Working Paper

Building on the Strength of Environmental Justice in Transportation

Environmental Justice and Transportation Toolkit

Federal Transit Administration

By

Glenn Robinson, Senior Researcher and Project Director
Baltimore Region Environmental Justice and Transportation and the Transportation Equity Cooperative Research Program
Morgan State University, School of Engineering and Institute for Urban Research

Co Authors

Morgan State University, School of Engineering, Glenn Robinson
Ohio State University - School of Public Health, Tim Buckley
Pittsburgh Interfaith Impact Network Wallace Watson
Center for Neighborhood Technology, Jacky Grimshaw
Urban Habitat Program (Oakland), Aaron Golub

Contributors

Paula Simpson, ARISE (A Regional Initiative Supporting Empowerment)
Robert Allen, Urban Habitat Program (Oakland)

September 29, 2010

Disclaimer Notice

In conducting this work the project team steered away from action campaigns; instead we geared our work towards teaching community groups how to analyze equity issues and how to communicate with policy makers. That said, we advocated for greater transparency and representation and to those ends we have embedded the following in this Tool Kit: traditional Environmental Justice Transportation principles; standard transportation performance measures and current planning practices that were discerned from the literature; and case studies from Baltimore, Maryland, Pittsburgh, Pennsylvania and Oakland, California.

This document is disseminated under the sponsorship of the United States Department of Transportation, Federal Transit Administration, in the interest of information exchange. The United States Government assumes no liability for the contents or use thereof.

The United States Government does not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the contents of the report.

Report No.	Government Accession No.	Recipient's Catalog No.
Title and Subtitle: Environmental Justice and Transportation Toolkit		March 2010
Authors: Glenn Robinson et. al		Performing Organization Code
Performing Organization Name and Address School of Engineering and Institute For Urban Research Morgan State University, 1700 E. Cold Spring Lane Baltimore, Maryland 21251		Performing Organization Report No.
Sponsoring Agency Name and Address Monica McCallum, Equal Opportunity Specialist, Region 10 Office of Civil Rights, Federal Transit Administration 915 Second Ave, Suite 3142, Seattle, WA 98174		Work Unit No. (TRAIS)
Supplement Notes: Project Officer Monica McMillan		Contract or Grant # MD-26-8001-4

This final report contains a synthesis of the Environmental Justice in Transportation (EJT) Tool Kit, Volume II. This Transportation Cooperative Equity Research Program (TCERP) report continues the work pioneered by the Baltimore Region Environmental Justice in Transportation (BREJT) and advances a public participatory model for achieving environmental quality and sustainable growth in at-risk neighborhoods. As well, an action-oriented model is developed--combining the organizing strategies championed by Smart Growth, Social Equity and Environmental Justice advocates with traditional back-of-the-envelope quantitative environmental justice analysis principles. The model has been created as a supplement to arguments that favors the development of sustainable community environments in at risk communities.

This synthesis report provides guidance on how to identify, understand, and approach environmental justice issues at a variety of levels. Like the Community + Unity Guide, Environmental Justice and Transportation Toolkit, Volume I and Technical Documentation found on the http://www.ejkit.com website, this final report educates users on the nature of EJ issues; orients them to the key regulatory requirements guiding EJ; provides a synopsis of how the requirements have been responded to; characterizes strong versus weak responses; and provides general instructions on how to promote neighborhood, community, city, and regional wellness.

While components of this Toolkit are addressed in a number of recent studies and reports, the authors were unable to identify in these studies any single source that delivers the type of practical and systematic guidance for multiple users. To that end we have developed a three-pronged environmental justice-in-transportation process for encouraging civic engagement in low income and minority communities. This process includes a community-driven public participation framework, performance evaluation criteria and triage process to prioritize projects. For disadvantaged communities, it serves as an educational and analytical tool, helping residents and community leaders to better understand and take part in the transportation planning and decision-making process.

The Project Team will distribute the toolkit by Internet, print media, TRB, publications on websites of the project sponsor, team members, and various interest groups with links to downloadable versions for users. Products will also be disseminated through the EJ network, Environmental Health Centers, and the Transportation Advocacy Networks. Our intent is to better identify and address EJ issues using the enhanced community involvement and technical analysis procedures and techniques in the EJ & Transportation Toolkit, which is fully integrated into regional transportation planning.

Key Words Environmental Justice, Transportation, Equity, Title VI, Smart Growth, Sustainability and Urban Environment	Distribution Statement	Type: Synthesis
Security Classification of this report Unclassified	Security Classification of this page Unclassified	No of Pages 61

Project Team
Morgan State University, Glenn Robinson
Ohio State University - School of Public Health, Tim Buckley
Center for Neighborhood Technology, Jacky Grimshaw
Urban Habitat Program (Oakland), Aaron Golub, Brendan Nee and Preston Theler

Transportation Cooperative Equity Research Outreach Team
Paula Simpson, ARISE (A Regional Initiative Supporting Empowerment)
Wallace Watson, PIIN (Pittsburgh Interfaith Impact Network)
Robert Allen, Urban Habitat Program (Oakland)

Phase I Oversight Committee and Phase II Peer Review

Tony Brown, Maryland Transit Administration
Don Chen, Smart Growth America
Richard Lloyd, Morgan State University
Michael Mazepink, Peoples Homesteading Group
Dorothy Morrison, Maryland Department of the Environment
Paul Oberle, Maryland Department of Transportation
Carol Payne, Department of Housing and Urban Development
Dan Pontious, Citizens Planning and Housing Association
Andrew Sawyer, Maryland Department of the Environment
Scot Spencer, Annie E. Casey Foundation
Rich Stoltz, Center for Community Change
University of Utah, Tom Sanchez

Acknowledgments

We would like to take this opportunity to thank the community groups for their fine work and for the support they gave to this research, as well as for their willingness to continue to share their experience with us and with other communities. We wish them the best as they strive to ensure accessible, affordable, and reliable transportation for people with disabilities and low incomes and for others in their communities.

Also, we wish to express our appreciation to federal representatives for their support as well. They include Victor McMahan (EPA), Sherry Ways (FHWA), Gloria Shepherd (FHWA), and Monica McCallum (FTA). Furthermore, we are grateful to these early contributors to this project: Rich Kuzmyak, Transportation Consultants, Rich Stoltz of the Center for Community Change, Elizabeth Deakin, Arizona State University, Don Chen of the Ford Foundation, and Howard Slavin, Caliper Corporation and Michael Mazepink, Peoples Homesteading Group.

Executive Summary

Minority and low-income communities and regions have long suffered adverse human health and environmental effects (including social and economic effects) from transportation projects. The goal of this project is to create a toolkit that enables minority, a low-income communities and other vulnerable at-risk population, that are planning transportation projects, to further avoid, minimize, or mitigate disproportionately adverse human health and environmental effects (including social and economic effects). To accomplish this goal, the project team mixed key traditional transportation, housing, criminal justice, social equity and environmental justice principles. These principles underpin environmental justice and transportation issues are important elements of neighborhood revitalization and sustainability. The intent is to: 1) inform communities about their transportation concerns; 2) establish representative case studies that exemplify the concerns; 3) identify and/or develop analytical tools for evaluating the concerns; 4) develop solutions and strategies that enable and empower the community to address their concerns and 5) provide a model application that demonstrates the utility for evaluating environmental justice and transportation issues.

This toolkit enables communities to step back and look at the full picture of neighborhood, community, city, and regional wellness; consider and measure the dimensions of the problem; and then decide whether to address it at as an immediate concern, or as a longer-term fundamental change, or both. We recognize quality of life is tied to equity and sustainability. Community deliberations, dialogue and negotiation with the responsible public agencies by low-income and minority communities were used to formulate an effective process for evaluating the extent that environmental justice and transportation (EJT) issues are prevalent in low-income and minority communities (EJ communities). A variety of case studies are included to demonstrate various components of EJ analysis, with a particular focus on:

(1) the quality and adequacy of transit service
(2) congestion, pollution, family health and neighborhood wellness
(3) the effectiveness of the public involvement process

From the Baltimore, Pittsburgh, Oakland and Albany experiences emerges the clear message that when communities are educated and well-informed they become more motivated to organize around their concerns. It is from this message that the project team has developed a series of public participation, equity analysis, spatial interrogation, and statistical evaluation tools which aid in a better understanding of environmental justice and transportation issues, concerns and solutions.

Table of Contents

Executive Summary **6**
Chapter 1 Introduction **9**
A. Review of Toolkits and Related Guidance 11
B. Need for a Structured Environmental Justice in Transportation Analysis Process 13
Chapter 2 Developing Planning Guidance for Project Planners, Administrators, and Community Advocates **14**
A. Title VI and Environmental Justice in Transportation Impacts on Underserved Populations 15
B. Reassessing the Needs of Underserved Populations 17
C. Three processes: Analysis and Priorities, Community Empowerment and Triage 18
Chapter 3 Analysis and Priority Setting **18**
A. Equity Measures and Analytical Tools 18
B. Illustrative Examples of Analysis Tools 23
1. Health Mapping in Baltimore 24
2. Accessibility and Equity Mapping Baltimore, Maryland 27
3. Community Assessment Survey Tool, Albany 28
4. Person on the Porch Ranking Tool 29
5. Oakland Accessibility Analysis 30
Chapter 4 Community Empowering and Public Participation Tools **33**
A. Element I, Understanding the Issues 34
B. Element II, Building Power Relationships 35
D. Element III, Public Participation Action Model (PPAM) 36
E. Element IV, the Triage Process Model -- Reviewing and Screening the Evidence 37
F. Illustrative Example (Mall Crawling for Transit Equity, Pittsburgh, Pennsylvania) 41
1. Background 41
2. Public Participation through Community Meetings on Transit 41
3. Power Relations and the Triage Process 42
4. Due Diligence 42
6. Actions 43
7. Getting Results 44
Chapter 5 Example, Applying the Toolkit, Baltimore, Maryland **45**
A. Example Application Scenario 45
B. Scope of Analysis 46
C. Mapping the Issues, Demographics, Assets and Ecology 48
D. Analysis and Ranking 53
E. Transit-Oriented Development 54
F. Transportation Demand Management Measures 54
G. Environmental Health (Air, Noise and Water) Safety and Greening 54
H. Community-Based Jobs 54
I. Design-Build 55
Chapter 6 Conclusion **55**
References **59**

Figures

Figure 1: Health Issues Reported by Households Adjacent to Kirk Depot 24
Figure 2: Example map of risk index taking into account TVMT and SES. 26

Figure 3: Accessibility Mapping 27
Figure 4: Manufacturing Jobs: African American Households Less Accessible to Jobs 32
Figure 5: Retail Jobs: African American Households More Accessible to Jobs 32
Figure 6: Retail Jobs: Low Income Households More Accessible to Jobs 32
Figure 7: Building Power Relations in Target Area 35
Figure 8: Public Participation and Analysis Framework 37
Figure 9: Triage Committee 38
Figure 10: Potential Triage Committee Members 40
Figure 11: Triage Intake 40
Figure 12: Comparative Boundary Mapping 48
Figure 13: Asset Mapping 49
Figure 14: Proximity Mapping 51

Tables

Table 1: Summary of FHWA Case Studies by Level of Public Involvement 12
Table 2: Equity Issues, Objectives and Performance Measures 20
Table 3: Performance Measures by Planning Goal Area 21
Table 4: Equity Analysis Tool for the Person on the Poarch 22
Table 5: At Risk Neighborhood Profile 23
Table 6: Community Profile Travel Survey 29
Table 7: Person on the Porch Ranking Tool 30
Table 8: At Risk Neighborhood Profile 50
Table 9: Mock Comparison of Target Neighborhood with Adjacent Neighborhoods 53

Chapter 1 Introduction

Transportation is central to a wide range of community environmental justice concerns due to its influence on ease of access, property values, and public health[1]. This work supports the Federal Transit Administration (FTA) vision statements 2, 6, and 7, respectively: Foster Customer-Oriented Public Transportation, Ensure the Highest Level of Transit Service Assistance Delivery, and Promote Linkages between Transit Needs and Community Needs[2]. It is also consistent with FTA goals that encourages, emphasizes, and promotes 1) improving transit service for minorities and transit-dependent persons living in economically distressed communities; 2) collecting, disseminating, and exchanging information on research, technology, and management practices; 3) initiating innovative and ongoing program evaluation to increase effectiveness of the FTA program in supporting and improving public transportation and mobility; 4) developing transit facilities and services that meet the needs of communities, which are linked to land-use planning and design and pedestrian/bicycle access; and 5) promoting a participatory planning and design process that stresses community involvement.

Environmental Justice in Transportation (EJT) is identified by the federal government as a critical element in the transportation planning process. While transportation equity has been an important consideration for transportation and planning agencies since it first materialized as a requirement under Title VI of the Civil Rights Act in 1964, there is some question as to whether it has been as fully integrated in the planning and decision-making process as it was originally intended. The Federal Highway Administration (FHWA) and the FTA issued a joint memorandum in 1999 titled "Implementing Title VI Requirements in Metropolitan and Statewide Planning." Compliance with Title VI is required, and non-compliance would mean that all federal funding for the region could be withheld. Over time, the federal government has created increasingly specific requirements for non-discrimination and environmental protection. States must decide how to meet the requirements or s risk losing the federal matching funds that are usually a sizable share of their transportation funding.

Planning organizations are obligated to afford low-income and minority communities' reasonable opportunities for meaningful public participation that is equal to those of the most "important" stakeholders. While equitable treatment for minority and low-income communities may not happen overnight, it is reasonable to hope that raising awareness of these processes, increasing the presence of the community in decision-making, and improving the quality of tools and analyses can begin to induce tangible progress. Indicators such as travel time, accessibility, number of trips, emissions, noise, and congestion are but a few of the measures available to stakeholders to discern whether government funded projects conform to existing law.

---

[1] NRC 2009 report "Science and Decisions".

[2] FTA, 2005 Vision Statement

This synthesis report is a companion to the Environmental Justice and Transportation Toolkit Volume I and Volume II. The project team designed this toolkit to fill some gaps in the planning process that are a result of a planning approach that often address symptoms and not barriers to environmental justice. To support our goals, several case studies were developed to help disadvantaged communities, their advocates, and surrogates to understand and address critical community-based EJ concerns.

The underlying assumption in this toolkit is that a process of addressing environmental justice is a key ingredient in sustaining neighborhood, community, city, and regional well-being. Hence, the project team encourages the use of the toolkit to pursue environmental justice in transportation through transit-oriented development projects, broadened community involvement, context-sensitive designs, and the mitigation of negative cumulative impacts. These initiatives promote community well-being through small-scale interventions, workforce development, community greening, and mixed-use land developments.

Involvement of the community throughout the development of the Toolkit was a central aim of the project and informed the development of a public participation framework with three key components: Neighborhood Revitalization Action Model, Issue Analysis Framework and Triage Process. This interactive framework aims at more directly engaging community members in problem definition, understanding and quantifying the identified problems, exploring a range of potential solutions, and obtaining meaningful results for the community. The interactive framework was used to:

- Learn how to best introduce the public to the process of problem solving, so that they may effectively participate in and impact the planning and decision-making process.
- Use real-time public input to ensure that the technical team properly understands both the community's sensitivities to the problem, and informational needs.
- Foster interaction between the public and the participating transportation/planning agencies to build a more meaningful dialogue about why issues require particular impact measures or analyses.

The EJT Toolkit outlines steps that link transportation dynamics with equity, accessibility, public health, wellness, and sustainability considerations as follows:

- **Step 1**: Utilize enhanced public participation to mobilize community stakeholders to build local support to mitigate environmental problems and pursue job creation.
- **Step 2**: Facilitate a resident-driven transportation equity process to mitigate the effects of poor air, noise quality and accessibility
- **Step 3**: Engage, organize, and deliver resources for a pro-active set of community-based revitalization projects that will lead to employment opportunities, affordable and market rate housing and watershed improvements.
- **Step 4**: Implement mixed-use, bus transit-oriented development.
- **Step 5**: Further refine and continue to disseminate the FTA-sponsored EJT Toolkit.

A. Review of Toolkits and Related Guidance

Addressing environmental justice in transportation requires a strategy to improve the ability of disadvantaged groups to participate constructively and have meaningful input in transportation planning and funding decisions. It follows therefore that the success of this Toolkit and its methods will be determined by how these groups use it to improve their situations in terms of transportation options, access to jobs and activities, healthy communities, and improved quality of life. Transportation and planning agencies will have access to practical technical assistance tools through the Toolkit, which will clarify the types of tools that are most appropriate for particular analyses or impacts. In addition, the toolkit will provide guidance on the suitability of particular methods of application One goal of the Toolkit is to assist communities with the selection of the appropriate tool for the given scale and importance of the analysis, ranging from sketch-planning-type tools for preliminary/screening analysis to highly detailed GIS and micro-simulation tools for detailed assessments.

Historically, low-income communities have viewed the top-down public participation process used by many public agencies with suspicion. However, during the course of this research we have found that low-income and minority communities are very optimistic about the options provided by environmental justice in transportation remedies. Nevertheless, review of many published case studies reveals that community input is solicited only after the fact, i.e., once a problem becomes evident, or at an early stage of the project development process. Some of the more recent guidance materials – NCHRP Report 532[3] and the Environmental Justice and Transportation Citizens' Handbook[4], as well as materials on the FHWA/FTA EJ website[5] -- begin to fill the information gaps on this topic. The NCHRP report and the DOT website information delineate alternative methods available to practitioners, and the EJ Citizen's Handbook communicates to the EJ community how and where they should get involved in the regional planning process. None of these resources, however, meld the information into illustrations of how these methods are effectively used, and the case studies provide only a snapshot of a particular area's choice to involve the public. One does not learn whether or not the methods and results were effective or relevant. The FHWA and FTA jointly booklet of case studies provides support to others engaged in EJT studies or assessments. The booklet demonstrates that "when properly implemented, EJT principles can improve all levels of transportation decision-making (transportation plan, project development, right-of-way, construction, operations and maintenance). The case study booklet does not attempt to provide structured guidance (See Table 1)

---

[3] **Effective Methods for Environmental Justice Assessment, David J. Forkenbrock, Public Policy Center, University of Iowa, Iowa City, IA; Jason Sheeley, URS Corp. Austin, TX**

[4] **Institute of Transportation Studies (ITS), Environmental Justice and Transportation: A Citizens Handbook. University of California at Berkeley (2003)**

[5] **Transportation & Environmental Justice Case Studies, US Dept. of Transportation, Federal Highway Administration and Federal Transit Administration (Dec. 2000).**

Table 1: Summary of FHWA Case Studies by Level of Public Involvement

Case Study Name/Location	Impetus*				Focus	Topics and Effective Practices	Stakeholder Involvement		
	Response Driver	Deliberative	Adversarial	Colloborative	Transportation Mode/ Geography (Urban/Rural)	Lessons Learned and Outcomes	Agency of Responsibility	Minority/Low Income, Black, Asian, Latino Native American, Hispanic	Bottom Up/Top Down
Verona Road & West Beltline Needs Assessment Study (Madison, WI), Ex. 1	CB	Yes		Yes	Highway (U)	Public Involvement	State DOT	B,A,LI	TD
Jobs Access and Reverse Commute Planning (Northern NJ), Ex. 2	GOV				Transit (R,U)	Data sources, GIS, Analytical Methods, MPO regional coordination	MPO, Transit Agency, HHS	M,LI	TD
East-West Expressway EIS Statement (Durham, NC), Ex. 3	CB		Yes		Highway (U)	Title VI complaint, housing of last resort, mitigation and enhancements, collaborative plans	State DOT, City, Local Community	B,LI	TD
Southern California Regional Transportation Plan (Los Angeles Region), Ex. 4	GOV	Yes	Yes	Yes	Highway, Transit (U)	Data sources, analytical techniques, benefits/burdens, alternative dispute resolution	MPO	M,LI	TD
Cypress Freeway Replacement Project (Oakland, CA), Ex. 5	CD	Yes	Yes		Highway (U)	Project development, right of way, public involvement, mitigation and enhancements	State DOT	B,LI	BU
Fruitvale BART TOD Project (Oakland CA), Ex. 6	CD	Yes	Yes		Transit (U)	Partnerships, enhancements	Transit Agency	H,B,A,LI	BU
MPO Environmental Justice Report (Columbus, OH), Ex. 7	CD	Yes		Yes	Highway, Transit (U)	Data sources, analytical techniques	MPO	H,B,LI	TD
South Park Avenue Improvement Project (Tucson, AZ) Ex. 8	CB	Yes		Yes	Bike/Ped, Transit (U)	Partnerships, enhancements, context sensitive design, public involvement	City DOT, FTA, HUD	H,LI	TD
South Carolina Route 72 Environmental Assessment (Calhoun Falls, SC), Ex. 9	GOV	Yes	Yes	Yes	Highway (R)	Community impact assessment, public involvement	State DOT	B,LI	TD
Environmental Justice & CRCOG's Transportation Planning Program, Ex. 10	GOV	Yes			Highway, Transit (U)	Community impact assessment, public involvement	MPO	B,A,LI	TD/BU
Metropolitan Atlanta Rapid Transit Authority (MARTA), Ex. 11	CB	Yes		Yes	Highway, Transit. Housing (R)	Housing, Transit, Accessibility	MPO, Transit Authority	B,A,LI	TD
Conflict of Public Policies: Hope VI. vs. PRWORA, Chicago, Illinois, Ex. 12	GOV		Yes		Highway, Transit (U)	Housing	Housing Authority	B,A,LI	TD
Public Involvement in the Major Investment Study (MIS) Process, Denver, Colorado, Ex. 13	GOV	Yes		Yes	Housing (U)	Government Initiated Community Outreach and Participation	Transit District	N	TD/BU

Note: Chart reposed by Robinson, et.al. Chart Form Terry L. Cooper, Thomas A. Bryer, Jack W. Meeks, Collaborative Governance Initiative, Citizen, Par, Supplement to Volume 66, Center for Collaborative Public Management

The value of using these case studies for guidance purposes is mixed. There is no question that the examples in the booklet can provide testimony to the agency or practitioner – or even the community – that others have faced similar problems or circumstances and developed an approach to deal with it. There are good insights in this book on public participation methods, analytical approaches, and institutional mechanics, all of which add to the knowledge base and awareness of the dimensions of environmental justice in transportation. Nevertheless, we have identified the following limitations of the case study booklet as a guidance tool:

- The examples are somewhat random in topic coverage and, while interesting, require the user to ascertain which studies and which aspects are relevant to a particular situation.

- It is not always clear that the path chosen by the particular case study agency is optimal or inclusive of all important considerations, nor is it evident that the case study researchers reached an effective solution. This drawback requires users to intuitively decide to what degree the particular process should be replicated in their respective situations.

B. Need for a Structured Environmental Justice in Transportation Analysis Process

NCHRP reports 8-36(11) and 532 are excellent resources regarding the concept of benefits and burdens, measures that can be used to quantify those elements, and technical assistance for availability and use of analytic tools and data. NCHRP 532 attempts the important next step of suggesting when and at what stage of the planning process the use of particular tools and measures is most appropriate. These reports (which build upon the initial benchmark efforts of the Atlanta Benefits and Burdens study) offer substantial tools for performing EJT analysis to practitioners, chiefly planners and modeling specialists.

This important existing work notwithstanding, we feel that there are several ways in which this guidance can be useful for communities. In particular, the referenced studies do not diagnose the problem or determine how or in what context to apply these measures or tools. Such an expectation of any guidance effort is high, since, in effect, it suggests that the guidance can shape how people think or develop perspectives. For example, if low-income and minority workers live in one part of a region and transportation and land use policy encourages job growth in another part of the region, is the problem one of finding a transportation solution to connect the people with the jobs (as with MORPC), or to stimulate growth policies that bring the jobs and the people closer together? While it is a tall order to expect this kind of vision from a guidance tool, we believe that more effort can be put into providing guidelines for looking at problems, as a prelude to setting up an analysis and solution framework.

There are also issues regarding how the analytical capabilities are used. As a primary example, most regional planning agencies have Geographic Information System (GIS)

capability, and many are now attuned to use of GIS tools to perform buffer analyses which show the location of target populations in relation to transportation system features or service envelopes. However, the use of GIS as a serious planning tool is still in the early stages. GIS can be a powerful tool for analyzing impacts and their distribution across discrete population segments. NCHRP 8-36(11) and Report 532 should help illuminate these capabilities, but practicing agencies will still have to be acquainted with the need for and benefit of their application.

This synthesis report advances a public participation framework to address EJT issues in a transparent and forward way. The case study research (Table 3), confirms that a transparent, accountable and structured public participation process in low income communities' diminishes the perception that low income and minority groups are not fully accounted for and therefore marginalized by the transportation planning decision-making process. This suggests that bottom up community engagement may be a missing link in the regional transportation planning and decision-making process. We suggest the following recommendations:

- Public Outreach: While agencies are doing a much better job of seeking out and meaningfully engaging the public in the planning process, there is a clear need to develop a means for confidently reaching, informing and involving the appropriate population groups (stakeholders). Such an initiative would have to involve relevant questions targeted during the time of the planning process which would most likely lead to the most favorable outcome.
- Documentation: Hearing and accurately recording the issues and concerns gathered from these discussions, such that the process and responses are well documented for future reviewers.
- Consistent Performance Indicators: Strengthen linkages between the issues and concerns raised and the effectiveness of plans, projects or mitigation strategies.
- Communication - Using media, word of mouth and listening sessions. Providing leadership training to people at the neighborhood level.

The collective community sentiments from various case studies inform how a broad range of EJT issues (congestion, transit adequacy and public involvement) at different levels of geographic scale (neighborhood, corridor, subarea and regional) can be evaluated in the project decision-making, design and planning process.

Chapter 2 Developing Planning Guidance for Project Planners, Administrators, and Community Advocates

This guidance shows how to advance and incorporate environmental justice concepts and analytics in the transportation decision making process. It is based on the experience gained in the case studies as well as from interactions with Transportation Equity Network, Gamaliel Foundation, and Center for Community Change, Bridge, and a host of other local non-profit organizations. Additionally, guidance is provided by reviewing and synthesizing the

knowledge derived from EJ studies and efforts nationwide. Long range and short range plans, organizational capacity building, community based advisory boards, and other planning activities are strengthened by using features that are open and transparent such as:

- Identifying, categorizing and diagnosing EJT issues
- Identifying, reaching, informing, and involving members of the EJ community
- Identifying, adapting or developing appropriate data and analytic tools to properly investigate EJT issues or proposed alternatives
- Developing performance indicators capable of quantifying a problem, condition or concern and also of evaluating the effectiveness of potential solutions

For this purpose, the process of selecting capital projects for inclusion in transportation consolidation programs and transportation improvement plans should adhere to the inclusionary elements of Title VI and be guided by goals and objectives that are both neighborhood-level and regional-level in scope and practice. Plans should require transparent elements such as:

- Charts, diagrams, and logic used to make determinations displayed, explained and mapped in consolidation plan
- Community Advisory boards that represent public health, transportation, public participation, and EJ advocacy groups
- Information that measures equity impacts of projects identified in consolidation improvement plans

A. Title VI and Environmental Justice in Transportation Impacts on Underserved Populations

While federal regulations now exist that identify principles of EJ, the legal system recognizes no universally accepted definition of EJ and its standing as an enforceable right has been tested through the court system with mixed outcomes. It has only been since 1997 that plaintiffs began winning EJ cases, which did not require proof of intent. That said, we rely on the forward leaning Executive Order 12898 and a steady stream of Title VI complaints, *a lagging* indicator, to justify and underpin the argument for a more balanced and more equitable urban development approach.

Poor and minority populations continue to be locked into decaying, crime-ridden inner-city neighborhoods, where job, education, and health care opportunities are limited; and the cycle of poverty is perpetuated. Job opportunities - particularly for the unskilled - are increasingly located in suburban and outlying areas which are difficult to reach without a car. Reverse commute transit services offer an important lifeline for inner-city workers, who need help accessing these jobs. However, because transit operation is primarily geared for commutes from the periphery to the central city, reverse commuters generally suffer from poor service, including long waits, lengthy travel times, multiple transfers, and surprisingly high fare costs. Workers are unable to live near jobs located on the periphery largely because of a limited

supply of affordable housing in suburban jurisdictions. Transportation system improvements are most frequently aimed at improving suburban commuting, and to support the economic development plans of suburban jurisdictions; new public transit developments are geared towards wealthier commuters and do not serve transit-dependent riders that could benefit most. Road improvements that occur within the urban zone frequently result in additional commuter traffic and pollution, and often further divide vulnerable urban communities. A disproportionate number of households residing near busy transportation corridors - where exposure to noise and pollution is sufficient to affect health - are minority and low-income households. Even when transportation investments are intended to spur revitalization, as is the case with rail- and transit-oriented development; disadvantaged groups are unlikely to benefit from the improvement because the increase in property values often leads them to be displaced from their homes.

To help resolve the EJ issues identified above it is necessary to consider the local and regional equity impact of projects and plans on accessibility, mobility and land use. Map overlays of the location of a project, including a map of the project's limits and project area are essential along with demographic, travel time and accessibility contour maps. This makes it easier to structure a list of priorities and factors to consider in presenting a summary statement of the social, and economic, needs.

At a minimum, measurable performance indicators or benchmarks should be designed to quantify the mitigation of community-identified issues in priority areas. This data is necessary to evaluate the project's impact on a comprehensive range of results in public health, accessibility, mobility, and land use. The Establishment of Triage Committees with the following participants is essential:

- Low-income and underserved populations
- Academic institutions
- Public health professionals
- National Experts in the field of context-sensitive planning
- National Experts in the field of EJ and Title VI
- Grass root community development professionals

A key task of the triage committee is to identify and strengthen the hidden assets by fostering workforce development programs, building affordable housing, enhancing transportation access and reducing air, noise and water pollution. It should produce better documents, methods, procedures and strategies for rebuilding capacity and wellness in at-risk neighborhoods by:

- Establishing pathways for residents to participate in the revitalization of their community through community safety, greening, and weatherization efforts.
- Using vacant houses and vacant land for development interventions to revitalize the neighborhood.
- Integrating youth into aspects of the project so that their contributions lead to skill development and job opportunities.

- Identifying and advocating for enhanced transportation accessibility between the neighborhood, city-wide and metropolitan transit systems.
- Development of real estate projects that employ new green construction practices and green retrofitting of vacant abandoned housing.
- Drafting policy recommendations and proposing initiatives based on project research and on-the-ground participatory development efforts.

B. Reassessing the Needs of Underserved Populations

Reassessing the needs of underserved populations we revisited the listening sessions, community dialogues, workshops and numerous committee meetings[6]. The purpose of this assessment was to gain a better understand of the needs, wants and desires of underserved populations. We conclude our assessment with the finding that low income residents in at-risk communities clamor a healthy living environment. Also, we sensed that there is a perception that issues of poverty, crime and infrastructure decline are used strategically to support the organizational capacity-building of donor foundations. The goal to be treated fairly and to pursue a healthy living environment can be achieved with small- scale interventions that couple transportation, jobs, safety and housing. As such the project team recommends the following:

1) EJ analysis must be genuinely regional in scope, but also intensely local and specific in context. They must also include plans for at-risk neighborhoods and communities in close proximity to healthy neighborhoods and communities.

2) Private, non-profit, academic, community, and neighborhood stakeholder consortia should include government agencies of responsibility, such as a Metropolitan Planning Organizations or Councils of Governments that are involved in development policy (land use, commercial and industrial development, housing, transportation and other infrastructure, etc.).

3) Government agencies should use equity analysis to identify and strengthen the hidden assets in at-risk, underserved, and neglected neighborhoods by fostering workforce development programs, building affordable housing, enhancing transportation access, and reducing air, noise and water pollution.

4) Government, private and non-profit stakeholders should conduct a regional opportunity assessment that measures relative opportunity (jobs, schools, local services, safety) by municipality, census tract, census block groups, and minor civil divisions. These methodologies should find the point of convergence between public participation, quantitative analysis, and neighborhoods left out of the predominant revitalization strategies.

[6] Baltimore Region Environmental Justice and Transportation Toolkit, Technical Documentation, 2005, Http://www.ejkit.com

C. Three processes: Analysis and Priorities, Community Empowerment and Triage

Working with local communities on small-scale transportation interventions requires a balanced redevelopment approach that is transparent. It is well documented in the literature that transparency in the decision making process can improve accountability and strengthen public and private partnerships. Our research suggests that an open forum for voicing existing/current concerns can generate an interest in transportation planning and a productive dialogue between underserved communities and transportation agencies. In the context of an open forum, transportation agencies have the opportunity to provide education that is both relevant and empowering, creates a citizenry that understands the planning process. Furthermore, transportation agencies have the opportunity to alleviate the community's suspicions and skepticism by being responsive to concerns and working to resolve or mitigate issues raised. To support transportation agencies, the EJKIT provides analysis techniques, performance measures and public participation techniques. By adopting an analysis process that is goal-and objective-oriented, performance measures like "*Percent of transit-dependent riders who can access jobs with 45 minutes by fixed route of transit*" can be used as a metric to assess how the agency is performing relative to the concerns raised by its citizens. The use of these measurements allows transportation agencies to actively demonstrate how community feedback and concerns impact project design and plans. The overall result should be a more informed public that is more comfortable in collaborating with transportation agencies.

Chapter 3 Analysis and Priority Setting

Transportation decision-making depends upon understanding and properly addressing the unique needs of different socioeconomic groups. As such, a flexible approach is required to encourage state, regional and local partners to be innovative in developing methods for meeting their Title VI obligations and to tailor standard practice for the purpose of addressing the general and particular needs of individual communities. In this section we describe an array of equity measures that have been successfully applied; we also present illustrative examples of relevant and underutilized analytical tools.

A. Equity Measures and Analytical Tools

In this section we provide four technical assistance tables to evaluate and analyze a broad range of community-identified EJT issues. In providing the tables in this section as planning guidance we demonstrate the need to use alternative analytic tools and determine data availability when attempting to define community supported solutions. Tables 2, 3, and 4 are designed to describe general support for three user groups: Advocates, Public Sector Planners, and the "Person on the Porch" (local community residents). In particular, Table 5 is provided as a guide for identifying at-risk neighborhoods. In these tables, we recognize the

complexity of evaluating EJT issues by considering more than one approach in investigating a given issue.

To appraise tradeoffs, professional planners are referred to NCHRP reports 8-36(11) and 532 (Table 3), two traditional resources that contain guidance to quantify and measure benefits and burdens. For the "person on the porch," Table 4 is provided as an alternative and informal analysis planning tool. Table 5 contains a community profile tool which can be used to identify and analyze the equity issues that often converge with Title VI complaints. Each of these tools is employed with the general purpose ranking tool that is provided Section H (8); see Table 9 for a general purpose ranking tool. Key strategic components for generating regional community-based environmental justice in transportation solutions are summarized below. They are:

1. Characteristics of the Communities:

    - Inner, middle, and outer areas
    - Population characteristics
    - Housing conditions, availability, and ownership rates
    - Changes over time

2. Transportation Conditions

    - Daily vehicle traffic volumes and congestion levels
    - Transit service and ridership in the corridor
    - Pedestrian environment and walk-ability
    - Changes over time

3. Benefits and burdens:

    - Traffic congestion by segment and origin of vehicle occupants
    - Vehicle emissions
    - Vehicle/pedestrian conflicts, accidents, and injuries
    - Changes in transit service and accessibility over time
    - Housing prices, vacancies, and ownership adjacent to corridor

Table 2: Equity Issues, Objectives and Performance Measures

Community Based EJT Issues	Objectives	Performance Measures
Job Access	Encourage employment opportunities in urban communities	Work opportunities within 15; 30; and 45 minutes by car and transit door-to-door. Percent of transit-dependent riders who can access jobs with 45 minutes by fixed route of transit
Maintenance	Stop the use of old equipment in low income neighborhoods	Percent and characteristic of out-of-service buses coming into an area. Pedestrian/bicycle injuries & fatalities; Vehicle crashes; Age of fleet
Accessibility	Increase accessibility and mobility options to jobs	Proximity to transit; Level of service; Accessibility to health care facilities; Accessibility to educational facilities
Air and Noise Pollution	Protect environment, conserve energy and improve quality of life	Air pollution concentrations; Incidence rates of respiratory disorders; Number of households exposed to noise; Asthma rates in communities adjacent to large transportation facilities
Improved Transit Route Structure	Enhance Access to Shopping and Services	Number of fatalities; Locations improved per million passenger miles
Need Assessment	Advocate for project funding to improve local conditions.	Condition of roads and streets; Condition of sidewalks; Ratio of uncongested travel time between destinations
Local Regional Statewide Funding Equity	Fairness in transit funding; user benefit	Per-capita transportation expenditures; Per-capita operating expenses; Number of fatalities; Locations improved per million passenger miles

Table 3: Performance Measures by Planning Goal Area

Performance Measures	Application				Analytical Method			
Economic Vitality and Competitiveness								
Accessibility to regional jobs	C	PL	F			RM	GIS	
Accessibility to entry-level/semi-skilled jobs		PL	F			RM	GIS	
Employer accessibility to workers		PL	F			RM	GIS	
Number of jobs by type and location		PL			DA		GIS	
Business receipts by location		PL			DA		GIS	
Property values by location								
Safety and Security for Motorized and non-Motorized Travelers								
Pedestrian/bicycle injuries & fatalities	C	PL	F	PR	DA		GIS	
Vehicle Crashes	C			PR	DA		GIS	
Increase Accessibility and Mobility Options								
Proximity to transit by type (bus, rail, etc.)	C	PL	F	PR		RM	GIS	
Level of service (headways, days/hours of service	C	PL	F	PR	DA	RM	GIS	
Average travel times for selected O/D pairs by mode	C	PL				RM	GIS	
Accessibility to regional educational institutions		PL	F				GIS	
Accessibility to regional healthcare facilities		PL	F				GIS	
Average age/condition of buses by area served	C		F		DA		GIS	
Neighborhood, Community and Regional Wellness								
Number of households living with X-feet of busy highway	C	PL	F	PR	DA		GIS	
Air pollution concentration by type pollutant	C	PL		PR		RM	GIS	EM
Incidence rates of respiratory disorders	C	PL			DA		GIS	
Number of households exposed to noise exceeding X-decibels	C	PL		PR	DA	RM	GIS	
Number of households living within X-feet of a bus terminal	C	PL			DA		GIS	
Percent of buses servicing area that use alternative fuels	C	PL	F		DA		GIS	
Percent takings, household dislocations, access restrictions		PL	F	PR	DA		GIS	
Enhance Connectivity and Integration Across Modes								
Number of transfers required for transit trips between select origin/destination pairs	C	PL				RM	GIS	
Percent of travel time accounted for by transfers in select origin/destination pairs		PL	F			RM	GIS	
Manage Existing Transportation System for Maximum Efficiency								
Percent of congested to un-congested travel time between select origin/destination pairs		PL				RM	GIS	
Preserve the Existing Transportation System								
Condition of roads and streets		PL	F		DA		GIS	
Condition of sidewalks		PL	F		DA		GIS	
Funding Equity								
Transportation capital expenditures per capita		PL	F	PR	DA		GIS	
Transportation operating expenditures per capita		PL	F	PR	DA		GIS	
Identity of users benefiting from new project or program		PL	F	PR	DA		GIS	

C=Current Concern, PR=Project, PL=Planning, F=Programming, DA=Data Analysis, RM=Regional Travel Models, GIS=GIS-Aided, EM= Emission Models

Table 4: Equity Analysis Tool for the Person on the Poarch

Scope	Target	Arts District	Goucher Harwood	Oliver
Perimeter (miles)	1.72	1.72	1.72	1.72
Demographics				
Population Density				
female headed				
# of pre-teens				
average income				
Indicators				
Wellness				
# vacant lots				
# vacant houses per 1/2 block				
Education				
# of schools				
Public Health and Safety				
police call responses				
nuisance disturbance per month				
traffic congestion				
Investment				
Demolitions				
reconstructions				
Strategic Values				
# of commercial establishments				
Significant Structures				
Improved Housing Structures				
Transportation				
# of Bus Stops				
Transit Ridership				
Raw Rank				
Effective Rating				

Table 5: At Risk Neighborhood Profile[7]

Demographics	Count
Sex	Female
Race	African-American Mix Caucasian
# of people in household	0-2 in household 3-4 in household 5-6 in household 9 or more in household
# of children less than 18 in household	no child in the household 1 child 2 children 5 children
Education	some college or technical school some high school high school graduate college graduate elementary education only
Age	range from 28-84
Employment	work for wages retired self-employed unable to work

B. Illustrative Examples of Analysis Tools

In this section, several illustrative analysis examples are provided as prototypical aids for conducting empirical analysis of environmental justice and transportation inquiries. The methods and measures in these examples can all be improved upon, and we encourage creativity by the planning community and neighborhood groups in extending and applying these methodologies in the future.

[7] Dr. Buckley, The Ohio State University, Glenn Robinson, Morgan State University, July 2008

1. Health Mapping in Baltimore

The Maryland Transit Administration (MTA) has since 1948 years operated the Kirk Avenue bus yard as a storage, maintenance, and staging facility. As shown in Figure 1 below, this facility occupies an entire city block, facing along Kirk Avenue on its eastern edge and bordered by Bonaparte Avenue on its northern edge. Immediately west and south of the facility along Homewood and Bartlett Avenues are working-class communities with a population that is predominately low-to-moderate income African-American. Primarily repair shops, and light industrial uses characterize the area south east of the bus yard, reflecting its historic nature as a blue-collar employment site for area residents.

Figure 1: Health Issues Reported by Households Adjacent to Kirk Depot

Figure 1 shows how health mapping can identify environmental health issues. One of the most profound transportation-related concerns of communities is the health and safety. It is often this concern that galvanizes communities to take action. This concern is traced to environmental justice issues by a convincing and growing body of evidence linking mobile source-related air pollution with a broad range of adverse health effects (Brunekreef and

Holgate, 2002)[8] including respiratory (English et al. 1999)[9], cardiovascular (Van Hee et al. 2009), adverse birth outcomes (Wilhelm and Ritz, 2003)[10] and cancer (Crosignani et al. 2004)[11]. Furthermore, the community has identified noise and odors that disrupt sleep, limit outdoor activities, and elevate stress as a major quality-of-life concern[12]. Accordingly, the traffic-related public health threat tends to be pervasive and multi-factorial with linkages identified with highly prevalent diseases including obesity, asthma, and diabetes—diseases that are particularly damaging because of children's vulnerability.

The U.S. Environmental Protection Agency has developed a set of models for estimating exposure and risk to communities from air toxicities, including those associated with on-road mobile sources. The spatial resolutions of the estimates are at the level of the census tract whereas the temporal resolution is based upon annual average concentration. The latest available estimates are for 2002. These data are publically available and can be found at: "http://www.epa.gov/ttn/atw/nata2002/."

An alternative approach that may complement the U.S. EPA NATA estimates is to evaluate the general community threat from traffic using graphical mapping that considers the level and proximity of traffic as well as variables related to socio-economic status. This approach by not only provides more current data but also considers socio-economic variables. One way of assessing proximity to traffic is to compute the total vehicle miles (# vehicles on road segment*length of road segment) within a threshold distance (e.g., 300 feet) of a residential structure or within a tabulation area (e.g., Temporary Analysis Zone (TAZ)). As discussed earlier, socio-economic status can be represented in a variety of ways (e.g., median household income). Thus, using these two basic indicators of health risk associated with traffic exposure, a simple risk index (RI_i) can be computed representing the level of risk associated with each residence or a tabulation area (*i*.) One way of assessing proximity to traffic is to compute the total vehicle miles (# vehicles on road segment*length of road segment) within a threshold distance (e.g., 300 feet) of a residential structure or within a tabulation area (e.g., TAZ). As discussed earlier, socio-economic status can be represented in a variety of ways (e.g., median household income). Thus, using these two basic indicators of health risk associated with traffic exposure, a simple index (RI_i) can be computed representing the level of risk associated with each residence or a tabulation area (*i*.)

---

[8] **Brunekreef, B., & Holgate, S.T. (2002). Air pollution and health. *Lancet, 360*, 1233-1242.**

[9] **English, P., Neutra, R., Scalf, R., Sullivan, M., Waller, L., & Zhu, L., (1999). Examining associations between childhood asthma and traffic flow using a geographic information system. *Environmental Health Perspectives, 107*, 761-767.**

[10] **Wilhelm, M., & Ritz, B. (2003). Residential proximity to traffic and adverse birth outcomes in Los Angeles County, California,1994–1996. *Environmental Health Perspectives, 111,* 207–216.**

[11] **Crosignani, P., Tittarelli, A., Borgini, A., Codazzi, T., Rovelli, A., Porro, E., Contiero, P., Bianchi, N., Tagliabue, G., Fissi, R., Rossitto, F., & Berrino, F. (2004). Childhood leukemia and road traffic: A population-based case-control study. *International Journal of Cancer, 108*(4), 596-9.**

[12] **FTA , Environmental Justice in Transportation Toolkit, Technical Documentation, Volume II**

$$RI_i = TVMT_i + SES_i \quad (1)$$

Where,

i = unit of analysis (e.g., building or tabulation area)
RI_i = Risk index for unit i
$TVMT_i$ = Total Vehicle Miles Traveled (# of vehicles * length of road segment) within some proximity threshold of unit i
SES_i = Socio-economic status for unit i

Figure 2: Example map of risk index taking into account TVMT and SES.

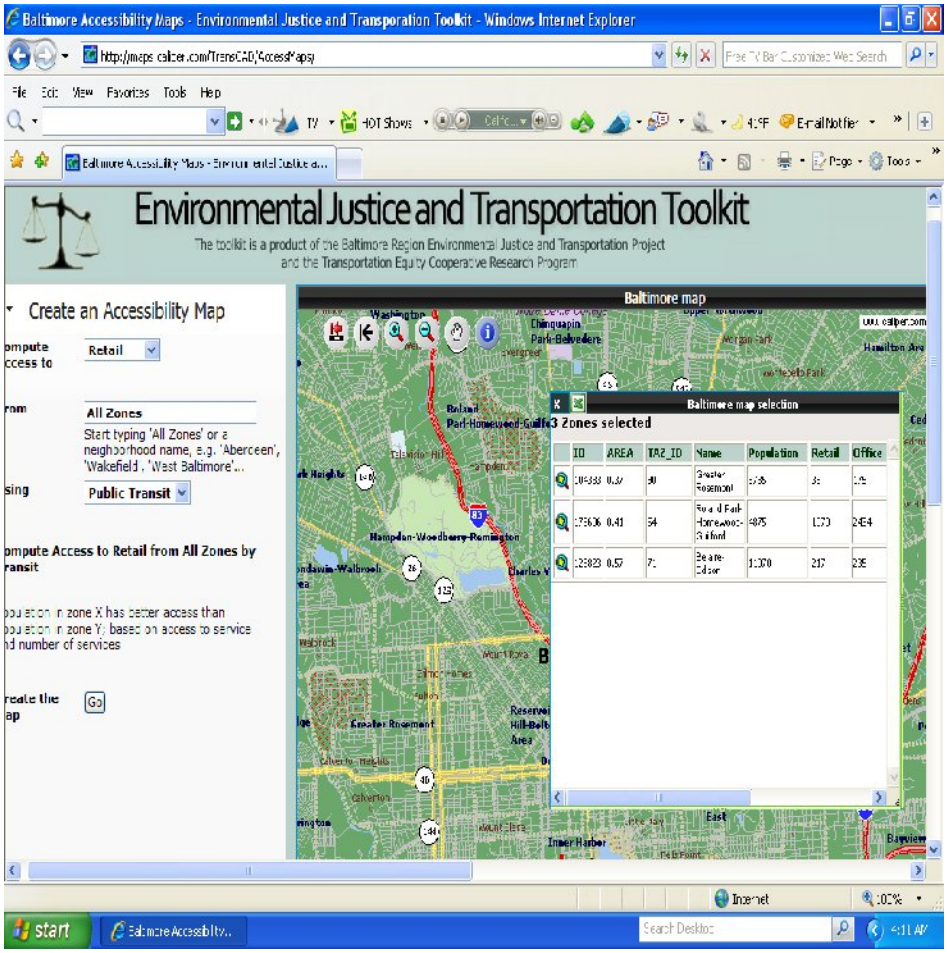
To create the risk index, continuous measures of SES and TVMT were evenly classified into deciles and assigned values of 1 through 10 where low values indicate low risk (e.g., high income and traffic that is low and distant) and high values indicate high risk. Those residences with the lowest levels of *TVMT* would be assigned a value of 1 while those with the highest *TVMT* would be assigned a value of 10. Similarly, those residences with the highest levels of SES would be assigned a value of 1 while those with the lowest SES would be assigned a value of 10. Therefore, computing RI_i using the transformed ordinal variables results in a RI_i with values ranging between 2 (lowest *TVMT* and highest income) and 20 (highest *TVMT* and lowest income).

2. Accessibility and Equity Mapping Baltimore, Maryland

Accessibility mapping is a very useful tool for understanding regional equity issues. We can map transit and auto access levels across neighborhoods throughout the region to demonstrate impact on accessibility, mobility and travel behavior. If performed at an early enough stage, accessibility mapping serves as an effective tool for evaluating potential Title VI issues that require equity testing in transportation programs (such as transportation consolidation plans). It is also useful to show the relative equity impact on areas at-risk relative to well-off neighborhoods in other more outlying communities.

The Baltimore Accessibility Maps Web Site[13] illustrated in Figure 6 demonstrates how to create a series of accessibility maps using Baltimore's Transportation Analysis Zones (TAZ). This tool is useful for comparing access to services (retail, office or industry) for all TAZs or for specific neighborhoods (e.g., West Baltimore).

Figure 3: Accessibility Mapping



[13] **TransCad 5.0, Caliper Corporation**

Access to services by private car vs. public transport can also compare. This is done by choosing the type of service (e.g., retail), the location (e.g., "all zones") and the transportation mode ("private car") and then click "go" to create the map. The engine for the accessibility calculations, TransCAD, will compute an accessibility measure (a number between 0 and 1).

In a map of access to retail from all zones by car, the measure is a function of the number of services in each TAZ, the population in each zone, and the transportation network that connects each zone. When the map is ready, the accessibility measure will be color-coded in each TAZ from blue (0) to red (1). To compare zones use the (i) info tool and click on two or more zones on the map to see the value of accessibility measure. In general, zones with more services are more accessible if more people can reach them via the chosen transportation mode. The web site also enables us to create maps for specific neighborhoods. Instead of "all zones," we start typing a neighborhood name, e.g. "Aberdeen", "Greater Rosemont" or "West Baltimore". For each specific neighborhood selected, the accessibility measure reports how accessible the other zones are compared to our selected neighborhood. This type of accessibility mapping can reveal how specific locations are served by transportation services and can be extended to reveal the tangible impacts of major improvement projects.

3. Community Assessment Survey Tool, Albany

In Albany, NY a community assessment survey tool developed with the technical assistance of Center for Neighborhood Technology was tested and revised. The tool combines a variety of survey data collection techniques into a single instrument to better understand the transportation challenges and needs of low-income and minority individuals. This inclusive survey-data collection-application technique enhances community understanding of transportation equity issues, provides useful data for transit agencies seeking community input, and furthers the efforts of the local participating groups to secure job training and internships for minority and low-income residents under the provisions of the 2005 SAFETEA-LU federal highway bill.

The travel diary tool attempts to assess travel behavior and satisfaction, addressing situations that range from sufficiently representing key population segments in regional household travel surveys to applying special methods in order to statistically ascertain unmet needs and the potential effectiveness of various alternative solutions and to measure the impact of existing or proposed transportation project or policy.

Often the unique characteristics of low-income and minority population transportation needs and travel patterns are not well known, and this poses a significant challenge to effectively accounting for household transportation needs in the planning or funding process. Low-income and minority populations often experience greater separation from jobs and other needed services and activities that increasingly shift in number and quality from the center city to outlying areas. Difficulty in accessing these opportunities is magnified by lower rates

of vehicle ownership and public transportation systems that are not well suited to serving reverse-flow travel patterns. Collecting better data on the travel behavior and level of service experienced by low-income and minority populations can be pivotal in improving efforts to promote and secure environmental justice and community well-being.

Table 6: Community Profile Travel Survey

Tell us about yourself	
Do you have any mobility limitations?	
Are you able to get to your destination using public transportation?	○ Yes ◉ No ◉ Not Always
Does the to get to your destination using services for the Star Bus?	○ Yes ◉ No ◉ Not Always
If not where were you trying to go?	
Transit routes and schedules match work and school schedules?	○ Yes ◉ No ◉ Not Always
Do you have any health related issues that affect your ability to travel?	○ Yes ◉ No
If you usually travel by bus or train, is the service generally on time and reliable?	○ Yes ○ No ◉ Don't use Transit
Are you usually able to reach essential services given the availability of transportation services?	○ Yes ◉ No
Gender	◉ Male ○ Female
Are you currently employed?	◉ Yes ○ No
Race	--
Age	--
Education	--
Are you?	--
How many people are in your household?	--
What is their relation to you?	☐ Spouse ☐ Child(ren) ☐ Parent(s) ☐ Grandchild(ren) ☐ Grandparent(s)
How would you describe your home?	--
Which of the following best represents your income?	--
If you are completing this survey at a meeting, please enter the name of the meeting.	
It is critically important to capture travel time for every sub trip if we are to improve the quality of information used to making planning decisions. Plan for a better tomorrow today.	

4. Person on the Porch Ranking Tool

In this section a priority ranking tool is described for multi-criteria EJ assessment that includes housing, accessibility, wellness, and economic viability. The rating tool described below is simplified means of recording perceptions and opinions to help structure community responses and promote discussion amongst stakeholders. The rating tool (ER) frames anecdotal evidence of community conditions. It is based on the theory that low-income and minority individuals have a solid cognitive understanding of their surroundings and are

capable of collecting and analyzing data that can begin a discussion and suggest the presence of EJ and transportation problems.

ER (effective rating) = LOI (level of importance) ÷ **CV** (cumulative value).

Table 7: Person on the Porch Ranking Tool

Criteria	Measure	LOI		
Neighborhood Wellness				
Poverty Level	# of below the level (Range 1- 5)	1	5	10
Household Size	# of Household per Unit (Range 1-5)	1	5	10
Section 8 Housing	# of Units per ½ Block (Range 0-20)	1	5	10
Street Condition	# of potholes and cracks (Range 0-50)	1	5	10
Abandonments	# of Vacant Lot and Houses ¼ (Range 0-10)	1	5	10
Neighborhood Safety				
Drug Related Criminal Activity	# of police Reponses (Range 1-5)	1	5	10
Transportation & Housing Nuisance	# of housing, vacant lots and noise (Range 1-5)	1	5	10
Reconcentration of poverty	# of section 8 rental housing units (Range 1-52)	1	5	10
Public Health and Safety				
Public Health	# of neighbors in block who suffer from Obesity, Asthma and Cancer (Range 1 – 10)	1	5	10
Safety	# Of bi weekly police vehicle responses and helicopter fly over (Range 1-5)	1	5	10
Public and Private Investment				
Demolition	# of Housing Demolitions (Range 0-50)	1	5	10
Reconstruction	# Of Redevelopment Projects (Range 0-50)	1	5	10
# of New market rate housing	# Of new starts (Range 0-50)	1	5	10
# of welfare and detention	# Of detention and other social services (Range 0-50)	1	5	10
# of improved housing	# Of rehabilitated units (Range 0-50)	1	5	10
Transportation				
Transit Dependence	Zero Auto Occupancy (Range 0-1534)	1	5	10
# of facilities (stops, garages and routes)	Proximity to Interstate (Range .25 – 3.00mi)	1	5	10
Transit access	# Of Stops Within (¼ mi.) (Range 2- 544)	1	5	10

5. Oakland Accessibility Analysis

In early 2004, in connection with Minority Citizens' Advisory Committee (MCAC) review of MTC's proposed Equity Analysis methodology for the 2005 RTP, MCAC requested technical assistance from Urban Habitat on EJ issues. On April 12, 2004, Urban Habitat suggested that MCAC consider proposing a set of eight EJ principles. After seven months of debate, MCAC adopted a set of four EJ Principles in November and sought to bring its EJ Principles before the Commission for MTC adoption. The EJ Principles read as follows:

> Opening Statement: To ensure that Environmental Justice is effectively incorporated into all of the Metropolitan Transportation Commission's planning, decision-making, funding and operations, the Minority Citizens Advisory Committee urges the Metropolitan Transportation Commission to adopt and implement the following principles.
>
> - Principle #1 – Create an open and transparent public participation process that empowers low-income communities and communities of color to participate in decision making that affects them.
>
> - Principle #2 – Collect accurate and current data essential to understanding the presence and extent of inequities in transportation funding based on race and income.
>
> - Principle #3 – MTC should change its investment decisions as necessary to mitigate identified inequities. These changes would apply both to the financing of already existing projects as well as to the financing of proposed or future projects.
>
> - Principle #4 – Ensure that disproportionate project impacts on low-income and/or minority communities are addressed and mitigated prior to MTC project or funding approval.

The equity analysis for the 2005 RTP was performed as MTC originally proposed, though in conjunction with the EJ principals, another round of analysis was undertaken in 2006, as is described in the next section. Using the results of MTC model, we assembled an accessibility database. The database was queried to show the relative accessibility of different populations. It also shows how, according to the model, minority and low-income households are generally predicted to be more accessible to retail and service jobs, but not to manufacturing jobs. Figures 8 and 9 compare the 99 neighborhoods with 30% African-American household with all neighborhoods in the region. Figures 5 and 6 compare the 74 neighborhoods with 25% low-income (100% of Federal Poverty Line) households with all neighborhoods in the region.

Figure 4: Manufacturing Jobs: African American Households Less Accessible to Jobs

Food | Health | Soc. Service | Elementary | High School | College | Postal | Banking | Agriculture | Trade | Manufacturing | Service | Retail | Other

Jobs: Manufacturing

Number of Jobs

99 TAZ have more than 30% households that are African American out of all 1454 TAZ.

		Ave. of Neighborhoods in Selection			Ave. of Neighborhoods *not* in Selection			Ave. of all Neighborhoods			T-test (Neighborhoods in Selection vs. All Neighborhoods)		
		15 min	30 min	45 min	15 min	30 min	45 min	15 min	30 min	45 min	15 min	30 min	45 min
2000 Base	Auto	14,412	55,233	115,567	15,439	76,039	150,901	15,369	74,623	148,495	-0.47	-2.62**	-3.00***
	Transit	828	11,410	34,595	642	5,175	21,774	655	5,599	22,647	0.97	7.36***	5.30***
	Composite	11,516	47,968	100,599	13,989	70,520	140,933	13,821	68,986	138,187	-1.20	-2.97***	-3.55***
Financially Constrained	Auto	13,378	47,632	93,479	13,225	64,092	130,228	13,235	62,971	127,725	0.08	-2.42**	-3.37***
	Transit	831	12,775	37,458	632	6,784	27,582	646	7,192	28,254	1.06	5.89***	3.27***
	Composite	10,684	41,728	84,636	11,917	59,508	122,034	11,833	58,297	119,488	-0.70	-2.73***	-3.56***
No Project	Auto	13,589	47,365	93,845	13,175	63,651	129,814	13,203	62,542	127,365	0.22	-2.42**	-3.33***
	Transit	789	11,852	34,514	618	5,906	22,475	630	6,311	23,295	0.92	6.49***	5.23***
	Composite	10,851	41,410	84,368	11,865	59,030	121,360	11,796	57,830	118,842	-0.58	-2.73***	-3.56***
Project	Auto	13,558	48,909	96,045	13,170	63,635	129,451	13,200	62,635	127,176	0.21	-2.19**	-3.14***
	Transit	967	13,905	39,530	691	7,874	32,446	710	8,287	32,929	1.37	5.53***	2.19**
	Composite	10,871	43,076	86,940	11,879	59,118	121,700	11,810	58,026	119,330	-0.57	-2.50**	-3.38***
Transit Defined	Auto	13,778	48,086	95,537	13,424	64,902	131,861	13,448	63,757	129,388	0.19	-2.40**	-3.26***
	Transit	863	13,357	38,694	729	7,150	27,894	738	7,572	28,630	0.62	6.36***	4.11***
	Composite	11,028	42,429	86,271	12,140	60,415	123,859	12,065	59,190	121,300	-0.63	-2.72***	-3.50***

* Significant at 90% level
** Significant at 95% level
*** Significant at 99% level

Figure 5: Retail Jobs: African American Households More Accessible to Jobs

Food | Health | Soc. Service | Elementary | High School | College | Postal | Banking | Agriculture | Trade | Manufacturing | Service | Retail | Other

Jobs: Retail

Number of Jobs

99 TAZ have more than 30% households that are African American out of all 1454 TAZ.

		Ave. of Neighborhoods in Selection			Ave. of Neighborhoods *not* in Selection			Ave. of all Neighborhoods			T-test (Neighborhoods in Selection vs. All Neighborhoods)		
		15 min	30 min	45 min	15 min	30 min	45 min	15 min	30 min	45 min	15 min	30 min	45 min
2000 Base	Auto	23,418	93,369	193,888	19,595	79,347	158,880	19,855	80,302	161,264	2.03**	2.83***	4.28***
	Transit	1,031	20,380	72,834	1,326	9,269	32,160	1,306	10,059	34,929	-0.60	6.68***	11.34***
	Composite	18,577	81,351	170,766	16,941	72,182	146,362	17,052	72,807	148,023	1.16	2.11**	3.34***
Financially Constrained	Auto	21,185	83,151	162,045	17,819	71,001	138,379	18,048	71,828	139,310	1.84*	2.50**	1.68*
	Transit	938	22,355	76,782	1,354	11,020	37,175	1,325	11,826	39,872	-0.84	6.25***	10.59***
	Composite	16,849	73,151	141,185	15,323	64,682	127,936	15,427	65,259	128,838	1.12	2.00**	1.83*
No Project	Auto	21,536	81,545	151,604	17,838	70,736	138,076	18,089	71,472	138,598	2.01**	2.25**	1.67*
	Transit	844	21,169	72,847	1,311	10,079	33,644	1,279	10,836	36,313	-0.94	5.91***	10.61***
	Composite	17,157	71,719	139,958	15,328	64,387	127,485	15,453	64,887	128,334	1.34	1.75*	1.75*
Project	Auto	21,558	84,948	154,909	17,749	71,208	139,211	18,008	72,144	140,280	2.08**	2.81***	1.93*
	Transit	1,196	25,329	81,262	1,437	12,262	42,727	1,421	13,152	45,351	0.48	6.68***	9.83***
	Composite	17,231	75,180	144,059	15,278	64,948	129,168	15,411	65,645	130,182	1.44	2.40**	2.08**
Transit Defined	Auto	21,971	82,991	157,901	18,106	71,711	139,966	18,369	72,482	141,187	2.08**	2.36**	2.25**
	Transit	1,093	24,099	80,037	1,635	12,172	40,680	1,598	12,984	43,360	-0.90	5.78***	10.15***
	Composite	17,906	73,664	149,812	15,712	65,400	130,072	15,834	66,242	131,144	1.28	1.85*	2.15**

* Significant at 90% level
** Significant at 95% level
*** Significant at 99% level

Figure 6: Retail Jobs: Low Income Households More Accessible to Jobs

Food | Health | Soc Service | Elementary | High School | College | Fiscal | Banking | Agriculture | Trade | Manufacturing | Service | Retail | Other

Jobs: Retail

Number of Jobs

74 TAZ have more than 25% households that are below 100% Federal Poverty out of all 1454 TAZ

		Ave. of Neighborhoods in Selection			Ave. of Neighborhoods not in Selection			Ave. of all Neighborhoods			T-test (Neighborhoods in Selection vs. All Neighborhoods)		
		15 min	30 min	45 min	15 min	30 min	45 min	15 min	30 min	45 min	15 min	30 min	45 min
2000 Base	Auto	30,547	101,876	201,589	19,282	79,145	159,102	19,855	80,302	161,264	5.25***	4.04***	4.57***
	Transit	6,024	30,388	80,222	1,050	8,969	32,500	1,300	10,059	34,929	8.35***	10.84***	11.70***
	Composite	20,371	77,241	156,814	16,874	72,569	147,532	17,052	72,807	148,023	2.16**	0.95	1.12
Financially Constrained	Auto	28,571	93,085	164,860	17,484	70,688	137,940	18,042	71,828	139,310	5.31***	4.05***	2.91***
	Transit	6,084	32,025	84,218	1,070	10,742	37,494	1,325	11,826	39,872	8.91***	9.83***	10.98***
	Composite	19,102	71,111	134,815	15,200	64,945	128,518	15,427	65,259	128,803	2.50**	1.28	0.76
No Project	Auto	28,845	91,450	164,141	17,513	70,401	137,549	18,089	71,472	138,995	5.41***	3.85***	2.91***
	Transit	5,868	30,492	80,013	1,033	9,782	33,970	1,275	10,836	36,313	8.59***	9.65***	10.96***
	Composite	19,204	69,727	133,084	15,251	64,627	128,080	15,453	64,887	128,334	2.55**	1.07	0.62
Project	Auto	28,805	94,592	167,348	17,429	70,940	138,329	18,008	72,144	140,280	5.45***	4.25***	3.07***
	Transit	6,622	34,348	91,365	1,142	12,015	42,384	1,421	13,152	45,351	9.53***	10.04***	10.84***
	Composite	19,554	72,800	139,044	15,189	65,261	129,707	15,411	65,645	130,182	2.83***	1.56	1.13
Transit Defined	Auto	29,216	92,404	169,568	17,788	71,413	139,663	18,369	72,482	141,187	5.41***	3.85***	3.30***
	Transit	6,836	33,677	88,395	1,317	11,874	40,945	1,598	12,984	43,360	8.03***	9.29***	10.76***
	Composite	20,033	72,332	139,829	15,609	65,915	130,578	15,834	66,242	131,144	2.77***	1.34	1.12

* Significant at 90% level
** Significant at 95% level
*** Significant at 99% level

The Regional Planning Process as observed in Oakland assumed that bus service would be cut in the future without regard to (i) whether Metropolitan Transportation Commission's (MTC) regional transportation plan (RTP) indicated that a given operator would have shortfalls in operating revenues to meet the cost of maintaining its existing service, or (ii) whether an operator had a history of service cuts. AC Transit, as shown before, has a long history of service cuts. However, for the 2005 Equity Analysis, the base year was 2000. So the 2005 RTP Equity Analysis did not reflect service cuts after 2000 by AC Transit, including the substantial cuts in 2003. MTC overstates bus service because of these assumptions. 1.) MTC assumed that minority communities would be located in the same neighborhoods in 25 years as they are today. 2.) MTC used demographic assumptions provided by the Association of Bay Area Governments (ABAG), which show that both population and jobs increase over the 25-year period. 3.) MTC determined zone-to-zone transit paths by finding the "one best path" in terms of minimum transit travel time or "best weighted travel time". This means that BART, which has faster service speeds than AC Transit, will always be used for transit trips between the same origins and destinations. This assumption ignores issues of affordability. BART is much more expensive than AC Transit for medium to long distance trips and does not offer reduced monthly passes. Again, MTC overstates mobility of low-income populations because of these assumptions. MTC assumed that the coefficients in its travel demand model that are used for predicting travel behavior will remain the same over the 25 years of the RTP.

Chapter 4 Community Empowering and Public Participation Tools

As shown in Figure 7-11 the public participation framework has four elements. The tool described in Element 1 provides a structured foundation for addressing EJ in transportation issues. The second element (Figure 7) is a community-centric power relationship wheel. It is best visualized as a series of circles with the community at the center. In the next ring of the circle, moving outward, the various outcomes and values such as, environmental justice, smart growth, accessibility, and family posterity are identified. The third ring out from the center identifies strategies for achieving community driven values/outcomes—mitigation of threats to air or water, truck noise and other community centric concerns. The fourth ring and fifth outer rings identifies local and national stakeholders, respectively. The third **element,** (Figure 8) has 10 key components that are designed as a problem-screening analysis process to identify issues, weigh, and scale their severity. The fourth element (Figure 9) – known as a 'triage process - is designed as a priority selection process with a group of advocates, transport planners, academics, low income stakeholders, and the regional planning council. This is a resolution process that is designed to identify and target the best solution. There will be a lot of debate, as well as a lot of trade off between stakeholders involved in the process. Once these issues are evaluated and some kind of deal is struck, the project can then go through a standard review process at the MPO. The outcome is that the MPO is more likely to support the project or suggest that 'it should go to the city or another government agency.' In the final step, the project heads to the board for some kind of resolution.

A. Element I, Understanding the Issues

In any given community the following framework[14] is suggested to address EJT problems:

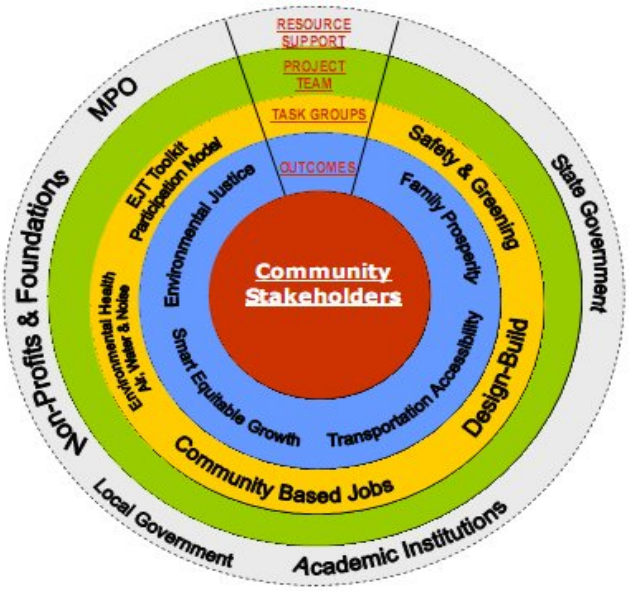
- **Define it**– Convene community groups to get consensus as to what the issue is and determination of a desirable solution.
  - **Document it**– Create diaries or photographs of problem maintained by community members. Changes, good or bad, recorded.
    - **Prioritize it**– Rank community concerns.
      - **Analyze it**– Amass supporting information to promote desired solutions. Use information resources, particularly local libraries, academic institutions and planning agencies.
- **Evaluate it**–Participation by community members in agencies' decision-making process.
  - **Mobilize** – Communicate issue and possible solution to stakeholders, other interested parties, and agencies of responsibility; taking advantage of agencies' ability to conduct analyses that clearly demonstrate priorities;
    - **Prosecute it –** Initiate power analysis; assemble political stakeholders; initiate media campaign, and pursue all available administrative avenues including Title VI complaint procedures.

[14] **COMM+UNITY, BREJT NO.1, Baltimore Region Environmental Justice in Transportation Project, 2008, http://www.ejkit.com**

B. Element II, Building Power Relationships

Element II (Figure 7) is a community-centric Power Analysis, a series of circles with the community at the center (red). The next-outer ring of the circle (blue) identifies various desirable outcomes and values—environmental justice, smart growth, accessibility, family posterity. The next-outer ring (yellow) identifies strategies for achieving those community-driven values/outcomes—mitigation of threats to air or water and truck noise and other community-centric concerns. The fourth ring (green) identifies local stakeholders, and the fifth, outermost ring (gray) identifies national stakeholders. This final sphere includes federal and non-profit agencies that provide funding and support environmental and smart-growth policies. This Neighborhood Revitalization Action Plan (NRAP) is a model for at-risk communities, built upon the EJT Toolkit's Public Participation Framework. Two key components of the model are the 'triage' and the Power Analysis processes. The latter being recommended by the International Leadership Assembly (ILA).

Figure 7: Building Power Relations in Target Area



To effectively understand and investigate community-based issues, 10 public participation framework activities are presented in a bottom-up and step-wise fashion. The public participation framework is outlined below and illustrated in Figure 1. The steps in Figure 1 are based on the BREJT Project Environmental Justice and Transportation Framework. They are a hybrid of what is typically used by transportation planners for determining future actions involving project selection and prioritization where transportation is seen as a means to an end.

The public participation framework involves reinvigorating and reinforcing the existing public participation process by adhering to a well thought-out strategy. When used collectively it forms the core of the bottom-up public participation framework. For example,

neighborhood residents may seek to protect their environment by attracting new residents into rehabilitated or newly built homes.

In review, the public participation framework encourages:

- Building community consensus around listening session findings
- Isolating community concerns and prioritizing goals
- Screening/analyzing problems
- Communicating potential solutions
- Applying triage processes
- Ranking goals in terms of relative importance
- Identifying alternative courses of action
- Comparing alternative courses of action
- Prioritizing the most effective course of action
- Implementing the selected course of action

D. Element III, Public Participation Action Model (PPAM)

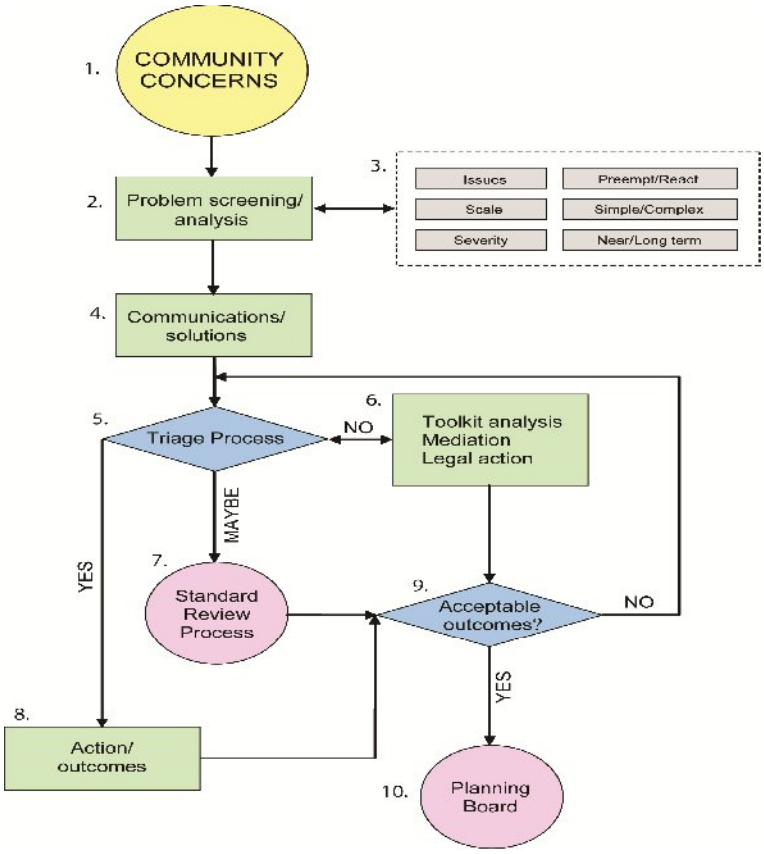
Element III (Figure 8) has 10 key components. The first component is identifying community concerns. The second is a problem-screening analysis to identify the third component: issues. In the issues component we weigh the scale and severity of the issues, identifying solutions, turning solutions into actions, and challenging authorities--MPO, MTA, city, etc.—over their priorities.

The public participation component shown in Figure 2 and the triage process shown in Figure 3 guide, identify, sustain, and evaluate the merit of community-based problem-solving using a collaborative style that: 1) identifies the affected populations 2) estimates the nature and extent of the effects 3) assesses the impact of identified issues 4) conducts focus groups to confirm the initial findings 5) documents findings and 6) communicates with agencies of responsibility through an EJ Triage committee[15]. Technical procedures for evaluating the above steps are provided in "Chapter VI Environmental Justice and Transportation Evaluation Methods and Procedures."

If it is determined that the issue warrants immediate attention, actions may include toolkit analysis, mediation, or litigation as an appropriate (step 6). Otherwise, the standard review process (step 7) or consensus (step 8) is implemented. Evaluation of each of these three paths (step 9) should then occur to determine whether the outcomes of the process are deemed acceptable. If the acceptability of an outcome remains in question, the EJ analysis framework should lead back to the triage process (step 5) where it is re-evaluated along with any new information generated during steps 6, 7, or 8. Otherwise the process can continue on to the Planning Board or other decision-making body (step 10).

[15] **FTA, Environnemental Justice Toolkit, Techincal Documentation**

Figure 8: Public Participation and Analysis Framework



E. Element IV, the Triage Process Model -- Reviewing and Screening the Evidence

Element IV (Figure 9), a triage process, involves a group of advocates, transport planners, academics and low-income stakeholders is designed to identify the best solution. Debate inevitably ensues, but the process has political power, given the involvement of a wide range of participants. Once the participants evaluate the issues and arrive at some kind of consensus, the participants appeal to the MPO. After a standard review process the MPO will either agree to support the project, or pass it to the city or another government agency for further review and resolution.

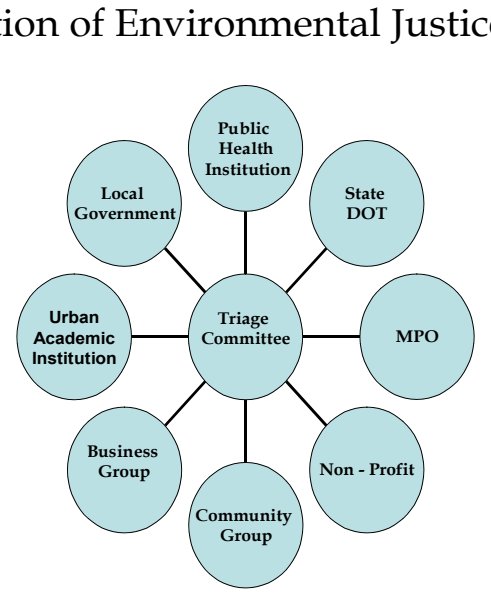
The triage committee is viewed as a community based prescreening asset for Metropolitan Planning Organizations. The motivation for establishing this process is based on our research findings that low-income and minority communities struggle to get EJ issues of concern addressed in the planning and decision-making process[16]. Several factors limit the EJ population's ability to seek remedy for EJ concerns or to ensure adequate representation in the decision-making process. One important factor may be the fragmented network of community based organizations. For example, this complicates the regional MPO's ability to

[16] FTA, Environmental Justice in Transportation Toolkit, Volume II, Community Profile, http://www.ejkit.com

speak out about an issue with the local transit service or with planning or land-use decisions within a local jurisdiction. Moreover, an agency would probably find it difficult to recommend a particular type of investigation or response if that response had implications for responsibility outside of its jurisdiction.

To resolve these issues the EJT Triage process (shown in Figure 9) was engineered. At the core of the public participation framework is an institutional strategy for accomplishing collaboration among all the key players. This entity is comprised of sufficient expertise and authority to direct an analysis or investigation that will be broad enough to deal appropriately with the critical underlying factors in the given problem, not simply those that are pertinent to the particular agency. Such a collaboration can be an effective way not only to bring more expertise and resources to bear on a complex EJ problem, but also to reduce the exposure or risk of any given agency in having responsibility for recommending or implementing an action.

Figure 9: Triage Committee



Decisions about how the concern or issue is made with particular attention to its urgency and extent. Given the many tasks and functions linked to the EJT Triage Committee, it is expected that there would be a high level of activity. Correspondingly there is concern as to whether its members would have time to participate in all of these activities, and as to how this group's activities would be supported financially.

Again, the triage committee is made up of organizations and individuals with influence and the ability to effect change. This will vary with each region. Diverse representation and independent status (one vote per member) will allow members the freedom to pursue EJ concerns. The EJT triage committee will develop an agenda, lead analyses and evaluations,

and make recommendations for solutions to EJT problems. After review it can dismiss or approve analyses, recommend additional research, or forward approval to the appropriate agency of responsibility. The committee will ensure that decisions about the EJ issue will be made in relation to its history, urgency, and extent. This evaluation and analysis step is important because it determines project priorities that are important to low-income and minority communities in a non-contentious way.

Upon review of the evidence, and in relation to available resources and other factors, the EJT triage committee will provide a response that will include a collection of possible approaches. At a minimum, this response should include a formal documentation of the issue. This will facilitate a better understanding of the genesis of issues and improve the quality the initial assessment. Documentation is extremely important to the continuity and, hence, the credibility of the EJT process. There are several ways in which an EJT triage committee can respond to a particular issue. It can:

- ***Solicit Additional Input***: The Committee may realize that it does not have enough information to form a credible response, and recommend collecting additional information. Alternatively, the Committee may conduct initial investigations and then elect to go back to the public for additional information.

- ***Discuss with Agencies***: The first (and final) step in addressing a problem is to discuss it with the agency or agencies whose activities are implicated in the concern. This allows the Committee to apprise the agency of the problem, gain insight as to other factors that may be contributing to the problem, and work through an initial menu of possible solutions.

- ***Perform Analysis:*** At some point the Committee will probably determine that it needs more detailed information on the nature and extent of a given problem than has been supplied, because of the problem's complexity or other factors critical to taking action. This is where the *Triage* function comes into play, because the type of analysis recommended may vary in depth and sophistication, based upon the particular problem or upon the stage at which the committee is investigating the problem.

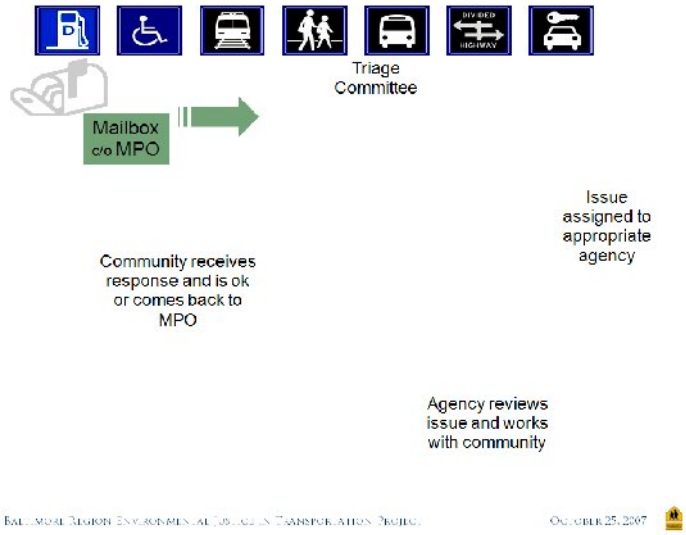
- ***Seek Alternatives:*** More than likely, some type of remedial action are necessary in order to address the problem or concern, and the Committee will need information about the positive and negative impacts potential alternative solutions. Again, this investigation will probably require use of analysis tools, scaled to fit the magnitude of the problem and the weight of the result.

Given the many tasks and functions linked to the EJT Triage Committee, it is expected might to generate a prohibitively high level of activity. Further, members might not have time or funds to participate in the new activities. Under full deployment, the Committee would either have to have very stringent rules in selecting avenues to pursue, or have sufficient resources (in-kind, grant or endowment) to acquire supplemental assistance from staff or consultants.

Figure 10: Potential Triage Committee Members

In practice, the triage framework activity boxes shown above are highly interconnected. At any given time, the Committee will be coordinating with the relevant agencies, talking with members of the subject community, gathering information about alternatives, and seeking to better understand the nature of the problem through analysis methods. This dynamic interaction is envisioned throughout the entire framework. As new information is gained or new questions are asked, any or all elements in the framework may be retrieved to assist in the analysis or to refine the focus.

Figure 11: Triage Intake



Under full deployment, the Committee would either have to have very stringent selection criteria for those issues that it selects, or have sufficient resources (in-kind, grant or endowment) to acquire supplemental assistance from staff or consultants.

F. Illustrative Example (Mall Crawling for Transit Equity, Pittsburgh, Pennsylvania)

Mall crawling is an example in which the toolkit's public participation framework was used to bring change in Pittsburgh, Pennsylvania. In this community based engagement, a task force was created to systematically gather and compile information needed to make a case for Mall Transit Equity. This effort involved building cooperative relationships among public, private and community stakeholders.

1. Background

Many of the procedures recommended in this Toolkit were tested and refined through the work of a Transit Task Force within PIIN, the Pittsburgh Interfaith Impact Network—an affiliate of the international Gamaliel Network of interfaith action groups. (Underlined words in the following text refer to such recommended procedures.) After having collaborated in 2007 with a variety of volunteer organizations in pressing successfully for legislative approval of dedicated state funding for public transportation (for the first time in Pennsylvania history), PIIN decided in 2008 to focus on regional transit issues, with an emphasis on Environmental Justice in Transportation as experienced by the low-income and minority communities in its metropolitan area. The primary inspiration for this new focus was PIIN's involvement in the FTA grant project for developing the EJT Toolkit. Leadership was undertaken by an expanded PIIN Transit Task Force, working in close contact with the national team developing the Toolkit. An initial step, in keeping with the goal of public participation, was taken when members of the Task Force, who had been active in an Equity Subcommittee advising the Port Authority of Allegheny County (the regional transit agency) in the development of a comprehensive update of its service plan (an example of building power relationships), persuaded the agency to hold one of its six public discussion meetings (previously scheduled only a suburban locations and downtown) in East Liberty, a major transit hub housing a high percentage of minority and low-income residents.

2. Public Participation through Community Meetings on Transit

PIIN's Transit Task Force then set about reaching more directly into the community to elicit ideas on transit from the public. In the spring of 2008, Five Community Meetings on Public Transit were held in PIIN-member churches after significant outreach into surrounding communities—four of which were predominantly minority and low-income neighborhoods. The approximately 60 attendees, most of whom were transit (largely bus) riders, were asked to describe problems with public transportation that they had experienced personally. More than 100 problems were brought up and discussed; these included inappropriate routes, inconvenient schedules, and poor service on the public van service for elderly and handicapped riders.

3. Power Relations and the Triage Process

At the same time, the Task Force invited public and transit officials to form a PIIN Transit Advisory Committee to help the group evaluate the problems identified and to formulate possible solutions (continuing its goal of building power relationships in dialogue with agencies). The response was impressive. High-ranking representatives were designated from the regional Metropolitan Planning Organization (Southwestern Pennsylvania Commission), the Port Authority, the public van service for elderly and handicapped riders, the Allegheny County Planning Department, and the Pittsburgh mayor's office. After two lengthy meetings with this Advisory Committee, the Task Force met with PIIN officers and staff members to analyze the problems that had been identified and decide on appropriate strategies for pursuing one or more solutions. The group decided to focus initially upon a specific problem that had been brought up in several of the Community Meetings: **lack of convenient and safe access by transit riders to shopping malls in the region.** This issue was chosen because the problems presented were formidable for transit riders—particularly bus riders, who are predominantly low-income and minority individuals. The issue of safe transit access to shopping malls is concrete, easily dramatized and understood by the public; it also has broad policy implications for the region; it is likely to be resolved in a reasonable amount of time, and success on this issue would empower PIIN to pursue additional problems related to both EJ in Transportation and other equity issues within the region.

4. Due Diligence

Members of the Task Force then set out to learn more about the problem and possible solutions (to solicit additional input). They started by holding personal meetings with the Port Authority official most familiar with the transit-access problem at local malls (dialogue with agencies). The official explained that his agency had partially succeeded in arranging to have its buses leave and pick up passengers directly at entrances to major malls. The major difficulty, he explained, was with the largest owner of malls in the region (and one of the largest mall owners in the world), Simon Properties. This analysis was confirmed in a series of personal mall visits made by members of the Task Force to evaluate bus and light rail service to several area malls: Ross Park, Century III, South Hills Village, Century Square, Robinson Town Center, Galleria, Camp Horne, Monroeville, Waterworks, and Waterfront. Their reports were reviewed and discussed in Task Force meetings. These reports confirmed that, while there are transit-related difficulties at most area shopping malls, the most serious are at the three malls owned by Simon Property Group (the first three named above), which had in the past two years required Port Authority buses to load/unload 200-400 feet away from mall entrances, not directly at mall entrances (as was the practice previously)—creating inconvenient as well as unsafe conditions for transit riders working and shopping in the malls[17]. Simon had invoked their "private property" rights when dictating bus traffic at their shopping malls. The Task Force decided that if it could succeed in persuading (or legally forcing) this international corporation to change its policies regarding transit rider access in

[17] Phase II Techincal Documentation, Appendix 8, Http://www.ejkit.com

this area, it would be relatively easy to address lesser problems at other malls while promoting wider understanding of the importance of public transit to the health and sustainability of the region.

6. Actions

Consequently, the Task Force sponsored three "Mall Crawls for Transit Equity" on December 2008 and February 2009. These multipurpose direct actions were designed to obtain further information about conditions for transit riders at the three Simon malls, to build interest and support within PIIN and (through press coverage) the larger community, and to remind Simon officials of PIIN's continuing commitment to needed changes. In these events, Task Force members were joined by a total of more than 40 other members of PIIN, their friends and neighbors, and members of a volunteer association of transit advocates and advisers, the Allegheny County Transit Council, with whom the Task Force had collaborated in the past. At Ross Park Mall, an upscale shopping to the north of Pittsburgh in Ross Township, the Task Force measured the distance (about 500 feet) from the one bus stop on mall property to the closest mall entrance (at Sears), and then presented the mall manager with a holiday greeting card reminding her of the community concerns. This event was covered in a lengthy article in the *Pittsburgh City Paper* on January 1, 2009. (http://www.pittsburghcitypaper.ws/gyrobase/Content?oid=oid%3A57121), In their February 4th visit to the the South Hills Village Mall, the group was accompanied by Brian O'Neill, a columnist for the region's major daily newspaper, the *Pittsburgh Post-Gazette*. The group (and O'Neill's column on the following Sunday: http://www.post-gazette.com/pg/09039/947559-155.stm) took note of several dangerous conditions at the mall for both bus riders and riders of the "T" (the light rail system, which has a station near the mall). The problems included the lack of a bus stop on mall property and of a marked/protected crossing for light rail riders on the most direct route from the station to the mall, as well as thick snow and ice on the long pedestrian route that crossed at a lighted intersection. The PIIN group tried without success to meet with the mall manager and left her a (symbolic) box of Valentine candy with a reminder about its concerns and intentions. In their February 18 visit to the south suburban Century III Mall, they again measured the distance to the mall entrance (approximately 200 yards); spoke with several store clerks and managers, who indicated a shared concern about bus-rider accommodations at the mall; and personally delivered a letter to the mall manager insisting again that Simon managers agree to meet with PIIN and public and transit officials to discuss the restoration of bus service to mall entrances. The mall manager warmly welcomed the group into her outer office but refused to discuss the possibility of moving the bus stop. This action was reported in an article in the historically African-American newspaper, *The New Pittsburgh Courier*: http://newpittsburghcourieronline.com/articlelive/articles/43727/1/Transit-riders-seek-change...4/3/2009.

While PIIN is satisfied that its information in undertaking this Mall/Transit campaign has been substantial, it could not be reinforced by relevant demographic, geographical, and transportation data that might have been provided by its MPO. Officials of the Southwestern Pennsylvania Commission promised to provide such data but did not do so, after several requests. However officers of the Commission did enthusiastically support the campaign and

offered suggestions as to how to possibly upgrade the mall parking lots to handle bus traffic, a problem identified by Simon Properties.

Following these "Mall Crawls for Transit Equity," the Task Force unsuccessfully attempted to persuade both local and national officers of Simon Properties to join them in a discussion of the problem and possible solutions, along with members of the PIIN Transit Advisory Committee and other officials. Simon representatives refused, saying that they would not even meet to consider the possibility of "moving the buses."

In the face of this intransigence, the Task Force appealed to the Allegheny County Council, which oversees—along with the county's Chief Executive Office—the Port Authority and all other county agencies. The Allegheny County Council made a personal telephone call to the Council Chairman, who responded positively. Having met with the Task Force a few days later, the Chairman then persuaded three other Council members to co-sponsor a County Council Resolution, which comprehensively explains the general and specific problems the Task Force had been addressing.

7. Getting Results

The County Council Resolution notes that:

"public transportation fills a vital need for individuals throughout the County by allowing them to travel to and from their places of employment, medical appointments, grocery shopping, and to make other necessary trips . . . [and the transit agency has] structured its service such that buses on several different routes make regular stops at shopping malls in the area . . . . Several shopping malls within the County have moved bus stops away from the mall structure, sometimes by several hundred feet; and . . . this degree of separation between the bus stops and mall structures creates a situation in which elderly, disabled, ill, and injured individuals who rely upon public transportation must traverse expansive parking lots and avoid both motor vehicle traffic and other hazards such as uneven pavement and tripping dangers simply to gain access to the shopping and employment venues in question . . . [and] parking areas most distant from mall structures often tend to be the areas that are the least well-lit, least frequently patrolled by security, and most likely to lay adjacent to bordering undeveloped properties, and therefore are often the areas most prone to criminal activity; and . . . thus creates a fundamental inequity insofar as it forces individuals who are least able to traverse hazardous conditions in parking lots to do so for the greatest distance, based purely upon their reliance upon public transportation; and . . . may also have the potential to expose the County, Port Authority and/or mall management companies to liability, in the event that an individual should be injured while attempting to reach a bus stop."

The document concludes:

"The Allegheny County Council hereby urges the Port Authority and local shopping mall management companies to work cooperatively to establish bus stops in safe, well-lit and well-maintained areas near shopping malls within Allegheny County."

Following the introduction of this Resolution, the Council has taken testimony in several meetings from the PIIN Transit Task Force as well as both local and national representatives of Simon Properties. At this writing, the Council's Resolution remains under serious consideration; its supporters are anticipating passage in the near future. Additionally, supporters expect meetings with Simon Properties and other mall owners in the region to proceed in working out an agreement that will resolve this serious EJ in Transportation issue in a satisfactory way. PIIN Task Force members are confidently continuing to give their support to this process—which has employed so many of the principles of community involvement in transit decisions described in this Toolkit. We hope that voluntary negotiations will produce the desired outcome. However, the Task Force stands ready, if necessary, to pursue legal remedies under the provisions of Title VI of the Civil Rights Act, the Americans with Disabilities Act, and other relevant laws.

Chapter 5 Example, Applying the Toolkit, Baltimore, Maryland

In this section we demonstrate how the EJT tools can be used to develop a structured response to EJT concerns with sustainable outcomes that adhere to Title VI and Smart Growth Strategies. Using the public participation framework (Figures 1- 4) and measuring equity guidance in (Tables 8 - 10), we walk through an EJT analysis application that uses a range of dimensions that include transportation, housing, land use, community development, and TDM improvements[18].

A. Example Application Scenario

In Baltimore City, the Maryland Transit Administration operates a transit maintenance facility. This facility is located in a predominantly African-American, mixed-income area known as East Baltimore Midway (EBM). Recently, this facility has been identified as a source of pollution (air and noise) and a contributing factor to neighborhood decline in the region[19]. The transit agency has confirmed its intention to resolve these problems, but to date no discernable real progress has been made.

Compounding the situation further is the strong sentiment of some businesses in the area. Businesses located close to the new garage site feel that its proximity will result in increased traffic related noise and pollution. This is of particular concern to a local office building whose employees have circulated a petition against the garage, citing the potential noise and congestion as detrimental to their work environment. A hospital in the area has also been outspoken against the garage, pointing to the increased likelihood of respiratory disorders in the area cause by diesel fuel pollution and to the inability of the underfunded, understaffed hospital to handle an increase in admissions.

[18] Note: Triage Process was abbreviated using the community driven solutions identified by Peoples Homesteading Group.

[19] Baltimore Region Environmental Justice in Transportation Project, Volume I, Technical Documentation, Kirk Ave. case study, http:www.ejkit.com

Advocacy groups in alliance with community residents believe that agencies responsible for making decisions have not adequately addressed transportation concerns in the region. While they understand that the location for the garage can accommodate many more buses and it is operationally convenient for servicing many routes, they still have legitimate misgivings. In the meantime the community languishes.

The Maryland Transit Administration (MTA), has been struggling for years to find money to cover its high operating and capital costs. On several occasions MTA has resorted to increasing fares, but during the recession this will not be enough to cover their shortfall. MTA recently announced plans to cut ten bus routes which were determined by a year-long analysis to generate the lowest ridership of all routes in the system[20]. An EJ issue arose when activists began to protest the elimination of two routes that serve primarily low income and minority neighborhoods, and are the primary form of public transportation for the neighborhood.

On the other hand, during the open forums on the service cuts, MTA also heard from vocal proponents of cutting the buses routes—mainly from people who did not live in these areas and did not want to see their fares increase again. Fares have already been held steady but increasing them further will cause MTA to run the risk of losing riders to personal vehicles and have further troubles in closing the revenue gap.

Predictable groups located outside of the footprint of the maintenance facility are happy not to breathe the toxic fumes emitted from the buses at night. On the other hand EJ activists supported by local residents are resistant to the site because of the low incomes of area residents, as well as the proposed location adjacent to an elementary school with mostly minority students. Because both groups represent their own self-interests, reaching a compromise has not been easy. When the transit agency includes both groups in negotiations to discuss the plans, they receive conflicting feedback. This makes it impossible to determine if the location can effectively support a garage or its proposed expansion.

To complicate matters transit advocacy groups have been speaking out against eliminating transit dependant routes, citing the difficulty for residents in these areas to get to work without the MTA bus service. These routes also serve the medical facilities used by low-income residents. Eliminating these routes would prevent residents from accessing much-needed medical services and cut off many seniors and children from easy access to their only source of healthcare. In addition, the residents along these routes will be forced to travel further to obtain other necessities, such as groceries and childcare. This will result in higher travel times, less accessibility and a greater reliance on the automobile.

B. Scope of Analysis

East Baltimore Midway (EBM), home to the Anchors of Hope neighborhood, is located within a ¼ -mile proximity of several revitalizing communities that have worked over the past five years to improve their well-being. Likewise, EBM seeks to improve its own well-

[20] Greater Baltimore Bus Initiative

being. These efforts seek to create a healthy buffer for a growing family of rejuvenated inner city communities. To the west is Baltimore's Arts District, to the south is Johns Hopkins Biomedical Center, and to the north are the Old Goucher/Harwood neighborhoods. EMB is characterized by a positive mix of under-appreciated community assets as well as blue collar, white collar and self-employed-professional residents. It also has its fair share of abandoned historic houses, vacant lots, and vibrant local church denominations, as well as local teenagers struggling to resist the lure of the streets. Despite not having benefited from Baltimore's community development process it has successfully struggled to remain vibrant.

For over fifty years, successive Baltimore city administrations have envisioned, developed, resourced, and implemented a "Building on Strength" revitalization strategy to redesign, renew, and enhance significant sections, namely the City's historic downtown and inner harbor. Subsequently, among city leaders, a consensus has emerged over time that concentrating public and private investment on Baltimore's principal development and location assets is the best way to raise the fortunes of the entire city[21]. Despite the broad-based success of the "Building on Strength" urban redevelopment strategy, Baltimore, like many other evolving urban centers, has failed to "lift all boats." Investment in the Inner Harbor and other key locations, in contrast to the program's absence in other at-risk neighborhoods, has underscored the fact that the distribution resources in Baltimore have been unbalanced at best. There are three categories of Baltimore communities that have been affected, to various degrees, from the city's redevelopment strategies. Below, we describe communities that have directly benefited, communities that have marginally befitted, and communities that have been left out.

- A community that has *clearly benefited* is the nationally-recognized Inner Harbor and its continuous urban fabric of waterfront restaurants, corporate offices, marinas, tourist attractions, tall ships, and upscale housing developments.

- A group of communities that are only now beginning to *marginally benefit* from the "Building on Strength" approach are located in the outer harbor, but in close proximity to major institutions and to the highly valued south shore of the inner harbor. This group includes Baltimore's "Healthy Neighborhoods," such as Brooklyn-Curtis Bay and Patterson Park, as well as other communities near large institutions and development projects, such as Cherry Hill, McElderry Park, Mount Winans, Washington Village/Pig town, and Westport.

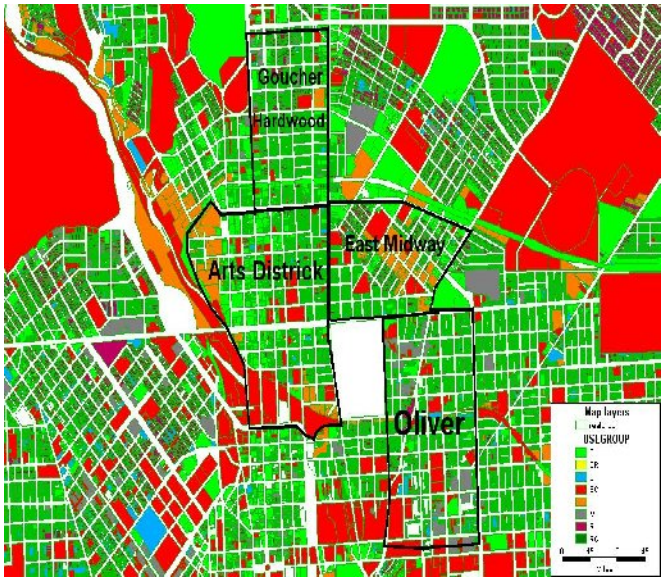
- Communities that have been *left out* have not benefitted from the "Building on Strength" policy. Typically in left behind communities there is a rich social and turn-of-the- century archeological history and a modest influx of new residents and investments. EBM neighborhood is one such neighborhood. Like most of Baltimore's marginalized neighborhoods, it is not located along the Inner Harbor's coastline. (See cover asset map).

[21] "Building on Strength", Baltimore City Economic Growth Strategy, Martin O'Malley, 2002

C. Mapping the Issues, Demographics, Assets and Ecology

East Baltimore Midway (EBM) is bounded on the north by East 25th Street, on the east by Broadway, on the south by East North Avenue and on the west by Greenmount Avenue. The urban fabric of this neighborhood comprises a highly diverse African-American population. There are many well-established, active neighborhood residents. Many of the current residents grew up in the neighborhood, chose to raise their families there, and are active in rebuilding, reestablishing and rejoining Baltimore's mainstream communities[22].

Figure 12: Comparative Boundary Mapping



Despite the many hidden assets of EBM it is considered an at-risk neighborhood because it has not equitably benefited from Baltimore's revitalization plans. This community is the home of the Kirk Bus Division of the Maryland MTA and is the location of a major transit crossroads at East North Avenue and Greenmount Avenue, where over 5,000 passengers transfer daily between three high-volume MTA bus lines, the #8, #36, #13, and the #48 express service. It sits on the eastern boundary of Baltimore's Art District and is in close proximity to the Central Baltimore Charles Street Development. We are confronted in the Midway community with a dilemma: whether to sustain the neighborhood or to allow its gradual decline. In this regard we chose the former.

EBM can be revived and sustained as the solid working-class community it once was. The deterioration experienced by EBM can be reversed with sustainable small scale housing, workforce development, greening, and transportation demand measure interventions that we

[22] Kirk Ave Case Study, Baltimore Region Environmental Justice and Transportation Toolkit, Volume I, 2008, HttP://www.ejkit.com

advocate for in this proposal. We define sustainable as "long-term, cultural, economic and environmental health and vitality[23]."

The Community Based Assets are notable. They include the following: Fire station, Elementary Schools, Transit Depot, St Ann's Catholic Church, an active neighborhood association, and non-profit organizations. However in 1990 the area within a ½-mile radius of Kirk Avenue contained a total population of 16,457.with an average age of 33. The ethnic composition is: 94% Black, 5% White and 1% Asian. 86%of the population lives in family households. 73% of the population is not enrolled in school and there is a 13.5% unemployment rate within this area.

Figure 13: Asset Mapping

In the center of the study area is the Kirk Avenue bus facility. This facility lies south of East 25th Street and southwest of Penn Station, the region's main northeast corridor railroad line. The areas immediately to the northwest and northeast (Bonaparte St., Curtain St., Asquith St. and 25th St.) of the bus yard support light industrial and retail uses. Buildings in these areas are in fair to good condition, parking lots, and a measurable number of vacant, trash-strewn lots. Something of an anomaly, the portion of Bonaparte Avenue, Cecil Ave., Homewood Ave. and 22nd Street immediately east and southeast of the bus yard are relatively attractive residential streets, though for a couple blocks it consists only of a ribbon of houses surrounded on either side by industrial activities, empty lots , playgrounds, Cecil Elementary and Mother Seton's Academy.

The areas to the west, along Homewood Avenue, consist of a mix of empty lots, residential homes and abandoned houses. This was once an established neighborhood, particularly in the first half to two-thirds of a block west of the bus yard. Homewood Avenue lies at a higher elevation from the main portion of the bus yard, affording the area to the west a bit of a topographic separation from the bus lot. It is not clear, however, whether this separation is

[23] http://www.scn.org/sustainable/susthome.html

sufficient to buffer any of the noise or emissions from the lot. South of the bus yard, residential development begins at Bartlett Avenue, with the rear of these small row houses in various states of repair separated from the bus yard by an alley. Partially buffering these houses from the bus yard is a welding and fabrication company warehouse located on the southwestern quadrant of the block that is unrelated to MTA and the bus yard. The demographic characteristics taken from a 2008 survey of 511 respondents are described in Table 8.

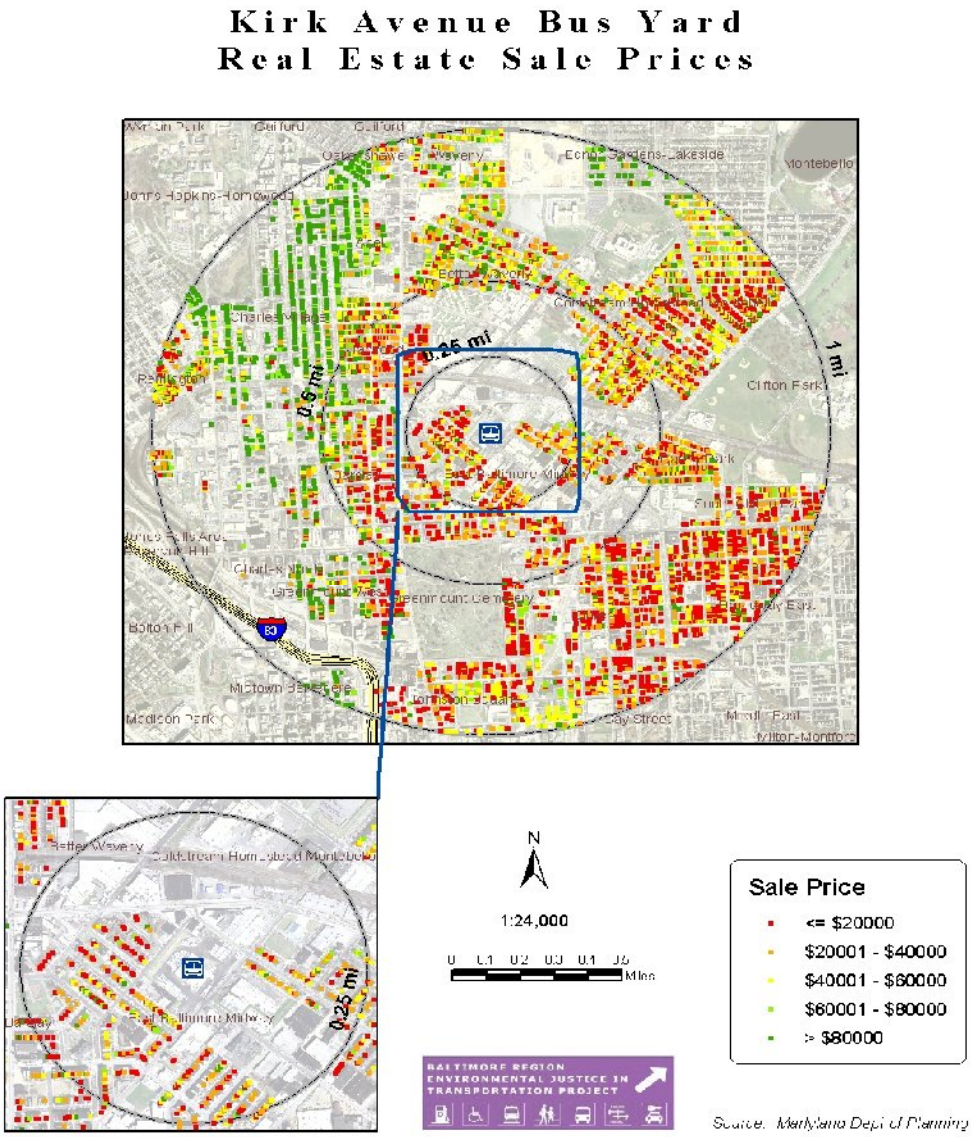
Table 8: At Risk Neighborhood Profile[24]

Demographics	Tabulation
Sex	70% female
Race	87% African-American 10% Mix 3% Caucasian
Number people in household	50% with 0-2 in household 40% with 3-4 in household 7% with 5-6 in household 3% with 9 or more in household 63% with no child in the household
# Children less than 18 in household	17% with 1 child 13% with 2 children 3% with 5 children 3% no response
Education	40% completed some college or technical school 30% some high school 20% high school graduate 7% college graduate 3% elementary education
Age	Range from 28-84
Employment	30% work for wages 27% retired 13% self employed 7% unable to work

[24] Jill Alge, MPH in Environmental Health Sciences, Dr. Buckley- Academic Advisor, Dr. Crawford-Second Reader, The Ohio State University, January 2, 2008

Of those who completed the survey, 27% of the respondents lived on Bartlett Avenue, 13% lived on Homewood Street, 13% lived on Cecil Avenue, 10% lived on Bonaparte Street, 7% lived on Saint Ann's Street, 3% lived on Robb Street, 3% did not reside within the 3-block radius from the bus depot, and 10% did not fill out an address. This indicates that 40% of survey respondents live in the most impacted area of Homewood and Bartlett[25].

Figure 14: Proximity Mapping



[25] Community Profile, Baltimore Region Environmental Justice and Transportation Toolkit, Volume I, 2008, HttP://www.ejkit.com

Noise

When asked whether the noise from the bus depot was bad for their health and the health of their family, 54% of respondents agreed. When asked whether the noise from the bus depot was stressful to them and their family 50% agreed, while 57% agreed that the noise from the bus depot was annoying to them and their family. Therefore, when it comes to noise pollution the respondents perceive annoyance as a main concern, followed closely by health and then by stress.

Air Quality

The majority (60%) agreed that the quality of the air emanating from the bus depot was bad for their health and annoying to them and their family. 54% of respondents also agreed that the air quality was stressful to them and their family. Therefore, the respondents felt that air quality was a bigger problem than noise pollution.

Mode of Transportation

Only 33% of the respondents use a bus as their primary mode of transportation. Another 30% use cars and the rest use a combination of rideshare, walking, bus, and car. When the respondents do use the bus system, 23% use it 1 to 5 times a week and 30% use it 6-10 times a week. Only 1/3 of the respondents actually use the bus system and yet they bear a disproportionate share of the negative environmental health effects.

Economic

When asked whether the bus depot negatively impacted the value of their home, 37% of the respondents agreed and only 23% thought that the bus depot was good for the community. However, despite concerns regarding noise, air quality, and economic impact, 60% of respondents had never made their concern known to the MTA. When community members had expressed concern, 53% of respondents neither agree nor disagree that the MTA was responsive to their concerns. From the survey results, the health impacts outweigh economic concern when it comes to the bus depot.

Housing

The number of housing units in the Kirk Avenue neighborhood has increased by 517 units, or 44%, between 1990 and 2000, whereas the 1-mile surrounding area actually lost almost 1,000 units. The percentage of houses that are owner-occupied has dropped slightly (43% to 41%), although the rates are much lower in the surrounding area (27-29% level).

D. Analysis and Ranking

To analyze and rank a mix of concerns that are typically identified by residents in low income and minority communities an effective rating tool is employed. This "person on the porch" analysis approach while generalized neither-the-less represent the perceptions of residents who reside in at-risk neighborhoods within governmental jurisdictions; thus it adds an important evaluation ingredient not addressed by detailed measures of inequality analytical approaches (Sprawl Index, Opportunity Based Housing Index, Segregation Index, Job Clustering, Fiscal disparities Index, and Community Assessment Index (CAI),) that rely on census track data and GIS mapping[26]. The results of the effective rating technique where, **ER** (effective rating) = LOI (level of importance) ÷ **CV** (cumulative value) shown below in Table 9 are used to construct a five-point, comprehensive solution set (Section's, E–I). When implemented in concert reinforces revitalization efforts that are transportation, housing or land use driven. This approach binds together public participation, community development and smart growth concepts in an effort to promote wellness while working to resolve pressing environmental justice in transportation issues.

Table 9: Mock Comparison of Target Neighborhood with Adjacent Neighborhoods

Scope	Target	Arts District	Grouchier Harwood	Oliver	Cum
Perimeter (miles)	1.72	1.72	1.72	1.72	
Indicators	LOI	LOI	LOI	LOI	LOI
Wellness					
# Section 8 Housing	10	2	2	5	19
# Abandonments	10	7	7	10	36
Condition of Streets	5	1	1	5	12
Poverty Level	5	1	1	5	12
Neighborhood Safety					
Drug related crime (Police responses)	5	3	1	5	14
Transportation & Housing nuisance	10	1	1	10	22
Reconcentrated poverty	5	1	1	5	12
Public Private Investment					
Demolitions	10	5	6	6	27
Public Housing reconstructions	1	5	6	6	19
New Market Rate Housing	1	6	6	1	18
# of commercial establishments	5	10	10	10	35
# of welfare and detention buildings	10	5	1	10	26
# of improved housing structures	5	10	10	5	30
Transportation					
# of facilities (stops, garages and routes)	10	5	5	10	30
Transit Dependence	10	5	5	10	30
Cumulative Value	96	65	56	98	334
Effective Rating	3.4	5.1	5.9	3.4	

[26] Building Sustainable Inclusive Communities: How America can pursue smart growth and reunite our metropolitan communities, Poverty and Race Research Action Council, May, 2010

E. Transit-Oriented Development

Development of an integrated transit-oriented development subject to a community plan is a key EJT element for proactively addressing the needs of low-income communities. In the example below it is recommended that provisions be made for bus curb cuts along Greenmount Ave and bus shelters along both Greenmount and North Avenues. The remainder of the site will allow for a public plaza serving the surrounding neighborhood with retail space flanking the plaza adjacent to the #13, # 8, and # 43 transfer points.

F. Transportation Demand Management Measures

Development of the intersection of Greenmount Avenue and North Avenue with transportation demand management access management strategies will help ease traffic burdens while helping to define the boundary of this hub and the surrounding neighborhood as viable and important space. We will work to implement the following:

- Safe crossing intersections and midblock markings to slow down traffic in the immediate vicinity and discourage pedestrians from crossing between parked cars
- A traffic circle at the intersection of North Ave and Greenmount Avenue
- Encouragement of public art to help define and enrich Greenmount Avenue and North Avenue as positive public places
- Pedestrian-friendly intersection with transit amenities

G. Environmental Health (Air, Noise and Water) Safety and Greening

The operating assumption here is that a environmental health is a precondition to sustainability. Key ingredients of environmental health are neighborhood involvement, pride and health. Environmental health can be driven by strategies that mitigate air, noise and water pollution and promote greening. The first component of this task public participation will be lead by the Greater Greenmount Community Association. The second component of this task will be led by People's Homesteading Group, the lead community organizer for the C-SAFE program, working in partnership with the Baltimore City Police, the Department of Juvenile Services, and the Department of Parole & Probation, among others.

H. Community-Based Jobs

The focus of this task group is to anchor community-based income generation through job training programs. The sustainable maintenance of income and the building of financial assets are, by and large, factors of the ability of neighborhood residents to maintain jobs that pay living wages. Local job creation is key to the ability to attract entrepreneurs to the neighborhood or from within the neighborhood. In at-risk communities' income generation can be grown and sustained by means of job development, solar panel demonstration, and weatherization of existing homes.

I. Design-Build

Private and public capital resources will be used to acquire site control and identification of a pipeline of property acquisitions for inclusion in development projects. The Project Team should focus on coordinating efforts to generate support from community stakeholders, particularly from elected officials and representatives of Baltimore City and the State of Maryland's DOT as well as housing and public works departments. Such support is crucial in approaching potential investors for participation in direct financing and structured financing, including New Market Tax Credits, state bonds, and Baltimore City housing and commercial development subsidy grants, including home financing, bond repayment funds, commercial revitalization loans, and grants. It is also important to address the impact of demographic change and out-migration of residents and related disinvestment in real estate which has created severe deterioration of the housing stock and an increase in the number of vacant properties.

Chapter 6 Conclusion

The development of this EJ toolkit has been informed by our interactions with community groups, metropolitan planning organizations (MPOs), and other stakeholders who are responsible and advocate for avoiding, minimizing, or mitigating the social, economic, or environmental consequences of transportation projects and policies. In this work, we have developed and applied a community participation process that can make a meaningful contribution to identifying, defining, and improving environmental justice in transportation planning. The second contribution has been to illustrate that a wide variety of analytical tools can be utilized to support these goals as well as involve members of the community in enhancing neighborhood wellness by addressing environmental justice issues using the modality of transportation demand strategies.

The need for an effective process and tools for evaluating and enhancing environmental justice is warranted by a steady stream of Title VI complaints and a continuing pattern of planning and decision-making -- particularly, but not exclusively, in transportation -- that limit the opportunities of the disadvantaged to live in a clean, safe community and to enjoy a respectable quality of life. Transportation planning, itself, has not evolved sufficiently to encompass the necessary understanding, sensitivity, analysis methods, or solutions that would make this goal accomplishable. In fact, there are systematic biases as indicated below that tend to work against securing environmental justice and better planning.

- Transportation plans and investments in the modern metropolitan area still tend to be dominated by highway projects because suburbia is where the majority of growth occurs. Suburban growth, however, is largely in response to earlier highway investments and to the development policies of local jurisdictions. ITS technologies will only exacerbate this situation.

- Transit priorities are often skewed to support suburban and exurban commuters, often at the cost of improving service for urban residents. For example, most new public transit

investments, such as the numerous light rail investments in the 1990s, are designed to attract "choice" riders in an attempt to reduce peak period congestion, but are less likely to improve service where riders are dependent.

- Transportation plans and funding priorities are often established without the benefit of rigorous analysis on the impacts of outwardly-focused plans on future growth patterns. Additionally, even fewer emphasis is placed on meeting the special needs of minority and low-income populations in inner city communities. Transportation and planning agencies lack the appropriate tools to fuel these analyses, due to both limited awareness/expertise and a lack of political will.

- While the public is formally invited to participate in the planning process, their impact is often quite limited. Citizens often lament that by the time they become engaged in the process, the key decisions have already been made.

- Public outreach and involvement is extremely important in order for disadvantaged groups to have a greater say in the planning and decision-making process. Special efforts must be made to reach, inform, and involve them. To be credible, that involvement should be continuous throughout the planning process and instituted early enough to have an impact on the outcome and there must be a mechanism to ensure closure.

- Agency fragmentation may have a lot to do with the difficulty of having a particular problem properly addressed or acted upon, since the full authority for the problem may not fall within the jurisdiction of a single agency.

- There is no step-by-step guidance offered or intended by any of the federal regulations or directives relating to EJ and no established protocols for conducting EJ assessments.

- In particular, there are no guidelines as to what variables are critical and should be included in appraising benefits and burdens. Studies are pointing toward a greater use of outcome measures such as accessibility to jobs and opportunities, but whether or how these measures are carried out is left to the discretion of the respective agency, and may be determined by either data limitations or local policy norms.

A structured environmental justice process can be an important solution for transportation planning. While federal statutes and regulations delineate procedural steps for incorporating EJ requirements into the planning process, those directives provide no practical or systematic guidance on how a comprehensive EJT program or evaluation should be done. The absence of hard rules and guidance provides important flexibility to implementing agencies, it also invokes a level of conjecture as to what a proper EJT process or analysis should look like; the lack of rules also often sets a minimum standard level of participation. Finding a single understandable resource to assist in negotiating this complex process is elusive, particularly for low income and minority groups. In the absence of such guidance, it is argued that implementing agencies have to do more primary research on their own. This often leads to trial and error methods or, worse, an EJT analysis or process that falls short of its potential.

Of paramount importance is the question of how minority, low-income and other disadvantaged groups are truly able to gain access to "the system" and trust decision-makers to hear their concerns and act accordingly. In most areas, the process of defining needs and setting planning and project priorities is a closely held privilege. Strategies for influencing this process include:

- Formation of EJT task forces or advisory committees that are empowered to review, comment and provide guidance to the seated decision-making bodies, e.g. the MPO.

- Making provision for one or more representatives of the EJT community to sit on one of these decision making bodies and have voting power.

- Development of the kinds of performance measures and analyses which may steer conventional decision-making processes towards appreciating and addressing justice outcomes.

In suggesting the following recommendations, our research has demonstrated a need to augment the existing body of studies, guidebooks and guidance, by fortifying with a "bottom up lens" the existing range of traditional planning and decision making tools. Our recommendations are:

- EJ communities should have opportunities equal to those of the most "important" stakeholders. Indicators such as travel time, accessibility, number of trips, emissions, noise, and congestion are key measures which can typically be used to discern whether government funded projects conform to existing law

- Planning organizations should be realigned to treat EJ communities equally in terms of the opportunities afforded them for meaningful public participation

- A flexible standard for analytical tools, data and capabilities across agencies that engage in environmental justice evaluations and problem solving

- Every problem or assessment of equity or proportionality in benefits or burdens involves "tradeoffs" to all parties. Effective solutions require compromise which comes from informed awareness of the associated benefit and burden trade-offs.

- The technical and the public involvement elements of the planning decision making process should be interconnected and reinforcing with respect to the population in general and in particular to low income and minority communities.

- Project design in low income and minority communities should blend a mix of transportation, housing, health, land use and smart growth elements.

While we have created an expandable toolkit framework, there is much more work to be done. We hope that we have provided signposts for beginning the journey and making

greater progress in the future. As with any planning process, it can only benefit from application and enhancement. To continue this momentum of evolving and encouraging the use of the toolkit, we suggest developing more and more compelling examples of good practices. This will include further elaboration of analytical methods that are sensitive to EJ concerns as well as working with local government and communities to solve EJ problems.

References

NRC 2009 report "Science and Decisions".

FTA, 2005 Vision Statement

Effective Methods for Environmental Justice Assessment, David J. Forkenbrock, Public Policy Center, University of Iowa, Iowa City, IA; Jason Sheeley, URS Corp. Austin, TX

Institute of Transportation Studies (ITS), *Environmental Justice and Transportation: A Citizens Handbook*. University of California at Berkeley (2003)

Transportation & Environmental Justice Case Studies, US Dept. of Transportation, Federal Highway Administration and Federal Transit Administration (Dec. 2000).

Dr. Buckley, The Ohio State University, Glenn Robinson, Morgan State University, July 2008

Brunekreef, B., & Holgate, S.T. (2002), Air pollution and health, *Lancet, 360*, 1233-1242

English, P., Neutra, R., Scalf, R., Sullivan, M., Waller, L., & Zhu, L., (1999), Examining associations between childhood asthma and traffic flow using a geographic information system. *Environmental Health Perspectives, 107*, 761-767.

Wilhelm, M., & Ritz, B. (2003), Residential proximity to traffic and adverse birth outcomes in Los Angeles County, California, 1994 – 1996, *Environmental Health Perspectives, 111,* 207–216.

Crosignani, P., Tittarelli, A., Borgini, A., Codazzi, T., Rovelli, A., Porro, E., Contiero, P., Bianchi, N., Tagliabue, G., Fissi, R., Rossitto, F., & Berrino, F. (2004). Childhood leukemia and road traffic: A population-based case-control study. *International Journal of Cancer, 108*(4), 596-9

FTA , Environmental Justice in Transportation Toolkit, Technical Documentation, Volume II

TransCad 5.0, Caliper Corporation

COMM+UNITY, BREJT NO.1, Baltimore Region Environmental Justice in Transportation Project, 2008, http://www.ejkit.com

FTA, Environnemental Justice Toolkit, Techincal Documentation

FTA, Environmental Justice in Transportation Toolkit, Volume II, Community Profile, http://www.ejkit.com

Phase II Techincal Documentation, Appendix 8, Http://www.ejkit.com

Baltimore Region Environmental Justice in Transportation Project, Volume I, Technical Documentation, Kirk Ave. case study, http:www.ejkit.com

Greater Baltimore Bus Initiative

"Building on Strength", Baltimore City Economic Growth Strategy, Martin O'Malley,

Kirk Ave Case Study, Baltimore Region Environmental Justice and Transportation Toolkit, Volume I, 2008, HttP://www.ejkit.com

http://www.scn.org/sustainable/susthome.html

Jill Alge, MPH in Environmental Health Sciences, Dr. Buckley- Academic Advisor, Dr. Crawford-Second Reader, The Ohio State University, January 2, 2008

Community Profile, Baltimore Region Environmental Justice and Transportation Toolkit, Volume I, 2008, HttP://www.ejkit.com

Building Sustainable Inclusive Communities: How America can pursue smart growth and reunite our metropolitan communities, Poverty and Race Research Action Council, May, 2010