

Environmental Justice and Equity Screening Tools Peer Network, 2021

Final Summary Report



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Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
Caltrans	California Department of Transportation
CTPP	Census Transportation Planning Products
DOT	Department of Transportation
EJ	Environmental Justice
EOEEA	Massachusetts Executive Office of Energy and Environmental Affairs
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INVEST	Infrastructure Voluntary Evaluation Sustainability Tool
LCTOP	Low-Carbon Transit Operations Program
LEP	Limited English Proficiency
MassDOT	Massachusetts Department of Transportation
MPO	Metropolitan Planning Organization
Peer Network	Environmental Justice and Equity Screening Tools Peer Network
ROW	Right of Way
SMART	Strategic Miami Area Rapid Transit Plan
STEAP	Screening Tool for Equity Analysis of Projects
TIP	Transportation Improvement Program
TPO	Transportation Planning Organization
Volpe Center	Volpe National Transportation Systems Center
WILMAPCO	Wilmington Area Planning Council

Introduction

The Federal Highway Administration (FHWA) Office of Human Environment convened an Environmental Justice (EJ) and Equity Screening Tools Peer Network (Peer Network) and facilitated a four-part series of events between July and October 2021. The purpose of the Peer Network series was to provide a forum for staff at State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) to share experiences using Geographic Information System (GIS)-based data tools to identify underserved populations within their respective State or region with the goal of facilitating equitable outcomes through transportation planning and project development. The Peer Network series also provided an opportunity for State DOT and MPO staff to learn more about Federal screening tools and to identify how Federal tools and related resources could be improved to be more useful for practitioners.

Specifically, FHWA sought to accomplish the following goals through the Peer Network:

- Increase familiarity among DOT and MPO staff of EJ and equity screening tools in use by peers across the country and of existing Federal screening tools and tools under development.
- Increase familiarity among FHWA staff of existing DOT and MPO screening tools.
- Improve understanding of how practitioners use tools at the Federal, State, and MPO levels.
- Identify strengths and benefits of the Federal, State, and MPO tools.
- Identify gaps and opportunities to improve Federal tools and resources.
- Facilitate peer-to-peer dialogue on opportunities and challenges in conducting EJ and equity analysis.

Background

The 2021 Peer Network series is central to FHWA's ongoing effort to facilitate dialogue around tools, techniques, and methods for conducting EJ and equity analysis. It built upon and FHWA EJ Tools Peer Network series conducted in 2016. The 2016 series featured demonstrations on the Environmental Protection Agency's (EPA) EJSCREEN, the U.S. Census Bureau's American FactFinder and DataFerret, Atlanta Regional Commission's Equitable Target Area Index, FHWA's Infrastructure Voluntary Evaluation Sustainability Tool (INVEST) and PlanWorks, Miami-Dade Transportation Planning Organization's (TPO) Transportation Outreach Planner, and the North Central Texas Council of Governments' EJ Index. The goal of the 2016 Peer Network series was to facilitate information exchange and solicit feedback from practitioners on the Federal tools presented. More information is available in the [2016 Peer Network Summary Report](#).

In addition, in June 2021 members of the Association of Metropolitan Planning Organizations participated in a GIS and Equity Peer Exchange through the Federal Transit Administration's (FTA) and FHWA's Transportation Planning Capacity Building (TPCB) Peer Program. The goal of this Peer Exchange was to facilitate dialogue around using GIS to advance equity goals. Specifically, the exchange focused on defining equity, using data to support equitable decision-making, and using data and GIS to share information about equity populations and projects. This event provided the foundation for the topics and discussions that took place as part of the Peer Network. A summary of the TPCB Peer Exchange can be found in the [GIS and Equity Peer Exchange: A TPCB Peer Exchange Event Summary Report](#).

Overview of 2021 Peer Network Events

FHWA hosted four Peer Network events between July and October 2021. Events included presentations from FHWA, other Federal agencies, DOTs, and MPOs and provided opportunities for discussion between presenters and attendees. Event summaries are below. Full agendas for each event are in Appendix A.

This report summarizes each tool, with a focus on how it can be used for EJ and equity analysis. The report provides resources and contact information for further information on the tools. The report also summarizes key take-aways from Peer Network discussions.

Event	Date	Presentations
Event 1: FHWA Tools	July 15, 2021	<ul style="list-style-type: none"> • INVEST* • PlanWorks* • HEPGIS
Event 2: Federal Tools	August 10, 2021	<ul style="list-style-type: none"> • Census Transportation Planning Products (CTPP) • EPA's EJSCREEN* • U.S. Census Data Tools*
Event 3: State DOT and MPO Tools	September 21, 2021	<ul style="list-style-type: none"> • Massachusetts DOT (MassDOT): EJ Map Viewer • California DOT (Caltrans): CalEnviroScreen • Wilmington Area Planning Council (WILMAPCO): Transportation Justice Initiative
Event 4: Capstone (MPO and FHWA Tools)	October 26, 2021	<ul style="list-style-type: none"> • Miami-Dade TPO: Transportation Outreach Planner* • FHWA: GIS-Based Proof of Concept for Estimating Right-of-Way (ROW) Preliminary Project Costs • FHWA: Screening Tool for Equity Analysis of Projects (STEAP)

**Tool was featured in the 2016 Peer Network series; presentations at the 2021 Peer Network events emphasized key changes and updates of the tools since 2016.*

Key Peer Network Findings

The Peer Network events featured robust large- and small-group discussions between presenters and attendees. Discussions revealed several key themes in the opportunities and challenges practitioners face in carrying out their EJ and equity work. These findings are summarized below:

Aligning and expanding equity concepts. Attendees shared that EJ- and equity-related definitions sometimes differ within and between agencies, offices, and programs, and at the Federal, State, and local levels. While some degree of flexibility in definitions can be important, it is necessary to maintain consistency or be able to explain why definitions differ. Practitioners are seeking to align concepts and goals strategically; for example, by taking stock of where definitions differ and moving toward internal alignment, or by broadening initiatives to encompass EJ, equity, and other relevant topics that seek to accomplish similar goals. WILMAPCO's Transportation Justice Initiative brings together EJ and equity in addition to language assistance and considerations of accessibility for individuals with disabilities to identify social inequities through spatial analysis and work to overcome observed barriers. The initiative looks beyond equity toward restorative justice through targeted service and resource allocation.

Developing local quantitative and qualitative data to better understand communities. Practitioners shared challenges related to relying on Census data alone to conduct equity analysis due to margins of error at small geographies and the potential of missing complexities at larger geographic levels. In this context, attendees discussed opportunities to conduct more robust analyses by supplementing Census data with locally developed quantitative data and qualitative data derived from door-to-door surveys, telephone surveys, transit rider surveys, and other data gathering efforts undertaken by partners. Discussions also revealed the importance of pairing quantitative data with qualitative data to capture the realities of lived experience. This qualitative data can be collected through a wide range of public engagement techniques such as public meetings, online forums, in-person focus groups, structured interviews, and in cooperation with community-based organizations. Transportation agencies may establish guidelines to ensure survey samples are representative of the actual population and should thoroughly document focused efforts to ensure representation from underserved groups. Practitioners shared that, in their experience, residents are enthusiastic to share their transportation issues, concerns, and experiences with decision makers.

Achieving goals through collaboration and partnerships. Attendees emphasized the critical role of partnerships in establishing and achieving progress toward meaningful EJ and equity goals. It is key to understand how transportation development can directly and indirectly (through loss of affordability for residents and businesses) lead to displacement in low-income and minority communities. It is equally key to address that issue proactively through establishing partnerships to ensure transportation investment is accompanied by affordability measures like housing programs and other policies that combat displacement for residents and businesses and further elevate equity goals. Meaningfully involving potentially impacted communities early and often throughout the planning process allows different parts of the community to voice preferences, which are often unique to specific communities and cannot be generalized across minority or income groups. This helps shape interventions that will accomplish goals and avoid unintended consequences. Internal investment analysis, for example, of the distribution of funds through transportation improvement programs, can help transportation organizations identify if resources are being distributed equitably to communities and, if not, plan to correct these inequities.

Federal partners like FHWA and other modes within DOT can assist State and local DOTs and MPOs in accomplishing EJ and equity goals by providing centralized guidance, tools, and resources, such as analytical tools and methodologies, training, and access to data that may be outside the budgets of some

organizations. Attendees encouraged a greater role for DOT in centralizing data and analytical resources to address financial burdens while helping to standardize EJ and equity data, analysis, and definitions across agencies at the Federal, State, and local levels. Attendees expressed an interest in Federal incentives (such as reductions in cost match requirements or assigning bonus points to discretionary grant applications) to encourage the robust inclusion of equity and EJ in planning and projects, grant applications, and institutional processes.

Advancing equity culture and processes. Practitioners shared that, while analysis of equity and EJ impacts is standard practice, there is renewed interest and commitment to growing and maturing these practices. Organizations are making proactive, intentional efforts to build internal staff capacity around EJ and equity by creating or expanding equity trainings, teams, working groups, and advisory groups; making new analysis tools available or more advanced; and, in some cases, instituting and funding specific staff positions to serve as equity and/or EJ leads. Executive leadership in DOTs, MPOs, and FHWA Division Offices are also integrating equity and EJ considerations more thoroughly into all departments and activities. Transportation organizations and their partners are working to ensure these considerations continue throughout planning to be realized in project development. In addition to expanding the processes themselves, practitioners shared that their organizations are advancing outcomes of EJ and equity analysis. For example, several practitioners shared that their organizations are moving beyond identifying populations and documenting potential impacts to proactively ensuring equitable decision making and outcomes, bolstering analyses such that unique impacts on individual communities and demographic sub-populations are considered, and seeking to address past inequities by providing for disproportionate *benefits* to disadvantaged communities. Attendees expressed a need for future FHWA Peer Network resources to further elucidate processes to estimate, calculate, and monitor the delivery of benefits over time.

Seizing opportunities for improvement. Practitioners identified improved access to, training on, and use of analysis tools and expanded community engagement as key opportunities for improvement in fostering equitable outcomes. Practitioners shared that consistent access to analysis tools and high-quality data for use in those tools are essential for advancing equity practices. Using tools to identify underserved communities and potential impacts on those communities represents the first step in an ongoing process. Agencies must also monitor and evaluate effectiveness in delivering on EJ / equity goals over time. Practitioners shared that this step can become a check-the-box exercise if it is not paired with dynamic conversations and processes to ensure that analysis findings are actively applied to decision-making, project prioritization, and resource allocation. Organizations are making their approaches to community engagement more robust by using a variety of channels (e.g., virtual public involvement, door-to-door surveys and direct conversations, interactive webpages, partnering with community-based organizations to disseminate and collect information, hosting public meetings in tandem with established community events, and producing materials in a variety of languages and in accessible formats). Finally, consistent and thorough documentation of all engagement processes is vital for transparency and for evaluating the success of those processes.

Peer Network Summary

Event 1 (July 2021) – FHWA Tools

The first Peer Network event featured presentations on three FHWA-developed tools: INVEST, PlanWorks, and HEPGIS. The event had 54 total participants, including 14 FHWA Headquarters staff members representing 5 Planning, Environment, and Realty offices, 15 Division Office staff members representing 10 offices, 12 DOT staff members representing 9 DOTs, 11 MPO staff members representing 10 MPOs, and 2 staff members from the U.S. DOT Volpe National Transportation Systems Center (Volpe Center).

While most attendees indicated that they were familiar with at least one of the tools presented during the first event, 80 percent indicated that they had never used the tools for equity or EJ analysis. These results demonstrate the value of Peer Network events, both for sharing information and tools with practitioners across the country and for building technical assistance capacity for FHWA Headquarters and Division Office staff to promote use of EJ and equity screening and analysis tools. The results also highlight the need for more opportunities for peer exchange and information sharing in the future.

Please note the FHWA tools summarized in this report do not represent Federal guidance or impose requirements.

Infrastructure Voluntary Evaluation Sustainability Tool

The [Infrastructure Voluntary Evaluation Sustainability Tool](#) (INVEST) is a web-based collection of voluntary best practices designed to support transportation agencies' self-assessment of the sustainability of their projects, plans, and programs. INVEST also connects sustainability principles (including environmental, social, and economic sustainability) with recommended actions. The tool allows practitioners to quantify, balance, and communicate sustainability benefits and trade-offs, demonstrate achievements, measure sustainability benchmarks and track progress over time, and facilitate communication and coordination between practitioners and stakeholders around common goals.

How can INVEST be used for EJ and equity analysis?

INVEST is built around four modules that represent three phases of the transportation project lifecycle: system planning and processes, project development (including planning, design, and construction), and operations and maintenance. Each module includes sustainability best practices (or “criteria” in INVEST) focused on topic areas within the specific lifecycle phase that can be used to calculate sustainability scores.

The State- and regional-level system planning modules provide criteria for evaluation of planning, programming, policies, processes, and procedures. Criteria relevant for EJ and equity analysis include those related to social integration of planning, public health, and access and affordability.

The project development module criteria related to equity include those related to context-sensitive project development, educational outreach, and transit-oriented development.

The operations and maintenance module, similar to the system planning module, provides broader criteria to help agencies assess their internal administration and processes. The transit access and affordability and public health criteria are particularly relevant for EJ and equity evaluation.

INVEST measures sustainability by scoring user responses to the requirements under each criterion. The tool provides an overall rating (platinum, gold, silver, or bronze) based on the number of points scored.

Next steps and resources

INVEST is an evolving, continuously updated tool. The next version of INVEST (INVEST 2.0) is under development and makes improvements based on feedback and recommendations from users, including expanding the number of evaluation criteria, and including more transit-focused criteria.

The INVEST website includes a number of resources for practitioners, including [case studies demonstrating how transportation agencies are using INVEST](#), an [INVEST fact sheet](#), [INVEST presentation slides](#), an [INVEST User Guide](#), a [webpage on using INVEST to accomplish your goals](#), and [videos documenting agency use of INVEST](#). Practitioners can contact Connie Hill Galloway at connie.hill@dot.gov for additional information or submit a question or comment using the [INVEST comment form](#).

PlanWorks

[PlanWorks](#) is a web resource built around key decision points common across transportation agencies to support collaborative practices and decision making. PlanWorks helps practitioners identify and overcome barriers and delays, diagnose and provide strategies for improved collaboration, integrate emerging topics into decision making, and access information about decisions in planning and project development. PlanWorks is a set of best practices shared in a way that allows practitioners to assess approaches to planning and project development. The tool is comprised of four components:

1. A **decision guide**, which identifies and describes common decisions and opportunities for collaboration throughout transportation planning and review process.
2. **Applications**, which are a series of special topics that provide information about what should be considered during the transportation planning and development process.
3. **Assessments**, which assist in identifying barriers in the planning and development process and provide recommended strategies to overcome these barriers.
4. A **library**, which includes documents, case studies, reports, reference links, and tools.

How can PlanWorks be used for EJ and equity analysis?

Practitioners can use PlanWorks to view the Decision Guide through a topic of interest—the Application will identify key decisions related to the topic, illustrate connections across the phases of long-range planning, programming, corridor planning, and environmental review, and provide information on questions and data sources to consider and relevant examples. Applications can be used for a single decision, within a specific phase (e.g., long-range planning), and across all phases of decision making.

The Human Environment and Communities Application, as one example, is focused on the physical, economic, and social context in which transportation systems are built, including equity and connectivity concerns. When a user selects the Human Environment and Communities Application, they will find an overview of the state of practice, reference links to FHWA pages related to the topic, and the Decision Guide for all phases in the process.

Next steps and resources

New users can view [PlanWorks training videos](#) on the PlanWorks webpage, including videos on the tool's purpose and benefits, how to use the tool, navigating PlanWorks, and voices of experience. Videos specific to certain applications are also available on the webpage. Practitioners can contact Reena Mathews at reena.mathews@dot.gov for more information.

HEPGIS

[HEPGIS](#) is a public website with more than 300 interactive GIS-based maps, designed to support priorities related to safety, equity, climate change, economic development, and infrastructure. HEPGIS includes six categories of maps: performance metrics, highway system, fatal crashes, socio-economic and equity analysis, MPO and air quality, and border flows/Freight Analysis Framework. The tool also allows users to create custom maps and download data sets related to maps.

How can HEPGIS be used for EJ and equity analysis?

FHWA recently expanded HEPGIS maps related to equity analysis, and now includes maps displaying racial, ethnic, and foreign-born population data; income and poverty data; other vulnerable population data (e.g., people with disabilities, Limited English Proficiency (LEP), and households with no computer or internet access); journey to work trip data (e.g., households without car ownership and trips by transit); and economically distressed area data. These maps are based on the U.S. Census Bureau's American Community Survey (ACS) 2019 five-year data, released in December 2020.

Practitioners can view and analyze data using the equity-related maps listed above; for example, by overlaying minority population data and air quality data to support analysis of potential disproportionate pollution impacts or overlaying minority population data with data on USDA-defined food deserts.

Next steps and resources

Practitioners can request new maps, HEPGIS demonstrations, or more information by contacting Supin Yoder at supin.yoder@dot.gov.

Event 2 (August 2021) – Other Federal Tools

The second Peer Network event featured presentations on three Federal tools: American Association of State Highway and Transportation Officials' (AASHTO) Census Transportation Planning Products (CTPP), EPA's EJSCREEN, and U.S. Census Bureau's American Community Survey (ACS). The event had 61 total participants, including 12 FHWA Headquarters staff members representing 4 Planning, Environment, and Realty offices, 15 Division Office staff members representing 9 offices, 10 DOT staff members representing 6 DOTs, 11 MPO staff members representing 8 MPOs, 5 staff members from the U.S. Census Bureau, 1 Federal Aviation Administration staff member, 2 EPA staff members, 1 Cambridge Systematics staff member, and 4 staff members from the Volpe Center.

Nearly all event attendees indicated familiarity and experience with at least one of the tools presented, with the highest level of familiarity being with U.S. Census data tools and the lowest being with CTPP. Many attendees also indicated that they had used EJSCREEN and U.S. Census data tools specifically for EJ and equity analysis, but almost no attendees had used CTPP for these purposes. This data demonstrates an opportunity to expand practitioner knowledge of CTPP's equity and EJ applications so that more people are able to take advantage of CTPP's unique and useful capabilities. Practitioner familiarity and experience with EJSCREEN and Census tools suggests a continuing need for information, training, and exchange as these tools evolve and expand to ensure practitioners can use them to their full extent.

Census Transportation Planning Products (AASHTO)

[Census Transportation Planning Products](#) (CTPP) is an AASHTO-sponsored technical service program funded by member State transportation agencies and operated with support from FHWA, the Bureau of Transportation Statistics, the FTA, the Census Bureau, MPOs, and the Transportation Research Board. The program includes data products, training and technical assistance, and research outreach. CTPP provides a set of special tabulations designed by transportation planners using large sample surveys conducted by the Census Bureau. Current data is based on the 2012-2016 ACS data.

CTPP tabulations include three parts based on small geographies (i.e., Census block group and tract levels): residence-based tabulations summarizing worker and household characteristics, workplace-based tabulations summarizing worker characteristics, and worker flows between home and work (including travel mode).

How can CTPP be used for EJ and equity analysis?

CTPP's main applications include environmental analysis, travel demand modeling, analysis of commuter flows, mode choice analysis, and demographic analysis. The tool includes a number of variables related to EJ and equity, including minority status, poverty and low-income status, race, sex, age, and linguistic isolation. CTPP provides unique cross-tabulations that can be useful for equity analysis, such as population in poverty by means of transportation, population in poverty by vehicle availability, and minority population by means of transportation. For example, the Delaware Valley Regional Planning Commission (DVRPC) used CTPP to understand where foreign-born populations live versus where they work within the planning area. More information is available in [DVRPC's Leveraging Census Data for MPO Equity Analysis](#).

CTPP can also be used to analyze big data (or "passive data" that is collected through data aggregators), which is beneficial in that it tends to provide a large amount of data that may be more up to date than published Census data at a given time.

Next steps and resources

Practitioners can visit the [FHWA CTPP website](#), view [CTPP status reports](#), and [access CTPP data](#). CTPP also provides brief [interactive e-learning modules on data tabulations, geography, understanding margin of error, disclosure proofing ACS data for privacy protection, and applications](#). Practitioners can contact Joe Hausman (FHWA, joseph.hausman@dot.gov), Penelope Weinberger (AASHTO, pweinberger@aaashto.org), or JJ Zang (technical support, CTPPSupport@camsys.com) for more information.

EJSCREEN (EPA)

[EJSCREEN](#) is EPA's web-based GIS tool that allows for nationally consistent EJ screening and mapping, combining environmental and demographic data to highlight where vulnerable populations may be disproportionately impacted by pollution. The tool features 11 EJ indexes (one for each environmental indicator) based on annually updated, high-resolution environmental and demographic data. EJSCREEN uses block group-level ACS Census data, all of which is available for download.

How can EJSCREEN be used for EJ and equity analysis?

EJSCREEN's EJ indexes are calculated at the block-group level using a demographic index (comprised of an average of low-income communities and communities of color) and an environmental indicator (e.g., traffic proximity). These indexes are intended to help identify areas that may have higher pollution

burdens and where vulnerable populations are known to be present. EJSCREEN analysis results are ranked as percentiles; for example, ranking at the 80th percentile nationwide means that 20 percent of the U.S. population has a higher value. Ranking values as percentiles allows comparison of indicators that are measured with different units but does not mean that the risks are equal or comparable.

EJSCREEN also includes a wealth of environmental and demographic data that can inform practitioners’ EJ and equity work, such as information on facility reporting, air and water pollution, data related to commute times, educational attainment, languages spoken in the household, places of importance to communities, transportation (airports and railroads), and others that can be layered for equity analysis and useful for community outreach and engagement. EJSCREEN is used by Federal, State, and local agencies; community organizations; individuals; and other groups to inform EJ and environmental analyses, community outreach, prioritization, reporting, education, and research.

Next steps and resources

EPA will continue to incorporate EJSCREEN into its programs and activities and to support its partners in their use of EJSCREEN for EJ analysis. Additionally, EPA plans to continue public engagement and evaluation activities, improve training and access to learning materials, improve the usability and access of the tool, and expand map layers relevant to EJ communities. Practitioners can contact Tai Lung at lung.tai@epa.gov for additional information or view [EPA’s EJSCREEN Office Hours recordings](#).

American Community Survey (U.S. Census Bureau)

The U.S. Census Bureau’s [American Community Survey \(ACS\)](#) is an ongoing survey that provides data on a yearly basis, helping practitioners learn about their communities and informing the allocation of Federal and State funds. ACS estimates are based on a sample of the population (rather than official count of the population, which is reflected in the decennial Census). The ACS collects information on economic, housing, social and demographic characteristics, and produces annual population and housing characteristic data that reflects the period of time over which the data are collected (averaging data for 12 months or 60 months). The table below provides examples of data collected under each of the four categories.¹

Population		Housing
<u>Social</u> <ul style="list-style-type: none"> • Ancestry • Citizenship • Citizen Voting Age Population • Disability • Educational Attainment • Fertility • Grandparents • Language • Marital Status • Migration • School Enrollment • Veterans 	<u>Demographic</u> <ul style="list-style-type: none"> • Age • Hispanic Origin • Race • Relationship • Sex 	<ul style="list-style-type: none"> • Computer and Internet Use • Costs (Mortgage, Taxes, Insurance) • Heating Fuel • Home Value • Occupancy • Plumbing/Kitchen Facilities • Structure • Tenure (Own/Rent) • Utilities • Vehicles • Year Built/Year Moved In
	<u>Economic</u> <ul style="list-style-type: none"> • Class of Worker • Commuting • Employment Status • Food Stamps (SNAP) • Health Insurance • Hours/week, Weeks/year • Income • Industry and Occupation 	

¹ This table is a reproduction of a table provided by the U.S. Census Bureau in its Peer Network presentation.

The ACS includes three key annual data releases: 1) One-year estimates (for large populations), 2) One-year supplemental estimates (for small populations) and 3) Five-year estimates (very small populations).

How can ACS be used for EJ and equity analysis?

ACS data can be analyzed to understand community characteristics ranging from the national- to block-group geographic level, the most common of which are State, county, place, Census tract, and block group. ACS data can be browsed by topics relevant to EJ and equity analysis, such as education, employment, health, housing, income and poverty, and race and ethnicity; the selected characteristics can then be analyzed by geography (for example, all Census tracts within a county) through ACS-produced data tables and maps. This data may inform transportation planning and project development, for example, by helping practitioners understand where low-income populations and minority populations are located, communities can make better-informed decisions about where to provide services such as public transportation or avoid impacts such as community-dividing highway projects.

Next steps and resources

The ACS website provides a number of resources, such as [Guidance for Data Users](#), [information on why the U.S. Census Bureau asks each question in the ACS](#), and [Handbooks for Data Users](#) that explain how to use data for particular purposes and include case studies on ACS applications. Practitioners can sign up for ACS alerts via GovDelivery and can contact customer service support at acso.users.support@census.gov or 800-923-8282 for more information.

Event 3 (September 2021) – State and MPO Tools

The third Peer Network event featured presentations on three State and MPO tools: MassDOT presented on the Massachusetts Executive Office of Energy and Environmental Affairs' (EOEEA) EJ Map Viewer, CalTrans presented on CalEnviroScreen, and WILMAPCO presented on its Transportation Justice Initiative. The event had 47 total participants, including 12 FHWA Headquarters staff members representing 5 Planning, Environment, and Realty offices, 11 Division Office staff members representing 9 offices, 11 DOT staff members representing 8 DOTs, 10 MPO staff members representing 8 MPOs, and 3 staff members from the Volpe Center.

EJ Map Viewer (Massachusetts Office of Energy and Environmental Affairs)

The [EJ Map Viewer](#) is a publicly available EOEEA-developed tool that is used by MassDOT and other State agencies to understand how EJ and Title VI populations are distributed throughout the State.

How does MassDOT use the EJ Map Viewer for EJ and equity analysis?

MassDOT uses the EJ Map Viewer in the following ways:

1. **Grant-making programs:** Only 20 percent of Massachusetts roadway miles are under MassDOT's jurisdiction, so grant-making programs are key to ensure State-level goals can be carried out at the municipal level. Specifically, the tool is used to support the Complete Streets and Shared Streets and Spaces grant programs. Under these programs, extra points are awarded for projects that are located in or adjacent to EJ or Title VI communities, which are identified with the EJ Map Viewer. 310 projects worth \$33 million have been awarded under the Shared Streets and Spaces program, with 56 percent serving EJ or Title VI communities. Under the

Complete Streets program, 190 projects worth \$60 million have been awarded, 55 percent of which serve EJ or Title VI communities.

2. **Project selection and planning:** MassDOT imports the EJ and Title VI layer from the EJ Map Viewer to its MapIT tool, which State and municipal staff use to map, initiate, and scope projects and screen them against environmental, capital investment, and demographic data in the area of the project. Use of the same data layer between these tools ensures consistency in the EJ and Title VI analysis that informs programs and practices at MassDOT.

MassDOT uses EJSCREEN to evaluate the social, environmental, and economic impacts of highway projects that are outside of the existing right of way (ROW) or that change that nature of a roadway to determine whether the project is Categorical Excluded under the National Environmental Policy Act. MassDOT uses the national EJSCREEN tool for this purpose to ensure alignment with Federal-level definitions of EJ and Title VI.

Next steps and resources

MassDOT is actively examining its equity strategy and ways to make it as consistent as possible while maintaining flexibility where needed. Practitioners can reach out to Liz Williams at liz.williams@dot.state.ma.us for more information about the EJ Map Viewer and equity and EJ at MassDOT.

CalEnviroScreen (California Office of Environmental Health Hazard Assessment)

[CalEnviroScreen](#) evaluates the pollution burden from multiple sources on communities in California, accounting for potential vulnerabilities within specific communities to the adverse impacts of pollution. The tool ranks Census tracts within the State based on potential exposure to pollutants, adverse environmental conditions, socioeconomic factors, and the prevalence of certain health conditions.

How does Caltrans use the CalEnviroScreen for EJ and equity analysis?

The Low-Carbon Transit Operations Program (LCTOP) is a noncompetitive formulaic program within Caltrans that provides operating and capital assistance to transit agencies with the goal of reducing emissions and improving mobility with a specific emphasis on disadvantaged communities. LCTOP uses CalEnviroScreen for its annual allocation requests to ensure the State is meeting investment targets to benefit priority populations. To date, LCTOP has funded 985 projects worth \$601 million. Supported project types include operations projects such as reduced fare transit passes, free summer passes, and expanded night and weekend services; and capital projects such as installation of bus stop shelters and electric charging infrastructure at transit facilities.

Next steps and resources

The next version of CalEnviroScreen (Version 4.0) is expected to be released soon and includes a number of enhancements, including use of the most recent available data, improvements in the calculation of some indicators to better reflect environmental conditions or vulnerability to pollution, and the addition of an indicator related to children's lead risk from housing. Practitioners can access [resources for using CalEnviroScreen](#) or may contact Courtney Williams at Courtney.Williams@dot.ca.gov or lctopcomments@dot.ca.gov.

Transportation Justice Initiative (Wilmington Area Planning Council)

WILMAPCO published its latest report on its approach to EJ and equity analysis in its [2019 Transportation Justice Plan](#). Reflected in this plan are several EJ and equity analyses for the jurisdiction.

How does WILMAPCO apply GIS for EJ and equity analysis?

WILMAPCO defines its **EJ Neighborhoods** based on Census data, school-related data (specifically low-income student data based on free lunch data), and subsidized housing data. This approach accounts for potential discrepancies in Census data, especially for small, rural areas where EJ populations may not be identified based on Census data alone. WILMAPCO also considers Black, Hispanic, and Asian populations separately to ensure that small minority populations are identified. WILMAPCO uses its EJ Neighborhood index for project prioritization; specifically, the organization awards additional points for projects that benefit EJ communities or removes points where projects do not have beneficial impacts on EJ populations. View [WILMAPCO's interactive EJ Neighborhoods map](#).

WILMAPCO analyzes **Residential Concentrations** of minority populations and low-income groups using Census data to inform equity analyses related to things like Transportation Improvement Program (TIP) spending, food deserts, crashes, and project prioritization. For example, WILMAPCO analyzed its TIP spending by unique minority group to identify that TIP spending in Black communities was lower than expected between FY 2002-2018 and made policy changes to project prioritization and public outreach to address the disparity in Black neighborhoods. Conducting analyses specific to separate income and minority groups is instrumental for ensuring a more detailed, nuanced picture of opportunities to expand equity.

WILMAPCO examines a number of other factors related to EJ and equity including food deserts (at the block-group level, accounting for access to supermarket by transit), mobility challenged populations (such as seniors, people with disabilities, and those without car access), LEP and low literacy clusters, urban technology deserts, and social determinants of health. These analyses support WILMAPCO's public outreach strategies and considerations, project prioritization, connectivity analyses, and resource allocation. View [interactive maps related to WILMAPCO's EJ and equity analyses](#).

Next steps and resources

WILMAPCO's [Transportation Justice webpage](#) includes a number of resources, including a video defining Transportation Justice, reports related to EJ and equity, the Transportation Justice interactive map series, and records of meetings and presentations related to the development of the 2019 report. Practitioners can contact Bill Swiatek at bswiatek@wilmapco.org for more information.

Event 4 (October 2021) – Understanding People and Places

The fourth and final Peer Network event featured presentations on three tools: Miami-Dade TPO's Transportation Outreach Planner, FHWA's GIS-Based Proof of Concept for Estimating ROW Preliminary Project Costs, and FHWA's STEAP. The event had 50 total participants, including 14 FHWA Headquarters staff members representing 5 Planning, Environment, and Realty offices, 10 Division Office staff members representing 8 offices, 9 DOT staff members representing 7 DOTs, 13 MPO staff members representing 11 MPOs, and 4 staff members from the Volpe Center.

Transportation Outreach Planner (Miami-Dade Transportation Planning Organization)

Miami-Dade Transportation Planning Organization's [Transportation Outreach Planner](#) is an interactive web-based tool that provides customized demographic reports, community background reports, and public outreach strategies, in addition to supplemental tools that display tourist travel patterns, seal level rise (and the percentage of roadways impacted) and a walk-to-school route planner.

1. **Customized demographic reports** are created through an interactive mapping and reporting tool that extracts demographic information for municipalities, neighborhoods, or Census block groups. Geographies can be compared to Miami-Dade County and to Florida as a whole. The tool displays points of interest (such as community centers and hospitals), which can be used to identify places for public meetings or other community collaboration and outreach events. The Transportation Outreach Planner also includes data layers for LEP, elderly populations, and the Strategic Miami Area Rapid Transit (SMART) Plan.
2. **Community background reports** supplement demographic statistics with historical, social, and economic background information for a municipality or neighborhood. The background reports include an interactive mapping component for the selected communities.
3. **Public outreach strategies** provide best practices sourced from MPOs across the country. Strategies can be filtered by topic (educational, promotional, or civic engagement) or by class (general, innovative, or technology). The tool allows users to calibrate strategies based on time and money constraints.

How does Miami-Dade TPO use the Transportation Outreach Planner for EJ and equity analysis?

In 2016, the Miami-Dade TPO Governing Board passed a resolution establishing transit as the highest priority in Miami-Dade County. Shortly thereafter, the board adopted the SMART Plan that includes six rapid transit corridors complemented by a bus express rapid transit (BERT) network. Planners used the Transportation Outreach Planner, which has a specific layer for the SMART Plan, to designate priority corridors based on poverty rate and racial minority population data. The tool also provided planners with information on ethnicity, foreign-born populations, level of education, disabilities, employment, and means of transportation to work for each of the SMART Plan's corridors; these analyses demonstrate and justify the need for transit development along the corridors and the prioritization of these corridor investments.

Next steps and resources

The Transportation Outreach Planner is undergoing redevelopment and will be re-launched in 2022, including data from the 2020 Census. Practitioners may contact Elizabeth Rockwell at Elizabeth.rockwell@mdtpo.org for more information or download the [Transportation Outreach Planner tutorial](#).

GIS-Based Proof of Concept for Estimating Right-of-Way Preliminary Project Costs (FHWA)

The GIS-based Right-of-Way (ROW) tool is a simple web-based cost estimate tool that is intended to respond to FHWA's observed discrepancies between preliminary and final project ROW costs and ultimately help planners estimate more accurate preliminary ROW costs. The tool is designed to help filter out high-cost alternatives at the project planning phase, provide quick estimates based on real data, supplement capacity-limited ROW staff, and facilitate better collaboration between planning and ROW offices. Cost estimate data generated by the tool can be exported for use in more detailed cost calculators.

How can the GIS-based ROW tool be used for EJ and equity analysis?

In future applications, additional data layers may be added to the tool, including data for property/parcel market values, environmental cost data, demographic data, and design plans. With these added layers, the tool can help planners not only acquire close to final project cost estimates, but also better understand how EJ and equity considerations align with cost options.

Next steps and resources

FHWA launched the GIS-based ROW cost estimator in 2021 as a proof of concept and plans to continue to expand its data layers and analysis capabilities. Practitioners can contact Mark Sarmiento at mark.sarmiento@dot.gov or Peter Clark at peter.clark@dot.gov with additional questions.

Screening Tool for Equity Analysis of Projects (FHWA)

The [Screening Tool for Equity Analysis of Projects](#) (STEAP) is a web-based equity analysis tool for project development. It assists practitioners in identifying a project's potential impact on EJ, Title VI, and populations with limited English proficiency (LEP), and disadvantaged populations defined in [Executive Order 13985](#). The tool provides for rapid screening of specified project locations anywhere in the U.S. and is intended to make buffer analysis simple for non-GIS specialists to expand access to EJ and equity screening capabilities.

How can STEAP be used for EJ and equity analysis?

Users can select specific roadway segments (existing or proposed) of up to 25 miles and specify up to two buffers around the roadway up to three miles in the STEAP interface. The tool generates an equity analysis report (in PDF format) for the selected roadway buffer, which includes:

- Title VI populations: Race, ethnicity, and foreign-born populations
- EJ populations: Minority populations, low-income populations, and poverty by race and age
- LEP
- Other population characteristics: Age and gender, educational attainment, unemployment status, and veteran and disability status
- Household characteristics: Household structure, housing affordability, vehicle ownership, and lack of computer or internet connection

Practitioners can use STEAP in project planning and development to identify disadvantaged populations in the project area and their specific characteristics, evaluate the potential for project impacts on identified populations, assess potential disproportionate impacts, and develop meaningful public outreach plans to engage with impacted populations. This screening process may inform which alternative is ultimately chosen for project development and influence the scope of subsequent EJ and equity analysis.

Next steps and resources

STEAP 2.0 (which is in the planning phase) will include transit stops, stations, and potentially routes, to better reflect and promote multimodal connections. Practitioners may contact Supin Yoder at supin.yoder@dot.gov for more information.

Conclusion

FHWA has a unique opportunity to advance EJ and equity through its administration of the Federal-Aid Highway Program. FHWA is committed to continuous improvement in EJ and equity analyses to inform transportation decision-making at every level.

Capacity building through forums such as this Peer Network series establishes a critical communication channel for information exchange between practitioners and Federal partners. This dialogue helps to ensure that Federal activities are responsive, relevant, and effectively support the ability of transportation practitioners to serve the public and advance community goals.

As a result of this Peer Network series, organizers asked participants what they would like to see from FHWA and Federal partners in future activities. Key findings (provided in detail on pages 5 and 6) are summarized below.

Peer Network series participants expressed interest in FHWA resources in the form of guidance, trainings, webinars, and targeted technical assistance that address:

- ***Aligning and expanding equity concepts.*** Developing definitions of EJ and equity and supporting the alignment of concepts and definitions across levels of government.
- ***Developing local quantitative and qualitative data to better understand communities.*** Supplementing National level data with more in-depth insights at the local level through partnerships, surveys, and leveraging transportation planning applications of data developed for other purposes such as data related to housing or transit rider surveys.
- ***Achieving goals through collaboration and partnerships.*** Attendees emphasized the critical role of partnerships in establishing and achieving progress toward meaningful EJ and equity goals. It is key to understand how transportation development can directly and indirectly (through loss of affordability for residents and businesses) lead to displacement in low-income and minority communities. It is equally key to address that issue proactively through establishing partnerships to ensure transportation investment is accompanied by affordability measures like housing programs and other policies that combat displacement for residents and businesses and further elevate equity goals.
- ***Establishing incentives.*** Attendees encouraged a greater role for DOT in centralizing data and analytical resources to ease agencies' financial burdens and standardize EJ and equity data, analysis, and definitions across levels of government. Attendees expressed an interest in Federal incentives (such as reductions in cost match requirements or assigning bonus points to discretionary grant applications) to encourage the robust inclusion of equity and EJ in planning and projects, grant applications, and institutional processes.
- ***Advancing equity culture and processes.*** Practitioners shared that while analysis of equity and EJ impacts is standard practice, there is renewed interest and commitment to growing and maturing these practices. One example is improving methods to estimate benefits for project evaluation and decision making. Attendees expressed a need for future FHWA Peer Network resources to further elucidate processes to estimate, calculate, and monitor the delivery of benefits over time.
- ***Seizing opportunities for improvement.*** Practitioners identified the need for transportation agencies to monitor their effectiveness in delivering more equitable outcomes over time.

Practitioner insights from this Peer Network series will provide valuable insight to inform FHWA's approach to technical assistance and capacity building for EJ and equity. Specifically, FHWA will:

- Facilitate additional peer-to-peer dialogue opportunities and continue to engage Peer Network attendees in the future. In April 2022, FHWA will host a workshop at the AASHTO GIS-Transportation Symposium, “Elevating Equity through Spatial Analysis and Visualization.” This Peer Network informed the planning and design of the workshop, which will provide another opportunity for practitioners to engage in exchange on topics around equity in data, analysis, and visualization.
- Identify research gaps and priorities through DOT’s Transportation Equity Data Request for Information and related efforts.
- Include equity as a priority area in discretionary grant evaluation criteria and in the implementation of other components of the Bipartisan Infrastructure Law.
- Centralize and share, to the extent possible, data and analytical resources and continue to refine FHWA tools such as those highlighted through this series.

Looking ahead, FHWA commits to seeking out opportunities to integrate and apply learning developed through this 2021 FHWA Environmental Justice and Equity Screening Tools Peer Network Series and related activities.

Appendix A: Peer Network Event Agendas

FHWA Environmental Justice (EJ) and Equity Screening Tools Peer Network Event #1: FHWA Tools Thursday, July 15, 3:00-4:30 p.m. ET	
TIME	PRESENTATION
10 minutes	Overview of Peer Network and FHWA EJ Resources — Fleming El-Amin, FHWA Office of Human Environment
15 minutes	Infrastructure Voluntary Evaluation Sustainability Tool (INVEST) — Connie Hill, FHWA Office of Natural Environment
15 minutes	PlanWorks — Reena Mathews, FHWA Office of Planning
15 minutes	HEPGIS — Supin Yoder, FHWA Office of Planning
30 minutes	Q&A and Discussion — All participants, facilitated by the U.S. DOT Volpe Center
5 minutes	Wrap up and Next Steps — Fleming El-Amin, FHWA Office of Human Environment

FHWA Environmental Justice (EJ) and Equity Screening Tools Peer Network Event #2: Federal Tools Tuesday, August 10, 1:00-2:30 p.m. ET	
TIME	PRESENTATION
10 minutes	Introduction and Overview of Peer Network — Kim Higgins, U.S. DOT Volpe Center
20 minutes	Census Transportation Planning Products (CTPP) — Joe Hausman, FHWA Office of Planning
20 minutes	EJSCREEN — Tai Lung, EPA Office of Environmental Justice
20 minutes	U.S. Census Data Tools — Ryan Ricciardi, U.S. Census Bureau, ACSO Outreach and Education Branch
15 minutes	Q&A and Discussion — All participants, facilitated by the U.S. DOT Volpe Center

5 minutes	Wrap up and Next Steps — Fleming El-Amin, FHWA Office of Human Environment
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FHWA Environmental Justice (EJ) and Equity Screening Tools Peer Network Event #3: DOT and MPO Tools Tuesday, September 21, 12:30-2:00 p.m. ET	
TIME	PRESENTATION
10 minutes	Introduction and Overview of Peer Network — Kim Higgins, U.S. DOT Volpe Center
15 minutes	MassDOT: Environmental Justice Map Viewer — Liz Williams, Ph.D., Director of Data and Policy
15 minutes	Caltrans: CalEnviroScreen — Jackie Tse, Associate Transportation Planner
15 minutes	WILMAPCO: Transportation Justice Initiative — Bill Swiatek, AICP, Principal Planner
30 minutes	Q&A and Discussion — All participants, facilitated by the U.S. DOT Volpe Center
5 minutes	Wrap up and Next Steps — Fleming El-Amin, FHWA Office of Human Environment

FHWA Environmental Justice (EJ) and Equity Screening Tools Peer Network Event #4: Understanding People & Place Tuesday, October 26, 2:30-4:00 p.m. ET	
TIME	PRESENTATION
10 minutes	Introduction and Overview of Peer Network — Kim Higgins, U.S. DOT Volpe Center
15 minutes	Miami-Dade Transportation Planning Organization: Transportation Outreach Planner Tool <i>The Transportation Outreach Planner tool can be used to develop effective public involvement programs incorporating community considerations into the planning and development of transportation plans, programs, and projects.</i> — Elizabeth Rockwell, Chief Communications Officer
15 minutes	FHWA: GIS-Based Proof of Concept for Estimating Right-of-Way Preliminary Project Costs

	<p><i>This tool demonstrates how a web-based GIS application can be used to bring together existing datasets to calculate better preliminary project right-of-way costs for potential highway projects.</i></p> <ul style="list-style-type: none"> — Mark Sarmiento, Office of Planning — Peter Clark, Office of Realty
15 minutes	<p>FHWA: Screening Tool for Equity Analysis of Projects (STEAP) <i>STEAP is an extension of FHWA's HEPGIS web application that permits rapid screening of potential project locations anywhere in the United States to support Title VI, EJ & other socioeconomic data analyses.</i></p> <ul style="list-style-type: none"> — Supin Yoder, Office of Planning
25 minutes	<p>Small Group Discussions</p> <ul style="list-style-type: none"> — All participants, facilitated by FHWA and the U.S. DOT Volpe Center <p><i>Suggested discussion questions</i></p> <ol style="list-style-type: none"> 1. Briefly introduce yourself and your role at your organization. 2. How would you describe your organization's equity culture? 3. What tools and methods does your organization use for EJ and equity analysis? 4. Where do you see the greatest opportunity to advance equity in your work? 5. What are 1-2 take-aways from the Peer Network and how might you put this learning to use? 6. What are your organization's greatest priorities related to EJ and equity analysis and how might Federal partners best support that work?
5 minutes	<p>Full Group Lightning Debrief: "What comes next?" post-it exercise <i>The goal of this session is to capture as many ideas, reflections, and aspirations as possible from attendees for FHWA to consider in formatting future programming.</i></p> <ul style="list-style-type: none"> — All participants, facilitated by the U.S. DOT Volpe Center <p><i>Suggested questions</i></p> <ol style="list-style-type: none"> 1. What worked well? 2. What could we do better? 3. What would you like to see in future programming?
5 minutes	<p>Thank You and Peer Network Closing</p> <ul style="list-style-type: none"> — Fleming El-Amin, FHWA Office of Human Environment

Appendix B: List of Participant Organizations

Organization Type	Office or Agency
FHWA Headquarters	<ul style="list-style-type: none"> • Office of Human Environment • Office of Natural Environment • Office of Planning • Office of Project Development and Environmental Review • Office of Realty
FHWA Division Office	<ul style="list-style-type: none"> • California • Delaware • Florida • Georgia • Maryland • Massachusetts • Minnesota • Nevada • New Jersey • New York • Pennsylvania • Tennessee • Texas • Virginia • Washington
Metropolitan or Regional Planning Organization	<ul style="list-style-type: none"> • Atlanta Regional Council • Baltimore Metropolitan Council • Capital District Transportation Committee • Central Massachusetts Regional Planning Commission • Grand Forks Metropolitan Planning Organization • Metropolitan Council of the Twin Cities • Miami-Dade Transportation Planning Organization • Miami Valley Regional Planning Commission • Mid-Ohio Regional Planning Commission • Minnesota Metropolitan Council • Montachusett Regional Planning Commission • North Central Texas Council of Governments • Pinellas County Metropolitan Planning Organization • Southeast Regional Planning and Economic Development District • Wilmington Area Planning Council
State DOT	<ul style="list-style-type: none"> • California • Illinois • Massachusetts • Nevada

	<ul style="list-style-type: none">• New Jersey• North Carolina• Ohio• Tennessee• Virginia• Washington
Other Federal Agency	<ul style="list-style-type: none">• Environmental Protection Agency• U.S. Census Bureau

Appendix C: List of EJ and Equity Resources

- [AASHTO's Environmental Justice Community of Practice](#)
- [Accessible Shared Streets: Notable Practices and Considerations for Accommodating Pedestrians with Vision Disabilities](#)
- [Addressing Changing Demographics in Environmental Justice Analysis, State of the Practice](#)
- [Annual Right-of-Way Statistics for residential and non-residential acquisition and relocation information](#)
- [Community Connections Handbook](#)
- [Community Impact Assessment Guidebook](#)
- [Database of Transit Survey Data \(CATPAD\)](#)
- [Developing and Advancing Effective Public Involvement and Environmental Justice Strategies for Rural and Small Communities](#)
- [Environmental Justice Analysis in Transportation Planning and Programming, State of the Practice](#)
- [Equity Analysis in Regional Transportation Planning Processes, Volume 1: Guide](#)
- [Equity Analysis in Regional Transportation Planning Processes, Volume 2: Research Overview](#)
- [Every Place Counts Leadership Academy Transportation Toolkit](#)
- [FHWA Human Environment Digest](#)
- [GIS and Equity Peer Exchange \(June 22-23, 2021\)](#)
- [Guidebook for Communication between Transportation and Public Health Communities](#)
- [Health in Transportation Corridor Planning Framework](#)
- [Impacts of Congestion Pricing on Low-Income Populations: Efforts to Measure and Respond to Income Equity Concerns](#)
- [Iowa DOT Project Information Management Application \(PIMA\) Peer Exchange \(August 17, 2021\)](#)
- [Mixed-Income Transit-Oriented Development Action Guide](#)
- [Pursuing Equity in Pedestrian and Bicycle Planning White Paper](#)
- [Social Equity Research Snapshot](#)
- [Travel Behavior and Transportation Equity](#)
- [Virtual Public Involvement: Tools, Techniques, and Examples](#)