similar experiences by other DOTs. At MoDOT, the socioeconomic position remained unfilled from late 1999 till 2002 and then it was staffed by available personnel in the office, regardless of their educational and professional background. Conversely, during the same period three wetland positions were vacated but the vacancies were filled immediately by qualified and experienced biologists. And since there were no personnel in the Environmental section familiar with SIA and EJ available over the last three years, the author has represented the Environmental/Design group at the EJ working group meetings. However, even with my representation of project development interests at these meeting, there were no personnel in the Environmental section to then do anything regarding the lack of human dimension concerns identified in the EJ working group.

Staffing, Organizational Location and Relevance

As called for in Section 102 of NEPA, agencies are required to make an integrated use of the natural and social sciences in environmental analysis. In later analyses of the NEPA process, this integration of the social science was expected to have an internal reform component that would lead to greater consideration of social science impacts in the NEPA and decision-making process. The degree to which this has been effective is hard to gauge. CIA analysis falls predominately within Environmental and Project Development groups at DOTs; however, some of the work is completed within agency Planning sections. EJ on the other hand tends to be located in Environmental units but also falls within special Civil Rights units as well as planning units in DOTs. However, it is important to note that wherever in the organization the work takes place, it will eventually end up in the environmental document. Two recent NCHRP research reports have been released that at least partially address the staffing, organizational location, and relevance of CIA and EJ issues to DOTs.

According to the recent NCHRP report, *Assessing Social and Economic Effects of Transportation Projects* (Forckenbrock, et al. 2001), all fifty state Environmental and Planning units were surveyed regarding the current nature and practices of CIA and EJ. Only eight of the responding states indicated that some work unit other than environmental or planning conduct the analysis of the social and economic effects of transportation projects. Thus the work falls predominately in the Environmental and Planning sections at DOTs. Where the survey asked about the educational backgrounds of those working in the units, twenty five states reported employees with an economics

background, thirty states reported employees with a geography background, thirty eight reported urban and regional planning backgrounds, forty five states reported employees with engineering background, and thirty two listed other. The “other” category for the question regarding the background of the employee completing the work did not include a breakdown of this open-ended response. In personal communication with Forkenbrock, he stated that the actual data was not available but, “Recalled that there was a mix of social science disciplines (economics, sociology, geography) and civil engineering.” He stated:

You have to recognize that most of these people were not hired for the purpose of doing social economic impact analysis or environmental justice. They were on staff and assigned the task of doing the work. Our sense is that few state DOTs have consciously staffed a section of their planning or environmental section to do these impact analyses. Most are badly short-handed and rely on consultants when a critical need for an EJ analysis arises.

Thus, it would appear that MoDOT was progressive in 1994 when they hired their first socioeconomic specialist. Further, the lack of internal initiative of DOTs to address these impacts is reflected in these staffing patterns at MoDOT as well as the majority of DOTs. For MoDOT as well as the other DOTs, it appears that the organization does not place enough emphasis on human dimension impacts to warrant the appropriate staffing of these positions with individuals with social science backgrounds. And while DOTs consistently hire biologists to handle natural resource impacts and engineers to design and manage the transportation system, the social and economic areas are staffed by whoever might be available at the time. The human dimension area at many DOTs is sorely underrepresented. This is reflected in the low levels of sophistication and effectiveness in including social science considerations in transportation development.

Given the social science context of EJ and CIA, and the call for integrated use of the social and natural sciences in NEPA, DOTs would appear to be lacking in social science representation in the environmental and planning sections at DOTs across the country. Interestingly, sociology or general social sciences categories were not even on the list of possible educational backgrounds in the National Academies of Science supported research.

When respondents to the NCHRP survey were asked about the role of social effects in project evaluation, twenty seven of the DOTs responding indicated that social effects could lead to project abandonment, forty six of the states indicated they would try to mitigate the most significant negative impacts, thirty five indicated they would redesign the project as needed to address the impacts, fifteen indicated they would take the effects into account, but they would not be major factors in the project's fate, fourteen felt that if political pressures were likely to be great, they would conduct at least a limited analysis, and only three DOTs report that they do not take such effects into account. While these responses indicate at the least an awareness of these issues, the prominence of CIA and EJ still appears lacking in most states. With fifteen states reporting that the effects would be taken into account but would not be factors in the projects fate, and three DOT reporting no activity in the area, there is clear variability in the adoption of the consideration of social and economic effects across DOTs.

Given the educational efforts in the industry regarding CIA and EJ, respondents were asked about changes in their analysis of social impacts over the past five years, 1995

through 2000. Sixteen of the DOTs reported that they are doing a lot more in-depth analysis, twenty reported doing a little bit more analysis, and fourteen reported doing the same amount of analysis and none reported doing less analysis. Based on this response it would appear that DOTs are beginning to take a closer and more frequent look at social impacts. However, when the states were asked about adequacy of current methods, tools and techniques, twenty of the states reported that more resources in terms of staff, time or equipment were badly needed, twenty-two responded that it would help some and only eight states indicated it was not a big need. And finally, when asked about their agency's capacity to estimate the social effects of transportation projects accurately and comprehensively, twenty-eight reported they agreed that they have the capacity, fifteen states responded they neither disagreed or agreed, and eight respondents indicated that they did not have the capacity to conduct such an analysis.

Based on this NCHRP report and the networking experiences of the author while working in the field, it would appear that approximately half of the State DOTs have the ability to complete the needed social effects analysis. And based, on interaction with FHWA officials, and SIA/EJ practitioners around the country, it is likely that less than ten states are well versed in the field. One of the open-ended responses in the NCHRP study summarizes the plight of social effects in transportation, the respondent states, "Given that social and economic issues are not regulated in the same way as natural, historic & archeological resources are, less time and effort is spent in general. More effort is spent on projects where there is controversy on specific issues related to socio-eco impacts."

In a similar research effort conducted by Arizona DOT (Jerome and Donahue, 2002), a survey was also conducted of State DOTs. Of the twenty returned surveys out of forty-eight, one-half of the DOT responded that the Environmental Planning office is responsible for assessing environmental justice issues. Because there is no common naming standard or organizational structure in DOTs to complete project planning through final design and environmental work, it is likely that more than one-half of the DOTs have these issues covered in the planning and project development stages but the work is completed in some other work group within the organization. However the lack of any naming or organizational standard belies the similarities in approaches.

Further, most agencies reported that environmental justice issues were most likely to arise in the process of highway/roadway upgrades, transportation planning, and corridor analysis projects. This echoes the circumstances at MoDOT; the planning and project development areas have been identified as the areas most likely to have exposure to CIA and EJ issues. States that were highlighted by the ADOT study as progressive in their analysis of EJ impacts were Michigan, Ohio, and Minnesota. They were selected based on the questionnaire and on the existence of a formalized and advanced program in comparison to the other states.

Both the NCHRP and ADOT studies indicate that the social effects of transportation projects, including the larger sphere of CIA, or EJ within this framework, seldom experience complete integration into the project development and decision-making realms. The social-science integration into the NEPA process as directed in Section 102

has not been adequately adopted by DOTs. There is an apparent failure to incorporate the social in with the natural sciences in the NEPA framework. Additionally, the author's experiences working in the field, attendance at industry meetings, and the cumulative experiences of the EJ working group at MoDOT also point to a problematic lack of social science integration into the transportation project delivery process. Regional FHWA employees summarize the circumstances regarding social science integration into NEPA. Casey of FHWA states, "You don't have to have that kind of background (sociology), but it helps out, especially with CIA and EJ."

Activity, Policy and Practices of CIA and EJ

Given that the literature and guidance to perform CIA and EJ analysis for planning, programming, and project development has been developed and extensively marketed by FHWA, and that State DOTs appear marginal in their integration and performance in these areas, what does the model organization and activity level look like for DOTs? In order to assess these circumstances, a list of progressive DOTs was developed in order to establish the high end of performance in the analysis of EJ.

According to the ADOT study, Michigan, Ohio, and Minnesota were selected as states that have formalized policies, procedures, and guidance regarding environmental justice. The MoDOT EJ working group had also selected Minnesota as having a premier policy and selected Georgia as an important resource. Georgia DOT had recently been through a cancellation of their state transportation plan based on air quality and environmental justice issues in Atlanta. In order to get their business moving, they had to rapidly

establish policy and procedures to address these issues. Ohio was also an interesting and progressive case based on their rapid development of policies to address EJ. Based on the reputation of these organizations in presenting a formalized approach to the analysis of social effects, Minnesota, Ohio, and Georgia were selected for further analysis. This analysis will review the process and results of these states in standardizing the level of effort and commitment required to become a premier performing organization.

Minnesota's Experience

Like many of the DOTs that have established successful adoption of the principles and practices of CIA and EJ, Minnesota used a large team of twenty-two state and federal employees to develop their formalized approach. The team met from June of 1997 to March of 1998. The agencies represented included: MnDOT, FHWA, and regional and metropolitan planning groups. From MnDOT, the divisions within the department represented the offices of Investment Management, Environmental Services, Districts and Metro Offices, State Aid, Transit, Alternative Transportation Financing, and the Office of Equal Employment. The committee produced two documents; "MnDOT's Environmental Justice Guidance" and the "Handbook on Methods and Approaches to Enhance Involvement in Non-Traditional Transportation Stakeholder Communities and Neighborhoods."

The intended purpose of MnDOT's 1998 Environmental Justice Guidance is to, "inform and shape planning and project development practices in Mn/DOT to ensure that disproportionately high and adverse human health or environmental effects of policies,

programs and activities on minority and low income populations are identified and addressed.” While the document includes the normal background and definitions needed to implement EJ, the core of the document is the identification of environmental justice principles and the decision/process matrix designed as a flow chart for EJ analysis.

The MnDOT document identifies six Environmental Justice Principles to guide their work. The principles of environmental justice at Mn/DOT are listed as:

- 1) Equity – Mn/DOTs policies, programs and activities will not result in differential adverse impact on the basis of minority or low-income status.
- 2) Scope – Mn/DOT will strive to follow the spirit of the Order, as well as the letter of the Order. Environmental justice principles should apply consistently throughout the Mn/DOT regardless of mode, jurisdiction or source of funding.
- 3) Flexibility – Mn/DOT will tailor its environmental justice processes, as necessary, to reflect the unique issues and populations affected by each policy, program or project. No one size fits all.
- 4) Meaningful Public Participation – Public involvement process will: provide opportunity to influence decisions that affect one’s life by proactively soliciting input from affected people; provide access to the decision-making process; not assume that Mn/DOT knows the answers without asking; be early and continuous; be thorough and fully inclusive; involve all the publics it should; and, be flexible, tailored to the specific population and situation.
- 5) Rigorous Analysis – Environmental justice assessment and evaluation will; provide thorough documentation, gathering all necessary information; rely on existing sources of data to the greatest extent possible; be quantitative wherever possible; and, be flexible, designed to address the specific population, issues, and situation.
- 6) Appropriate Mitigation – Mitigation necessary to address environmental justice will: not assume we know the solution without asking the affected population; be flexible, designed to address the specific population and issues identified through the public involvement process; provide offsetting benefits and/or enhance the community.

The MnDOT document follows the guiding principles with a set of four operating principles. The document states on page three, that “While not providing policy direction, these operating principles suggest key considerations for making environmental justice operate effectively within the Mn/DOT.” The principles are stated as:

- 1) Identify and evaluate environmental justice issues as early as practicable in the project development process;
- 2) Provide training and education both within Mn/DOT and to our partners to raise awareness and understanding of environmental justice issues;
- 3) Reward project managers for good public involvement and environmental justice programs;
- 4) Integrate environmental justice activities into existing processes and do not create new processes.

Both sets of principles offer sound guidance for greater implementation of CIA and EJ and are linked to an organizational home within Mn/DOT. Importantly, the entire process is summarized into an Environmental Justice Issue Investigation Process Flow Chart found on page twenty in the document. In summary, the EJ investigation process is a five-step process that includes documentation and public involvement throughout the process. The decision steps in Mn/DOTs flow chart are:

- 1) Is this a categorical exclusion under the “Programmatic Exclusion Agreement between FHWA and Mn/DOT? (if the project is a CE, the investigation is ended.)
- 2) Does a readily identifiable low income and/or minority population exist in area affected by project? (If no, end investigation)
- 3) Are there high and adverse environmental impacts disproportionately borne and appreciably greater for low income and minority populations -- considering gross impact, mitigation, enhancements, offsetting benefits. (If no, document findings)
- 4) Are there still high and adverse impacts, appreciably greater and disproportionately borne by low income and minority populations? - After considering gross impact? (If no, document findings)
- 5) Include all findings, determinations, or demonstrations, in the environmental documents prepared for this project.

Mn/DOTs environmental justice guidance is thorough and straightforward. Importantly, they do have guidance and policy directives to follow. Once the guidance has been agreed to with FHWA, formally or informally, the DOT can generally rely on the

provision and implementation of the guidance as a means to defer pressure to halt or change a project. With the policy in place, the agency can document that the issues will have been considered, action was taken and the project would be approved to proceed.

Mn/DOTs guidance reads right out of the FHWA guidance and emphasizes public involvement, impact identification and mitigation, and customization of the process to fit a variety of population group expectations. Importantly, from the operational standpoint, they recognize the need for personnel and training in these areas to ensure compliance at the DOT, and that EJ should be incorporated into existing processes. In the MnDOT case, Gerry Larson from MnDOT co-chaired the effort to establish guidance. Mr. Larson is well respected across the country as a SIA practitioner and has developed a reputation for MnDOT of doing the right thing when it comes to EJ. The MnDOT approach appears to be backed by capable employees, organizational support, and the newly defined guidance. Ohio DOT takes a similar approach to Mn/DOTs efforts and is described below.

Ohio's Guidance

ODOT's guidance follows much the same format as MnDOTs with an introduction to the concepts, regulation, and process affected by the EO followed by bulleted high points that point to specific considerations or actions. ODOT states that the guidance is intended to provide a guide for ODOT, Ohio local government, and metropolitan planning organizations (MPOs) to incorporate environmental justice into planning and project development processes. The guidance re-states that EJ is not a new or separate

set of planning, environmental, or project development processes. Ohio presents five actions needed for compliance with the EO. They list the five actions as: 1) Identify locations/low income and minority population, 2) Modify/expand public involvement process, 3) Expand conditions analysis and alternatives analysis, 4) Determine how to avoid, minimize or mitigate, and 5) DOCUMENT, DOCUMENT, DOCUMENT (Ohio's emphasis).

ODOT's guidance supplies a more practical perspective for implementation than MnDOT's guidance. While MnDOT's focus remains at the higher, policy level, ODOT provides a more step-by-step practical approach to ensuring compliance. Through elaboration of the five steps listed above, they expand to supply a simple guidebook for conducting the analysis. Additionally they identify all processes and analysis areas that need to consider EJ implications. The guidance lists the following areas as being affected by the EO: 1) Existing actions, analysis and processes, 2) Long Range Transportation Plan, 3) STIP (Statewide Transportation Improvement Program) Development Process, 4) Analysis of Final STIP, 5) Environmental and Project Development, 6) Transit Planning, 7) LPA Process, 8) TRAC Process, 9) Documentation Process, 11) Public Involvement, 12) Mitigation Efforts, 13) Guidance and Training, and 14) Development and Distribution of Statewide Demographic analysis.

One other area where ODOT appears to excel in their guidance is the call for documentation of actions. Without the documentation of the process and activities in the files and the environmental document, even the best efforts could be questioned, leaving

the project and organization vulnerable. Just as “DOCUMENT” was capitalized and repeated in the five steps of the Ohio process, documentation is emphasized again as the guidance states, “Regardless of the number of individuals impacted, careful documentation is CRITICAL.” They recommend documentation of the public involvement process, existing conditions, analysis and evaluation of all reasonable alternatives, benefits and impacts, actions to mitigation, minimize and avoid, and unavoidable impacts. This is very much the same documentation recommended in CIA as well as EJ technical guidance. And to a degree, it would appear that to the extent that an agency followed earlier guidance, the ramifications of EJ would also be addressed.

Importantly, Ohio views the establishment of their EJ guidance as a work in progress. The guidance states that they will request a U.S.DOT review of the guidance and then implement and use the guidance for at least one year. At that point, the task force used in the development of the guidance will be re-convened to review their progress in light of the developments in the field.

For both MnDOT and ODOT, the environmental justice guidance tends to be more organizational than proscriptive, more to provide a framework for the issue rather than to provide complete step-by-step guidance. In fact, the amount of space provided to define the processes of developing the guidance constituted nearly one-third of both of the documents. And based on the review of the both documents, it would appear that the documents would need to be interpreted and implemented by personnel with social science backgrounds. Neither of the guidance documents could be literally taken to the

field for application. In MnDOT's case, personnel with technical experience are implementing the guidance. According to industry informants, Ohio appears to be hedging and wondering if the guidance will be permanent.

MoDOT's EJ working group identified guidance such as provided by MnDOT and ODOT as loosely protecting the organization. Demonstration of the existence of a policy to address issues such as EJ is seen as the first step in ensuring compliance. The MoDOT civil rights office suggested that when MoDOT is reviewed for civil rights compliance, one of the first things they look at is whether the organization has a plan. Whether the guidance is implemented or successful is left to the division or unit responsible for the particular activity in question.

Georgia

Georgia DOT's Public Involvement Plan was selected for review by the EJ working group at MoDOT based mainly on their reputation in making the needed planning, programming, and project development changes required to get federal approval of the statewide transportation plan. The GADOT Chief Engineer, Frank Danchetz, summarized the Georgia experience at the 2000 AASHTO meeting. In their effort, the department was planning to provide additional roadway lanes for non-local traffic (commuters) at the expense of Atlanta's transit system and residents. Also, the additional lanes would result in air quality problems in the Atlanta planning area, which would exceed proscribed limits. Again, had transit solutions been promoted, air quality could have been expected to improve. Further, part of the problem in the Georgia case was identified as inadequate

public involvement in development of the statewide plan. The wants and needs of the urban core of Atlanta, predominantly minority and low income, were not considered. With this as a background, the Georgia Department of Transportation Public Involvement Plan was selected for Review.

The Georgia Plan is indeed more for public involvement guidance than it is EJ guidance. But this should come as no surprise as most DOTs have expressed that EJ practices need to be incorporated into existing activities rather than provide cause for a new process or division. While involvement with all levels of government, communities and peoples are addressed in the document, the areas of emphasis within the plan that pertain to EJ include Georgia's list of, "Targeted Activities for Traditionally Under-Served Communities" on page nine of the guidance. The document presents that:

Contact with traditionally under-served communities is very important. Some of the approaches to achieve contact include: 1) Focus group meetings inviting members of the African-American, Asian, Hispanic, disabled and other traditionally under served communities to give ideas/comments and gain feedback on the plan, 2) Targeted focus on minority media, ensuring that they are receiving press releases and advisories in timely manner, 3) Inclusion of minority media in the paid advertising schedule, 4) Development of a database of traditionally under-served groups and minority media groups in specific communities, 5) Use of road inventory crews to help in getting flyers up in EJ communities, and 6) Use of transit office staff to help in distributing information to specific communities and EJ communities.

GDOT public involvement also demonstrates that public involvement is no longer just journalism or writing press releases. In the Public Involvement Techniques section, the practice listed to increase involvement from non-traditional stakeholders reads more like a community development operation plan or sociological investigation than traditional

strategies of public involvement. In order to identify non-traditional populations, personnel are directed to use census data, University Extension, Human Resources agencies, minority associations, transit groups, service organizations, and advocacy groups. The GDOT plan also includes working with gatekeepers for the community, including church leaders, civic clubs, and providing the opportunity for participation at areas where the public, especially the under-served, congregate.

The directives for additional public involvement point to two general organizational limits to action. First, public involvement in DOTs has historically consisted of press releases and arranging public meetings. This broadening of responsibilities to include everyone constitutes a major change in this area of the organization. Secondly, given that public information employees are generally not trained social scientists, it is a bit of a stretch to imagine rigorous community and demographic analyses taking place in the public involvement context. Thus public involvement units in DOTs are also affected by the EJ EO and directives provided by the relatively new CIA emphasis. They will not only need to include additional partners, with different information and product needs, but will also have to become part of a bigger analysis to determine the social and community context of the project location. As ensuring public input from all parties is one of the tenets of EJ and CIA, it has also been one of the directives that have always been with transportation development. As McDonough-Bragg states, “Public involvement is not new, we have all been through this before, we just have not done it right.”

Currently, limited English proficiency populations (LEP) have raised an additional stir in the Planning, Project Development, and Public Information units. Based on attendance at agency meetings, LEP is as foreign to DOTs as EJ was four years ago. Questions from DOTs include, how many people do we need to have to print in another language, or do we need to hire interpreters? How do we know we have these populations? Why do we need to do this? It is clear that demographic changes once thought to only exist on the coasts are now impacting the Midwest. In Missouri during the early 1990's, project designers and engineering liaisons that completed corridor studies expressed that minority issues were only in the big cities and that they did not need to worry about this in most of Missouri because the population in the rural areas was white. But with the growing Hispanic population in the state, by the late 1990's most all Project Development personnel realized that minority populations could be found anywhere in the state, even in the rural areas.

In summary of these three state DOT guidance documents, it is important to note that while not taking anything away from these progressive DOTs, the guidance they provide is not necessarily the best or last version of these documents. For the time period of roughly 1998 through 2001, very few states had actually developed a policy or direction from which to base their EJ compliance. So rather than being the state of the art in practices to support EJ, these DOTs are more likely the first to get policy and direction established and published. Also important to note from the review of the guidance is that the principles and practices still require some form of action and understanding to complete. Except for the mention of the potential need for additional staffing in both

MnDOT and ODOTs guidance, there is no mention of the need for properly experienced people staffing these positions. As McDonnough-Bragg from FHWA commented at several of her presentations, “If you don’t have a people person as the project manager for some of these jobs, you need to consider getting someone else in there. This is not your typical engineering or public involvement.”

Clearly, the EJ and public involvement guidance provided by the three state DOTs represents efforts to address the core principles of EJ: avoid, minimize and mitigate high and adverse human health and environmental effects on minority and low-income populations, ensure full and fair participation by all potentially affected communities, and prevent the denial or reduction in benefits to low income and minority communities. The guidance reviewed provides insights into higher-level organizational and process related issues and not the day-today work needed to ensure compliance.

As part of the NCHRP study, *Technical Methods to Support Analysis of Environmental Justice Issues* (2002), a survey of state DOTs confirms the trends and content of the guidance which was reviewed. Activities to address EJ issues were compiled from fifteen state DOTs for the NCHRP study. The activities listed include: 1) Devote staff time to assess and develop environmental justice approaches, 2) Co-sponsor or attend workshops led by U.S. DOT, and sponsor regional and internal training for agency staff, 3) Prepare policy statements about how the agency will address environmental justice, 4) Prepare materials that include guidance on how to address environmental justice, 5) Convene committees that include representatives of community groups and other

stakeholders, to identify how environmental justice could be better addressed and to define measures of impact, 6) Make staffing changes, such as adding a public involvement specialist, 7) Re-examine the expanding scope and nature of public involvement, 8) Define low-income and minority populations, gathering and analyzing data to identify the locations of these groups, and identifying specific actions that would provide improved transportation services to these communities, 9) Develop quantitative measures of impact for specific plans or projects, and 10) Develop and apply tests for disproportionate distributions of impacts.

Regarding the location of EJ within the organization and practices used, the 2002

NCHRP summary reports that:

Within State DOTs, environmental justice issues have been addressed during project development for many years, at least partially in response to conducting project-level environmental analyses. In response to the recent U.S. DOT emphasis on environmental justice, some state DOTs noted that they are re-examining their environmental analysis techniques with project development to identify if the specific needs of low income and minority community concerns can be better addressed. Other agencies noted that their existing environmental analysis practices and public involvement techniques for project development adequately consider the needs and concerns of these populations. Some of these agencies are currently focusing on better documentation of their existing practices.

When the DOTs included in the study were asked about project development activities to increase compliance with EJ, the most common activity reported was enhancing and expanding the public involvement process. And at least eight states reported that they had initiated internal training and guidance for staff to ensure identification of environmental justice issues and impacts.

The authors of the study conclude that project development EJ issues are being addressed at a more rapid rate than the potential EJ issues for system-level planning. In the planning level area, just a few states are beginning by identifying how public involvement can include more diverse groups in system-level planning. Some states are looking at demographic tools to identify minority populations across their states, and two states have developed their own guidebooks for CIA and EJ analysis. The authors conclude that DOTs believe that environmental justices issues can be addressed as part of the “broader community impact assessment process.”

Based on the analysis included in this chapter, it can be concluded that efforts by FHWA to promote CIA and EJ analysis within DOTs have been ample, if not exemplary. The FHWA has used publications, presentations, training, Internet sites, and personal contact to promote CIA and EJ compliance in DOTs. The guidance and practices are available for adoption. Further, given the lack of integration of social science analysis in DOT environmental work, teamed with little regulatory forcing mechanism in this area, FHWA’s influence in this area is extremely important in ensuring DOT compliance.

Additionally, it is clear that not only Missouri, but also the majority of states, are lacking in the adoption of CIA and EJ policy and practice emphasis. Relatively few states staff individuals with a social science background to complete this work, and overall, CIA type impacts are not expected to cause major delays or a cancellation of a project. In response to the directives of CIA and EJ, states that are responding indicate that public involvement, impact identification, mitigation based on population groups, documentation, and policy development are the major areas of focus. And while DOTs

may still be wondering if the EJ and SIA area have the ability to alter projects, the examples of project delay or alteration related to SIA issues are becoming more apparent and widespread. The Georgia case demonstrated that SIA issues can affect the entire transportation program, and the North Carolina Route 17 case represents a case where a project was delayed for five years due to SIA issues. Other cases can be seen in the purple book, *Community Impact Mitigation* (1998). In this document, cases in Durham, North Carolina; Oak Park, Michigan; Philadelphia, Pennsylvania; Seattle, Washington; and Prichard, Alabama are used to demonstrate successful SIA mitigation. These cases also reflect that the SIA impacts drastically altered projects to require such mitigation. Similarly, the FHWA guidance, *Transportation and Environmental Justice Case Studies* (2000) describes ten cases where SIA/EJ impacts significantly altered project trajectory.

The EJ working group at MoDOT concluded that the agency was not especially progressive, or behind other states when it came to development of policies and practices to ensure compliance with the spirit and intent of CIA and EJ. Based on the group's cumulative experiences, the group surmised that MoDOT would need to increase the relevance of CIA and EJ within the department by demonstrating to management the risks involved with the various levels of commitment to the area. The department needed to develop a policy with management buy-in to elevate the status of these human-dimension areas, recommend social science staffing for the project development/environmental area, and develop policies to address these issues at the organizational level. The EJ working group is scheduled to complete their report, in part based on this analysis, and report to management in early 2004.

Chapter 9 - Findings and Conclusions

In his 1999 Transportation Research Board Distinguished Lecture, Alan Pisarski (1999:2)

frames transportation as an integral part of our lives, he states:

I have sometimes called transportation, ...the collision of demography with geography. Transportation is a fascinating interaction of sociology, economics and technology. It is so interwoven with the social and economic structure of all societies, and most conspicuously our society, that its connections and impacts are inextricable from the understanding of society itself.

Transportation indeed has an overwhelming presence in our society. As stated in the American Association of State Highway and Transportation Officials Reauthorization Update (2003), the six-year transportation bill is expected to include approximately two hundred and forty-six billion dollars for the various programs involved in the Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2003 (SAFTEA). According to the U.S. Department of Transportation (2002), these monies go to the maintenance, construction, and ancillary activities required to manage the over 3,936,229 miles of public roads in the United States. In Missouri, there are over 32,000 miles of state managed roadways and over 10,000 state owned bridges (MoDOT 2003). These miles of road comprise over 385,000 acres or over six hundred square miles of land in the state. In comparison, Boone County, Missouri, consists of six hundred and eighty-five square miles. This makes Missouri's the sixth largest transportation system in the United States. Further there were over thirty-six billion vehicle miles traveled in the state in 2003.

According to the 2003 Financial and Statistical Report (2003), MoDOT will spend over sixty percent of its entire budget, or approximately \$1.3 billion dollars on construction. Considering transportation's scope of funding, use, and presence, there can be no question that our transportation system supports and affects the social and economic climate of locales within the state.

However, continuing construction, maintenance, and use of such an expansive system involves environmental impacts. NEPA was originally intended to identify and address these impacts before projects were constructed. Importantly, as early as 1969, NEPA called for an integrated use of the social and natural sciences in the NEPA process in order to capture the impacts to the natural, human, and built environment. These circumstances were clarified in 1978 with CEQ guidance that provided that while social impacts are not sufficient to trigger an impact assessment under NEPA, where there are other significant impacts and/or interrelated impacts, social and economic impacts must be included in the environmental impact study (U. S. Council on Environmental Quality 1978). Still, the appropriate incorporation of the social science considerations into the NEPA process and related organization appears to be a continuing, uphill battle.

While the NEPA process has been heralded as the first environmental policy with a national focus (Presidents Council on Environmental Quality 1997), there have been, as with most all policy implementation processes, pathologies and constraints to fulfilling the intent and spirit of the regulations. Within NEPA and the organizational setting, the status, integration, and potential of the social impact assessment process as it has been re-

emphasized through community impact assessment and environmental justice directives, provides fertile ground to not only study the nature of the impacts but also the process and organizational components of environmental protection as well. The status, integration, and potential of the SIA, including CIA and EJ in the NEPA process and DOT organization have been the focus of this work.

And while there is no doubt that natural resources, communities and people are being considered, and to some degree are protected by the NEPA process, the SIA field in particular appears to lag behind other resource impacts as determinants of transportation project development. As Freudenburg and Keating pointed out in 1982 (1982:75):

...numerous projects have been altered in major ways (or even cancelled entirely) in order to avoid negative impacts upon local animal or plant populations, or upon the biophysical environment in general. Efforts to mitigate social impacts appear quite minor in comparison: as one local resident put it, "Sometimes I think they'd pay more attention to us [people] if we grew antlers."

In order to determine the current status, integration, and potential of the SIA process inclusive of CIA and EJ, several data sources and methods were used. The Missouri Department of Transportation provided the case study setting to examine the development of the environmental process at a DOT and the concurrent development of the SIA work within the environmental unit. Environmental documents written during the 1980's through the early 1990's were reviewed to determine the extent that SIA was used in the process. Further, an Environmental Assessment for a major bridge project in southeast Missouri and the subsequent EJ review of the document, provide insight as to how the SIA process worked during this time period, as well as how it should work,

including the spirit and intentions of CIA and EJ. Employees at MoDOT and FHWA were consulted regarding their experiences with the SIA and EJ areas, the development of SIA in NEPA, and their specific experiences with transportation projects. Finally, the educational and outreach efforts of the FHWA, as well as the EJ policies of progressive state DOTs were reviewed to provide an assessment of the potential of EJ, CIA, and SIA in the NEPA process. This information was collected, and the reviews were conducted, during the author's employment at the MoDOT over an eight-year period.

Review of Case Study Findings

In Chapter 5, the organizational setting and history of the development of the Environmental section at MoDOT as well as the process of environmental clearance was examined. Findings of this case study analysis include that the Environmental section was originated and first staffed based on environmental issues that would delay, add costs or stop a project. Archeology, and natural resource issues became known as fatal flaws to project delivery because of the external agency oversight provided through the NEPA umbrella. And it was not until 1993 that the Environmental section was fully developed at MoDOT, with the socioeconomic specialist as one of the last positions staffed.

The SIA area was not well integrated into the environmental clearance process and did not have the robust external agency oversight that the natural resource impacts contained. However with the community development emphasis of the 1991 transportation reauthorization (ISTEA) and the 1994 Executive Order 12898 for Environmental Justice, SIA issues have become more prominent and threatening to project delivery. As a result

MoDOT is warming to the idea of greater inclusion of human-dimension issues in project development.

In summary of Chapter 5, the agency based external reforms of NEPA have been successful in creating an environment at MoDOT that has integrated natural resource issues in the DOT operations. In tandem with these successful external reforms, natural resource areas were staffed with competent personnel that would then negotiate with the resource agencies to ensure control of impact avoidance and mitigations and thus maintain order in the project delivery process. SIA has not followed this development path yet, but with increasing awareness of the impacts of transportation on our built and human environment the SIA area will likely increase in relevance. It is likely that DOTs will either need to ramp-up their efforts in this area or face increased external oversight through FHWA and other human resource agencies.

In Chapter 6, a 1991 EA for the Relocated Route 74, which included the Bill Emerson Memorial Bridge, was examined as a typical environmental analysis conducted at the time. It was also selected as a case study because of the un-addressed human-dimension impacts addressed in the 1996 FHWA/MoDOT reexamination of the project and environmental document. Conclusions from this case study are that the SIA issue area was underrepresented in the environmental analysis given the dramatic neighborhood impacts. Considering the entire document of one hundred and fifty three pages of text including appendices, only two pages of text and a one page cost comparison table addressing SIA issues was provided. And minority status or not, the neighborhoods was

cleaved in half by a four lane roadway bounded by chain link fencing running the entire length of the corridor. Further, public involvement for the project did not effectively include the most impacted neighborhood area and minority population. Further, noise and access issues remained largely unaccounted for in the EA.

It can be concluded that during the late 1980's and early 1990's, SIA was not well integrated into the environmental analysis process and that what could be considered severe social impacts were dismissed as "minor disruptions." In this case, external reforms from other agencies as well as the internal reforms that could have been provided through appropriate staffing at the DOT did not exist to the degree necessary to influence the inclusion of these impacts in the project design and public involvement process. The communicative data and the decision-making rationality to prioritize these issues as important to project delivery were not present. FHWA's efforts to prioritize EJ have increased the efforts by DOTs in this work area but the inclusion of these impacts as robust determinates to project design and decision-making are still lacking. Until the DOT includes SIA issues as data comparable in importance to engineering and natural resource constraints in their decision-making model, the impacts to the built environment will be left for adaptation by those impacted, rather than avoided and appropriately mitigated.

In Chapter 7, the Environmental Justice Review stemming from an EJ complaint by a Cape Girardeau resident regarding the construction of the Relocated Route 74 EA is used as a case study. This case study provides for an examination of the affect of CIA and EJ

in elevating the status of SIA in project development and environmental clearance. In the 1996 complaint, the resident claimed that public involvement was non-existent for the black population, access had been decreased for emergency services and to schools and parks, and that noise issues from increasing traffic had not been adequately addressed. The 1996 FHWA/MoDOT review of the project area and environmental document confirmed these impacts as inadequately addressed in the original EA but that the document as a whole conformed with the proscriptive guidance. As a result, and in coordination with FHWA, MoDOT would build sidewalks to allow for greater pedestrian access, re-assess noise impacts, and beautify the ROW of the bridge approach. As the EJ Reviews was designed not only to address the impacts noted above, but to also provide guidance to MoDOT on how to handle EJ in the future, MoDOT would also increase their SIA and public involvement efforts, add EJ guidance to internal manuals, and elevate the status of these impacts in future analyses. Since 1996, there has been concern at MoDOT over the risk of not adequately addressing SIA impacts, but little has been done to elevate their prominence in environmental and design work.

Thus, EJ has increased the recognition of SIA impacts, but the impacts do not yet present enough risk to stop or delay a project. As a result, the appropriate social science staffing has not been hired, and these issues are still not prominent in project design and decision-making. The efforts of FHWA as an external reform have been significant in terms of the training offered, guidance provided, and overall emphasis on the impacts, but to date these issues are still not valued in the decision-making and design rationalities of the

organization. SIA impacts have not followed the same threat-negotiation-adaptation and inclusion process that natural resource impacts have within MoDOT.

In Chapter 8, a review of FHWA and national research efforts, the author's experiences on the MoDOT EJ working group, and three state policies addressing EJ and SIA issues are used as a case study of the transportation industry's efforts in increasing SIA, CIA and EJ in transportation development. Findings from an examination of the MoDOT EJ group confirmed that the risk of not completing a thorough SIA analysis is a real possibility for the department, that the Planning and even more so, the Project Development work areas are the most likely divisions to encounter EJ issues that stop or delay a project. Finally, senior management needs to be made aware of the risks of non-compliance and that an over-arching EJ policy was needed to provide an organizational cushion should litigation occur.

The review of national and state research supported the conclusions that more attention was needed to address these issues. As this level of transportation research is conceived and prioritized by DOT managers, DOT managers have realized that more information concerning SIA and EJ issues are needed. Analysis of the national and state research provided that MoDOT was not alone in the under-representation of social issues and social science professionals in the project development, planning and environmental clearance areas. Most states are completing the work with available personnel, and the human-dimension impacts are not considered as an impact area that would delay or stop a project. It can be concluded from this analysis that EJ, CIA and the overarching SIA area

are increasing in relevance to DOTs, but there are still questions regarding the level of effort DOTs should exert in order to avoid project delays. Without the threat of external enforcement of sound SIA practices and impact avoidance and mitigation, it is likely DOTs will remain unmoved by the FHWA efforts to elevate the status of this impact area. However, DOTs would be better off assimilating these issues into their current practices before external agencies begin to look for ways to better control human-dimension impacts in transportation. Similarly, DOTs should take steps in this direction before the public provides a similar external influence through protests against an individual project or identifies a perceived callousness of the DOT in all of its activities concerning the impacts of transportation on people.

In the review of the early state guidance provided by Minnesota, Ohio and Georgia, seven commonalities can be identified in the guidance regarding human-dimension issues, especially for EJ in DOTs. The commonalities included; hire the appropriate staff, sponsor or attend training, develop policy statements to address responsibility for the issues, provide guidance, refine public involvement efforts to address the need for public input, identify and define geographical areas where EJ issues are likely to arise, and document all efforts and findings. Based on these commonalities, it can be seen that appropriate staffing, training, identifying relevant population groups and policy statements to allocate responsibilities for SIA efforts reflect the need for additional internal reform to aid in the adoption of these issues in the rational decision-making processes at DOTs. These suggestions, along with the increased public involvement efforts reflect the need to address the issues as seen by stakeholders rather than through

the eyes of project managers. These efforts reflect the need for a communicative rationality in environmental analysis and again in project design and decision-making.

The following text further summarizes the methods, findings, and theoretical and practical applications of this analysis of the integrations, status, and potential of EJ and the SIA in transportation development in Missouri.

Status and Integration

The first measure of the status and integration of the SIA in NEPA and the organization is reflected by the development of the Environmental unit and process at MoDOT. A historical review of the Environmental unit suggests that the organization first employed environmental specialists in topical fields that involved threats to the deployment of projects, generally through external agency regulation or permit requirements. It became clear during this analysis that it wasn't NEPA so much that concerned the DOT, but the NEPA umbrella that required the inclusion of related regulations and laws managed by external agencies that then threatened the outcome of the process.

Regulations governing impacts to historic sites, wetlands, and threatened and endangered species imposed by other agencies forced the department to expand the professional staff beyond engineering. Once on staff, these personnel were able to buffer the agency from threats to project deadlines, increased project costs, and increased regulatory oversight. The socioeconomic specialist position was filled as one of the last two specialty areas to be staffed, over fourteen years after cultural resources staff (archeologists, architectural

historians) were added, and three years after the ramp-up in the wetland and biological areas. Still, for close to twenty years after NEPA, liaison engineers and planning engineers, with direction from resource agencies, completed environmental work without the aid of environmental specialists.

In these circumstances, the external reforms brought by the NEPA umbrella and enforced by agencies such as the Missouri Department of Natural Resources, Missouri Department of Conservation, and Corps of Engineers were slow in affecting change but ultimately effective as the DOT saw these external influences as more of a threat to project implementation. MoDOT employed environmental specialists to address these regulatory issues, and these fields were integrated into the department's operations. The situation is more pronounced in that impacts in the more regulated areas were given the moniker of "fatal flaws," distinguishing them as a potential threat to the project deadline or current transportation design. In effect, the MoDOT natural resources specialists were able to negotiate the determination of impacts along with the required avoidance and mitigation needed to ensure timely project delivery and prevent fatal flaws. Socioeconomic impacts and farmland impacts were not considered to invoke the concerns or action needed to circumvent a fatal flaw. The SIA field, with little oversight by agencies other than FHWA, was not categorized as a fatal flaw and did not warrant the organizational attention and resources necessary to support a thorough SIA.

Further, the socioeconomic specialist position seemed like a foreign idea to the DOT. It appears that managers were aware of the need for SIA within the process but were not

sure what was involved. There was no internal work guidance, and managers were quick to point out that they were not quite sure what responsibilities fell under the position. This same sentiment was repeated when the Environmental Justice Executive Order was released in 1994. As Kross of MoDOT summarized, they weren't quite sure what to do with EJ or even if it fit in with the socioeconomic work.

Even with the staffing of a socioeconomic specialist and the release of the EJ EO, MoDOT was still unsure of where SIA fit in. Prior to the EJ EO, residents' concern over the economic implications of route relocations around smaller communities had been the hot topic for the socioeconomic field at MoDOT. However, when the EJ EO was released, the concern over human-dimension impacts increased in the Environmental section and at the DOT. Based on the EJ Review of the Relocated Route 74 EA and the industry-wide emphasis on CIA and EJ, MoDOT officials were warming to the idea that the SIA area would need more coverage. Further, the Inspector General's office, which housed the civil rights specialists at the department was previously unacquainted with project development activities, but became concerned that civil rights violations would occur in the Planning and Project Development areas. This, in effect, expanded the level of concern in the department and brought in the department's legal council at the request of the Inspector General's office to ensure that the new EO would not result in costly and time-consuming litigation. This potential threat of litigation may be sufficient to increase the relevancy of SIA impacts just as permits, biological assessments, and interagency oversight have done so in the other topical impact areas.

Based on this analysis, CIA and EJ directives provided the external influence to elevate the status and integration of the SIA process at the DOT based on the threat that the re-emphasis in these areas could affect project delivery. SIA had not yet become a fatal flaw, but it appeared that it would now be risky business to ignore this area.

SIA Efforts and Documentation

The inattention of the department to the socioeconomic impacts resulting from project development is demonstrated in the 1991 EA for the Relocated Route 74 in Cape Girardeau, Missouri, in Chapter 6 and in the 1996 Environmental Justice Review of the EA in Chapter 7. While the EA and its related FONSI were completed in 1991, three years before the EJ EO, the FHWA maintained that EJ re-emphasizes Title VI regulations, and that Title VI considerations, as well as community impacts assessment, were lacking on the Route 74 EA. And while the EA was found to be sufficient in its analysis of environmental impacts, it was apparent that community impacts and public involvement with the affected neighborhood received little attention.

In the Route 74 EA, thirty-two pages of text comprise the EA with another one hundred and twenty-one pages of appendices. Of these pages, the SIA section consists of two and one-half pages of text and a one-page table of cost comparisons for the proposed alternates. This analysis includes a justification for the project, a discussion of the relocation impacts, and a one-paragraph discussion of impacts to neighborhoods and minority and handicapped populations. In contrast, over fifteen pages of the EA are devoted to biophysical impacts. More telling are the appendices of the document.

Besides the agency coordination documentation, forty-one pages of the appendix are devoted to a herptofaunal/wildlife survey of the project area while only two comment letters are present that address neighborhood impacts. Given the drastic SIA impacts and the NEPA and CEQ guidance that directs that the extent of the analysis should be in proportion to the level of impacts, the SIA was severely under-represented in this EA.

As documented in Chapter 7, after construction of the one hundred million dollar bridge project began, a complaint was made by a Cape Girardeau resident concerning noise impacts, decreased access to parks and schools, as well as limited minority public involvement related to the project. Beyond these impacts, field visits to the area revealed that minority or not, a neighborhood had basically been separated by a four lane roadway and the associated right of way and fencing. No sooner than had the fence been erected, then younger people were observed climbing the fence and crossing the road at self-selected locations. So while the access and barrier issues seemed minor by DOT standards, the people voted with their feet and crossed where needed to avoid the up to a six-block walk to cross at a controlled intersection. Importantly, MoDOT District 10 employees noticed these hazardous crossings and have committed to building a pedestrian overpass to allow for easier and safer access across the roadway.

Another important issue within the EA and subsequent EJ Review was the discussion of the determination of the minority population. First of all, environmental specialists working at the time of the EA documentation indicated that the little amount of SIA that was included in the document was more than what would have normally been included at

the time. As there were potential impacts to parkland, a more detailed analysis of other topical impact areas was needed to demonstrate that no other feasible or prudent alternative was available if parkland was needed for ROW. Thus, the racial characteristics of the potentially relocated neighborhood were included in the EA. However, with nearly fifty percent of the potentially impacted households considered minority, the area was identified as “racially mixed”, and therefore Title VI considerations were of no consequence according to the interpretation at that time.

Given current guidance, FHWA, as well as other implementing agencies, prefer not to identify a percent of the population that must be present to be considered a minority or low-income population. The spirit of these regulations as described by McDonnough-Bragg is that one person is enough. She argues that these regulations are intended to include everyone in the process. The defense that no EJ impacts are present based on a minority concentration less than majority percent of the population only means that they do not understand the basics of CIA and EJ.

Public involvement efforts completed for the Relocated Route 74 project represent another area where the old way of doing business is in stark contrast with the public involvement initiatives of CIA and EJ. The original project development phases included coordination with local leaders and business interests but failed to include the residents of the directly impacted neighborhood. Judging from the public involvement records, the community of Cape Girardeau was solidly behind the construction of the project. However, only two comments were documented from potentially impacted households,

and these households were not located on or along the future Route 74. Additionally, the public meetings were held at the Arena in the community rather than within or in close proximity to the project area. Conducting the meeting within the impacted neighborhood would have likely increased participation. During the meetings at the Arena, there were no comments at the public meetings from the impacted minority neighborhood, a rarity at public meetings where relocations are expected.

The style of the public meeting likely contributed to the lack of participation as well. At that time, public meetings were based on the DAD model (Decide the location, Announce your findings and Defend the alignment if necessary). Those desiring to comment at the meeting were expected to move to the front of the meeting room, in front of the audience, and speak directly to the project managers at a microphone stand. Clearly this would be a constraint to anyone with concerns about public speaking. The failure of the public involvement to include the concerns of the impacted residents is in contrast to the directives of NEPA for informed public and those of EJ that require customized public involvement to suit the population involved. MoDOT has since changed its public involvement to the open-house format and, and with the potential threat of EJ litigation, is making strides in using innovative means to elicit public involvement from all sectors of the population. In most cases, public involvement meetings are held in the area of the project rather than outside of the area. Employees are looking for alternative means to notify residents of meetings such as using flyers on doors, alternative language media, and door-to-door visits. Additionally, MoDOT personnel now attend smaller neighborhood or church meetings just as they would attend a Rotary Club or Lions club

meeting to ensure that all facets of the impacted population have a chance to provide input.

Based on the analysis of the public involvement conducted for the Relocated Route 74, the potential external reforms to project implementation via the residents' participation in public involvement never materialized. The impacted population did not respond to the generalized public involvement efforts. It appears that the project simply passed into construction without a protest from the affected neighborhood, and based on the impacts, it would have seemed the residents would have had plenty to say about the drastic changes soon to be realized in the neighborhood.

The EA and EJ Review of the EA pointed out that access issues, characterization of the impacted population, noise impacts, and public involvement efforts were lacking in the project development and environmental process for the Relocated Route 74. MoDOT committed to providing sidewalks to lessen the access issues and now has committed to building a pedestrian overpass. Noise impacts were re-assessed based on the review and found to be right at the level triggering noise attenuation. Considering that the bridge is still not open, traffic levels and noise are likely to increase with the anticipated December 12, 2003 bridge opening. However, the limited access points along the expressway would provide breaks in sound wall mitigation that would render the sound walls ineffective.

The 1996 FHWA EJ review was intended not only to address the missteps of the EA but also to provide guidance to MoDOT regarding future SIA and EJ analyses. The EJ Review provided that for future environmental work, MoDOT was charged with increasing the level of effort and sophistication in the characterization of the population groups and SIA impacts. In response, MoDOT has customized census data for each of its planning districts and work activities to allow for easier consideration of population characteristics. And while increasing the presence of the SIA work in the environmental and project development processes would logically include employing personnel with an appropriate background for the work, the state and MoDOT have been in a financial crisis that has inhibited increased staffing for agencies. Thus, MoDOT has been without a socioeconomic specialist since 2000, but has been completing the work with the oversight of the author. Importantly, as documented in Chapter 8, most state DOTs are in the same situation.

Based on the author's participation in industry wide conferences and training, along with data presented in national research addressing the SIA process, few DOTs have sociologists working in this area. In regards to the national SIA study (Forkenbrock and Weisbrod 2001), Forkenbrock indicated in an email communication that most DOTs are under financial constraints and are using current employees to address SIA and EJ impacts regardless of their educational and professional backgrounds. So even with the ramp up of interest in covering SIA issues, these positions are often filled with any available employee, regardless of educational or professional background.

Regarding the future of public involvement, industry wide, this activity is seen as key in ensuring that all voices are heard in transportation decision-making. In this sense, public involvement is seen as providing data regarding the project impacts just as census data or the number of household to be relocated are used as data in the SIA. Given public involvement as data and the general propensity of people not to become involved, public involvement efforts are charged with developing and implementing innovative ways to increase participation, especially by the traditionally underserved. In effect, just as project managers attend Rotary Club meetings to talk to business leaders, DOT personnel should attend church meetings or personally visit neighborhoods to ensure they get the full range of perspectives regarding the project's impacts. Rather than the DOT calling a meeting, DOTs are called to go where the people are. This change in public involvement efforts reflects a change in DOTs to the idea of non-rational, or communicative data as important in understanding project impacts and decision making.

The emphasis in the industry and at MoDOT is one of greater efforts in identifying population characteristics and then using non-traditional outreach methods to incorporate these populations in the process, thus breaking from the old way of Decide/Announce/Defend. It is only through this increased coordination with the impacted population, and the use of the information gained from this interaction, that the SIA impacts can be fully identified and addressed in the NEPA process.

Potential of SIA

The findings of this analysis presented here indicate that DOTs have not been left standing without guidance regarding the principles and practices to successfully address EJ, and then CIA and SIA. FHWA, practically the sole external force to encourage increased efforts by DOTs in the SIA area, has been more than thorough in providing guidance, presentations, and technical assistance. As a result of this FHWA emphasis, most would agree that the SIA area, through emphasis on CIA and EJ, has increased in relevance for DOTs. But this has not necessarily resulted in increased practice or sophistication of SIA. FHWA has published the “purple books” as they are known in the industry, that address CIA, EJ, and mitigation for SIA areas. EJ and CIA topics are presented at nearly every meeting that attracts transportation professionals, and FHWA personnel have been strong advocates of “doing the right thing” when it comes to addressing human-dimension impacts in transportation development.

There has also been national work commissioned in the area to identify and present the best ways to address SIA, and within SIA, the CIA and EJ components. Forkenborck and Weisbrods’, *Assessing the Social and Economic Effects of Transportation* (2001), and the NCHRP report, *Technical Methods to Support Environmental Justice Issues* (2002), provide a review of the latest research and practices used by DOTs around the country. Additionally, the timing and release of these documents reflects the ramp-up of interest of State DOTs as the NCHRP research is determined and prioritized by panels consisting of DOT senior management. State research programs are also looking to resolve the SIA

dilemma as evidenced by Arizona DOT's report, *What is the Best Way to Address Environmental Justice* (2002).

Importantly, while national and state research has reviewed the SIA and EJ process and provided guidance in the form of best practices and methods to address these impacts, the reports make no recommendations as to the educational or work background of those completing the work. There is little mention of the "spirit" behind the efforts to address these impacts. And based on the author's eight years employment in a state DOT, in most cases there are significant differences in the identification of social impacts as defined by technical specialist or biologists versus the same impact defined by sociologists or even those with a social science background. This lack of "spirit" or an understanding of why CIA and EJ are important in completing SIA work results in a SIA product that does not do the process or issues justice. It is in the process where the communicative dimensions of SIA work could be identified and included with the other constraints being considered in the project development decision-making.

Additionally, as FHWA points out, none of this CIA and EJ guidance is new. It has been part of the regulatory complex since 1964 and 1969. In this sense, we are dealing with old wine in new bottles and, this time working towards consumption rather than storage with the current re-emphasis on CIA, EJ, and public involvement.

Rational Decisions?

NEPA, as a decision-making and action forcing process, reflects a comprehensive, scientific, rational perspective as evidenced by the language within NEPA and the CEQ guidance. This is likely a result of the rational emphasis in public policy at the time of development of NEPA and CEQ guidance. Planning, Programming and Budgeting models (PPB) and systems analysis can be seen as leading to the intended comprehensive, scientific rationality found in the NEPA guidance. Additionally, as many of the agencies under the purview of NEPA, especially transportation agencies, were and are managed by technical specialists such as engineers, the quantification of impacts and the rational model was readily accepted into the organization's operations. However, both NEPA and the CEQ give credence to "qualitative" impacts and methods when appropriate. And in most cases, the SIA, CIA, and EJ impacts take on a more qualitative, or "soft" dimension (as defined by engineering staff at MoDOT). These soft impacts have historically not been teamed with any forcing mechanism and have generally been neglected within the DOTs.

The SIA and EJ guidance that proscribes customized public involvement and greater consideration of SIA impacts in the decision-making process appears to reflect more of a communicative rationality rather than the traditional emphasis on the rational-scientific model. Within the SIA context, the input from the public, especially input from those impacted by the proposed action, are to be considered data and integrated into the decision-making process rather than the one-way communication historically found at agency-led public meetings. Additionally, EJ and CIA call for impacts to be identified

and valued by those impacted, much like the subjective dimension of a communicative process. This is in contrast to the agency-based, agency-defined impacts posed by the more instrumental processes.

In fact, the communicative or qualitative dimensions may supersede the rational model as evidenced in the case of the use of the rational-based benefit-cost models. Under the rational economic model, a positive benefit-cost ratio or project cost saving can be seen as justifying the purchase of the lowest cost ROW available. However, considering the EJ guidance, a rational-economic justification of this type would lead to the displacement of the lowest cost housing in the project area. As a result, impacts to minority and low-income populations are more likely. In effect, the CIA and EJ guidance and the underlying communicative rationality of this reform are at direct odds with the traditional way of doing business at DOTs. Considering the budget constraints currently facing DOTs across the country, this contradiction is even more pronounced and results in greater limitations to consideration of these populations.

Given the historical minimization of SIA impacts in the NEPA process and the resistance of DOTs to address CIA and EJ thus far, the difference in underlying rationalities of rational-scientific and rational-economic versus the communicative rationality of CIA and EJ, represents the gulf between doing SIA work for completion of an environmental document and doing the right thing in the SIA and when decisions are made. Without a sincere and responsive public involvement effort, the environmental document may still receive approval, but the extent and nature of the impacts may not be addressed. With a

more communicative process, the impacts and potential benefits of the project are identified and valued by those impacted, rather than being completely defined by the agency. Examples of the failure to adequately assess the SIA impacts that can be revealed through a more communicative process can result in pathologies for projects, as well as for planning and programming activities. Bruce R. Watkins Drive in Kansas City, Missouri, Route 17 in North Carolina, as well as the case studies found in the FHWA purple books provide evidence of project delay, increased costs, and design changes to address SIA issues that were not addressed through the previous processes. Georgia's experience with the delay and realignment of their statewide transportation plan represents a failure to address these issues at the system and programming level for the organization. In these contexts, the lack of inclusion and status of these communicative dimensions, as represented by the SIA in NEPA, represents an implementation pathology internal to the organization. The SIA issues have not been included because they do not fit within the optimizing, rational model.

SIA has evolved and changed over time, from its advent in the early 1970s as a potential field unto itself in environmental sociology to a minimally-addressed impact of transportation projects. With EJ and CIA increasing the external scrutiny regarding these impacts, SIA now seems to be of greater relevance to transportation decision-making. The historical under-representation of SIA in documents and design and decision-making can be linked to the lack of an external forcing mechanism that would have placed a value on completing SIA work, or a risk in not completing the work. And as there is still no regulatory forcing mechanism in place, FHWA's role in advocating this work is

imperative. There also appears to be a general lack of understanding of the scope and importance of SIA by technical managers in DOTs.

The current increase in interest in the SIA area can be seen as related to the external influences of the public, and FHWA's emphasis and commitment to increasing the status and integration of SIA through CIA and EJ guidance and oversight. And while the focus of this research, the SIA process at MoDOT, represents only one case out of fifty state DOTs, the majority of DOTs exhibit similar low-levels of commitment and interest in SIA and mitigation for such impacts. This low level of commitment and action by DOTs likely reflects the imbedded values and perceptions held by technical managers at DOTs and the low risk in avoiding this analysis that then minimize the potential of including the "soft" side in traditionally engineering operations.

And while marriage of the rational model and technical emphasis in DOTs may limit the greater inclusion of human-dimension impacts, DOTs could take simple steps to move towards at least fulfilling the original intentions of Title VI, NEPA, and the later CIA and EJ emphases.

Recommendations

While the more established impact areas in the NEPA process appear to fit, or are at least integrated within the rational context of the NEPA process, the comprehensive, scientific, rational process falls short of the expectations reflected in the original guidance. As

Culhane et al. (1987:270) point out in their study of the content and predictive accuracy of EISs:

In short, the empirical record and real-world limitations of the NEPA process present a grim prognosis for the rational, comprehensive, optimizing, scientific model of the prescriptive literature on EISs. As an alternate, we prefer the CEQ's version of the old practical maxim: Keep it Simple and Succinct.

Given the unattainable goals of the completely rational decision making model, the external reforms of the SIA process brought by increased FHWA commitment and oversight of the SIA; CIA, and EJ processes appear to be one of the potentially key triggers to increase DOTs' efforts in addressing SIA impacts. As there is little oversight beyond FHWA in this area, their efforts are paramount in increasing industry-wide efforts. Based on this analysis, DOTs have integrated and valued those resource impacts that threaten project completion. Impacts areas defined as fatal flaws based on external agency oversight were provided appropriate staffing in order to negotiate with resource agencies to reduce the additional complexity brought to bear through the NEPA umbrella. Until the SIA area poses a threat to project completion and the current rationality of project development, there is little likelihood that DOTs will do more to address these impacts. FHWA should be commended on their efforts to date and should keep the pressure on. DOTs are listening, but judging by the speed of adoption and integration of other resource impact areas in DOTs, further integration of SIA will likely take years rather than months. And given the effectiveness of external reforms in operationalizing natural resource impacts in the process, it would be preferred that FHWA remain as the external influence rather than leaving the situation to other external agencies with divergent organizational goals that may not be as transportation friendly.

The underlying gulf between rationalities guiding decision-making and in completing the process, and the subsequent differences in the understanding and perception of the importance of SIA impacts at DOTs is also influenced by internal reforms of the process and organization. DOTs should employ environmental specialists with social science backgrounds to ensure that the spirit and intent of SIA/CIA and EJ are integrated at the DOT. DOTs are stringent in the use of engineers for engineering, biologists for natural resource impacts, and archeologists for historic sites, yet staffing in the SIA appears to be based more on available personnel rather than professional or educational background. If DOTs wish to decrease the level of risk associated with SIA and EJ impacts, appropriate personnel should be employed and assigned to this impact area.

And given the unfamiliar nature of social impacts in transportation development for DOTs, DOTs should pursue the available training courses through FHWA and the National Highway Institute training. Additional training and contextualization of social impacts in transportation should also be requested from regional FHWA offices. These good faith efforts with regional FHWA offices not only increase the level of information available to the DOT but also open the door for further assistance by FHWA for specific projects. Additional exposure to these concepts can be expected to gradually increase the potential implementation of these communicative data and practices into the more rational-optimizing model currently in place. And as echoed at many transportation industry meetings, DOTs are better off investing in training and efforts to address these

impacts up front rather than getting tangled in litigation that delays or potentially stops a project.

Additionally, as the potential for litigation in this area increases with each project, DOTs should adopt policy directives to locate and emphasize the importance of SIA and EJ impacts. This not only provides the guidance for the when and where of SIA, but also places the human-dimension impacts in the culture of the organization. In the very standardized operations and culture of DOTs, once policies are in place, it is easier for actions to follow without the resistance of “Why are we spending money on that?”

As noted throughout this analysis and predominantly in the EJ guidance, public involvement and outreach is imperative to ensure that the principles of EJ and SIA are carried out. In DOTs, especially MoDOT, public involvement needs to be re-conceptualized to include all stakeholders, not just the traditional business and community leaders. Further, rather than being used as the voice of the DOT in news releases, the public involvement efforts should reflect more of a sociological or community investigation. The information resulting from this participation should then be considered data, and then can be used in understanding project impacts and then doing something about them. This guidance is a call to incorporate more communicative processes and data into the current framework. MoDOT as well as other DOTs have been exposed to practices designed to increase the use of these communicative dimensions through multiattribute decision models, integrated impact assessment, the

weighting of impacts in the analysis, and in such courses as, “Systematic Development of Informed Consent” through the Institute for Participatory Management and Planning.

MoDOT has made steps in ensuring comprehensive public involvement beginning with the 2003 Long Range Transportation Plan. The public involvement for this effort included Road Rallies, telephone surveys, and focus group meetings. To increase awareness of demographic factors and potential EJ issues, census data has been customized through the MoDOT Social and Economic Indicator Resource (SEIR) to make identification of non-traditional stakeholders easier for all who need to consider these population groups (the MoDOT SEIR can be accessed at: <http://oseda.missouri.edu/modot/>). Once the populations are identified, involvement techniques can then be customized to ensure participation. Participation in public involvement by limited English speaking populations represents the high-end of efforts in this area. Guidance is currently being established to ensure participation by these population groups.

Future Potential

This analysis has identified the SIA process, including CIA and EJ, as lacking in its integration and status within the NEPA process and DOT organization. This lack of status and integration results in inadequate SIA, CIA, and EJ analyses that will likely lead to costly project delays or termination. DOTs can decrease the risk of project delay or failure associated with these impact areas by employing appropriate personnel for SIA analyses, developing policies to adopt the SIA area within the organization’s culture,

pursuing training and interaction with FHWA, and remaining involved in industry-wide conferences and workshops. Public involvement should be re-defined as more of a two-way communicative process and should include all stakeholders. Further, methods of public participation for impacted populations, especially minority and low-income populations, must be customized for the specific area and impacted population. These proposed and beginning efforts reflect the need to bridge the gulf between the technical-rational, instrumental rationality of current project development models and the more negotiated, communicative rationality required to instill human-dimension issues in DOT decision-making.

In order to demonstrate the importance of SIA within the NEPA process, the relationship between DOT public involvement efforts, project delays, and community betterment should be assessed. It appears that the newer conceptions of public involvement not only enhance minority and low-income populations participation, but in effect raise the participation and comfort level of all population groups. Additionally, mitigation for SIA, CIA, and EJ impacts should be examined in coordination with stakeholders, and creative and lower cost mitigative solutions should be defined and shared within the industry. Beyond the relocation of residents, sound walls and sidewalks, mitigation options are currently limited and leave much of the project aftermath to adaptation rather than minimization or correction.

And while DOTs have taken steps in incorporating human-dimension factors into broader planning and programming phases of operation, efforts are hampered by the

organizational and temporal distance between these activities and the actual design and construction of the project. Research is needed in this area to bridge this gap and elevate the SIA considerations into the early project conceptualization phases.

Further, technical managers at DOTs are quick to point out that engineering plays the primary role in transportation design, but they are taking steps to allow for more voices. Recent efforts in context sensitive design represent efforts to provide an engineering solution for human-dimension and natural resource constraints. In this process, DOTs allow for greater input from the public and external resource agencies regarding the fate of the environment. Facility designs can then be modified to accommodate human-dimension standards in addition to traditional engineering standards. These efforts should continue in conjunction with greater work towards neighborhood and community input. Maintenance operations also need to be framed within the human-dimension context. With the majority of the highway system built-out, DOTs are gearing up for maintenance of the systems rather than expansion. And with increasing traffic volumes, much of this work is being done at night. The associated community impacts need to be addressed and solutions to this multifaceted problem should be identified.

And as external and informal reforms appear to influence the process, FHWA should continue its role in technical assistance and guidance. The university system can aid in this area by providing students (and potential employees) with a greater understanding of the links between transportation development and community and neighborhood quality of life. Engineering coursework should expose future engineers to these non-traditional

components of transportation development with the intention that increased exposure to these issues will begin to open the current design and decision-making model to human-dimension factors. And specifically in the social sciences area, students should be prepared and encouraged to pursue careers in the public policy and in the transportation industry.

Finally, DOTs need to remember that the guidance and potential oversight in the SIA area is not new and that the customers of their work are people, and not design standards and manuals. These human-dimension regulations have been in place for thirty plus years, and the time to adopt is now. While the human species is undoubtedly one of the most adaptable species compared to most flora and fauna, they deserve recognition and consideration in infrastructure changes that affect them. In fact, as the transportation system is solely for human use and the much of the system is located in built environments, people should have every bit as strong a voice as the wildlife and vegetation discussed in the forty-one pages of biological assessment provided in Relocated Route 74 Environmental Assessment.

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