

Whitepaper: Transportation Equity

Prepared by Transport Energy Strategies



Overview

The Transportation Energy Institute (TEI) has commenced a study of transportation equity (TE) issues that exist in rural, tribal and urban communities, in particular, looking at how to reduce “energy burdens” on these communities. The ultimate question is how to transition to cleaner transportation options while reducing socioeconomic gaps within the U.S. TEI has formed a working group to explore these issues and to consider whether TEI ought to consider funding a more extensive study to more deeply examine the issues. Transportation equity is an issue that deserves an in-depth explanation. We will address that below.

In summary, there is a lot of history and expertise developed on the topic of equity at the federal, state and local levels (though this whitepaper focuses on federal efforts). Moreover, the Biden Administration has made equity, including TE, a major policy priority (see Inflation Reduction Act), including the development of data and tools to better assess disadvantaged communities (DACs) so that they can be better served. When it comes to personal mobility, most recent TE efforts have focused squarely on electrification.

Other fuel/vehicle combinations, especially those linked to fossil fuels, have not been included in equity efforts and this may be problematic because, for example, rural and tribal drivers will likely depend upon internal combustion engine vehicles (ICEVs) and conventional fuels for the foreseeable future. Are there wider, more diverse ways to achieve the TE goals of the Administration that achieve the same objectives (i.e. reduce energy burdens as well as emissions)? Are existing TE efforts for electrification sufficient? These are two of the questions that could be explored further.

This whitepaper first describes what TE is and how states/federal government have approached TE in transportation planning. It then discusses TE in the context of the Administration’s Justice40 activities, and how equity has been considered in the rollout of the National Electric Vehicle Infrastructure (NEVI) Formula Program. The whitepaper concludes with suggested questions and gaps that could be the subject for further research.

The Historical Roots of Transportation Equity: Environmental Justice

TE is rooted in the environmental justice (EJ) movement, which is generally thought to have roots in the early 1980s with a protest in the black community over PCB contamination in Warren County, North Carolina.[1] This ultimately led to greater awareness of disproportionate impacts to people of color who lived in economically disadvantaged communities, and the mobilization of these communities to protest nationwide. In 1992, EJ activities around the country led to a call by President George Bush Sr. for the establishment of an Environmental Equity Working Group, headed by EPA Administrator William Reilly, and the initiation of federally sponsored meetings on EJ with community leaders to seek solutions.

President Bill Clinton carried on that work, issuing Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.[2] The executive order directed the federal government to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” It underscored the importance of using existing laws – including the National Environmental Policy Act of 1969 (NEPA), Title VI of the Civil Rights Act of 1964 (Title VI), and the Age Discrimination Act of 1975 – to implement EJ initiatives. However, EJ was never officially defined in the executive order.[3] The Biden Administration updated the executive order in April 2023 and defined EJ as the:

“just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people (i) are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and (ii) have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.”[4]

[1] U.S. Department of Energy, Office of Legacy Management, Environmental Justice History at <https://www.energy.gov/lm/environmental-justice-history> (last accessed Sept. 18, 2023).

[2] Executive Order 12898 of February 11, 1994 Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations available at <https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf>.

[3] Harvard University, Environmental & Energy Law Program, Federal Environmental Justice Tracker at <https://eelp.law.harvard.edu/ejtracker/> (last accessed Sept. 18, 2023).

[4] The White House, Executive Order on Revitalizing Our Nation’s Commitment to Environmental Justice for All, Apr. 21, 2023 at <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/04/21/executive-order-on-revitalizing-our-nations-commitment-to-environmental-justice-for-all/>.

The Environmental Protection Agency (EPA) chairs an interagency working group (IWG), including tribal nations, on the implementation of EJ efforts. To track strategy accomplishments, each federal agency on the EJ IWG creates Annual Implementation Progress Reports for submission to EPA. The Progress Reports assess major milestones accomplished [5] and facilitate agency assessment to continue to develop methods and mechanisms for strengthening environmental justice efforts. Multiple transportation related federal agencies are responsible for EJ progress. Strategies for each were last updated before the closure of the Obama Administration.[6]

Transportation Equity & the Biden Administration

In his first week in office, President Biden set EJ priorities through executive order affecting the distribution of federal funds, set agency regulatory and enforcement priorities, created new advisory bodies and agency offices, and set international policy. This included establishing the Justice40 Initiative, requiring all federal agencies to issue equity plans, and requiring EPA and the Department of Justice (DOJ) to establish a comprehensive EJ enforcement strategy.[5] In addition, for the first time, the Biden Administration defined the term equity under Executive Order 13985:

“The term ‘equity’ means the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.”[7]

According to DOT, equity in transportation:

“[S]eeks fairness in mobility and accessibility to meet the needs of all community members. A central goal of transportation is to facilitate social and economic opportunities by providing equitable levels of access to affordable and reliable transportation options based on the needs of the populations being served, particularly populations that are traditionally underserved.”[6]

[5] Harvard University, Environmental & Energy Law Program, Environmental Justice and Equity <https://eelp.law.harvard.edu/2022/09/environmental-justice-equity/> (last updated Sept. 26, 2022).

[6] Federal Highway Administration, Federal Transit Administration, Equity in Transportation at https://www.planning.dot.gov/planning/topic_transportationequity.aspx (last accessed Sept. 18, 2023).

[7] The White House, Executive Order 13985 on Further Advancing Racial Equity and Support for Underserved Communities Through The Federal Government, Feb. 16, 2023 at <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/02/16/executive-order-on-further-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/>.

The Justice40 Initiative is designed to direct significant federal investments to communities with a history of disinvestment or discrimination, or that bear a disproportionate share of environmental and climate change-related burdens. Specifically, President Biden’s Executive Order 14008 required the Council on Environmental Quality (CEQ) and other agencies to issue recommendations within 120 days on how to direct certain Federal investments such that “40 percent of the overall benefits flow to disadvantaged communities.”[8] While the order did not define “benefits,” it named as examples clean energy investments, transit, affordable and sustainable housing, training and workforce development, remediation and reduction of legacy pollution, and clean water infrastructure. It also did not define “disadvantaged communities,” leaving it to the agencies.

Some agencies, including DOE and DOT, have developed their own interim definitions to account for specific equity burdens. For example, DOT’s definition accounts for walkability, transportation burden, traffic proximity, and private vehicle access.[9] It includes data for 22 indicators collected at the census tract level and grouped into six (6) categories of transportation disadvantage that include the following:

- Transportation access disadvantage identifies communities and places that spend more, and take longer, to get where they need to go.
- Health disadvantage identifies communities based on variables associated with adverse health outcomes, disability, as well as environmental exposures.
- Environmental disadvantage identifies communities with disproportionately high levels of certain air pollutants and high potential presence of lead-based paint in housing units.
- Economic disadvantage identifies areas and populations with high poverty, low wealth, lack of local jobs, low homeownership, low educational attainment, and high inequality.
- Resilience disadvantage identifies communities vulnerable to hazards caused by climate change.
- Equity disadvantage identifies communities with a high percentile of persons (age 5+) who speak English "less than well." [10]

DOE’s definition looks at fossil fuel dependence and energy burden and includes the top 20 percent of census tracts in each state to ensure each state is represented.[11]

[8] The White House, Executive Order 14008 on Tackling the Climate Crisis at Home and Abroad, Jan. 27, 2021 at <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>.

[9] See Department of Transportation, Justice40 Initiative at <https://www.transportation.gov/equity-Justice40> (last accessed Sept. 18, 2023) (hereinafter “DOT Justice40”).

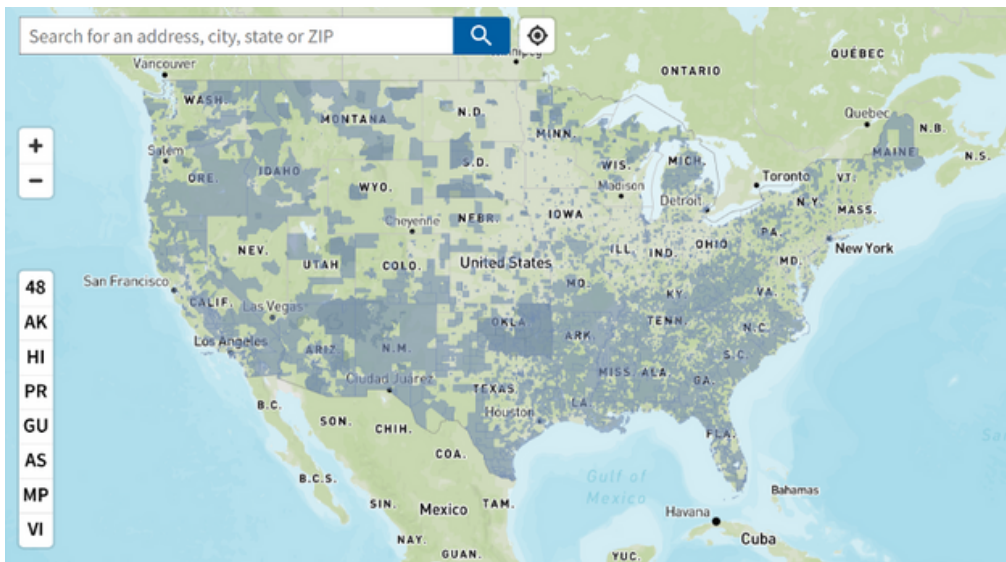
[10] U.S. Department of Transportation, Transportation Disadvantaged Census Tracts (Historically Disadvantaged Communities) Interim Definition Methodology at <https://www.transportation.gov/priorities/equity/justice40/transportation-disadvantaged-census-tracts-historically-disadvantaged> (last updated Apr. 27, 2023).

[11] See Department of Energy, Justice40 Initiative at <https://www.energy.gov/diversity/justice40-initiative> (last accessed Sept. 18, 2023).

New Tools to Better Identify DACs for TE Purposes

New tools have been developed under Justice40 to better identify DACs, driven by executive order. Under Executive Order 14008, the Climate and Economic Justice Screening Tool (CEJST) was created to identify and define DACs that are marginalized, underserved, and overburdened by pollution for the purposes of Justice40 Initiative.[12] The tool has an interactive map and uses datasets that are indicators of burdens in eight categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. A reproduction is shown in Figure 1. DACs are shown in gray.

Figure 1: CEQ's CEJST Tool



Source: CEQ, 2022

There are other tools that have been developed as well, specifically for TE. DOT's **Equitable Transportation Community (ETC) Explorer** is an interactive web application that uses 2020 Census Tracts and data to explore the cumulative burden communities experience as a result of underinvestment in transportation systems in the following five components: transportation insecurity, climate and disaster risk burden, environmental burden, health vulnerability, and social vulnerability.[13] It is designed to complement the CEJST by providing users deeper insight into the transportation disadvantage component of CEJS. Its **Transportation Disadvantaged Census Tracts** tool is an option for determining whether a community is economically disadvantaged. It uses six transportation disadvantaged indicators including health, environmental, economic, resilience, equity and transportation access in assessing disadvantage.

[12] Council on Environmental Quality, Climate and Economic Justice Screening Tool: Frequently Asked Questions, February 2022 at <https://www.whitehouse.gov/wp-content/uploads/2022/02/CEQ-CEJST-QandA.pdf>.

[13] Department of Transportation, USDOT Equitable Transportation Community (ETC) Explorer at <https://experience.arcgis.com/experience/0920984aa80a4362b8778d779b090723/page/Homepage/> (last accessed Sept. 18, 2023).

The Federal Highway Administration (FHWA) has developed a **Planning and Equity Tool** that enables transportation agency users to view their transportation improvement program (TIP) projects with available national, equity-related data sets.[14] The tool is primarily targeted towards users from transportation agencies that are considering equity in their planning. The **Screening Tool for Equity Analysis of Projects (STEAP)** is a GIS project-level screening tool where states and metropolitan planning organizations (MPOs) can assess data layers that include race, color, and national origin using data from the U.S. Census Bureau’s American Community Survey.

It provides project sponsors with the capability to screen their projects for potential Title VI covered populations (EJ communities) prior to the start of the NEPA process, inform project sponsors of affected populations in their study area, and determine early ways to avoid or mitigate potential impacts to those populations. The **HEPGIS tool**, a tool that existed prior to the current Administration, now includes project equity data. It also includes designated alternative fuel corridors for electric vehicles (EVs), compressed natural gas (CNG), liquefied petroleum gas (LPG), liquefied natural gas (LNG) and hydrogen.[15] States and MPOs use HEPGIS for planning purposes and to comply with Title VI and federal EJ requirements.

EJScreen is EPA's existing EJ mapping and screening tool that provides the Agency with a nationally consistent dataset and approach for combining 13 environmental and seven demographic socioeconomic indicators for geographic areas.[16] Environmental indicators include particulate matter (PM), ozone, diesel PM, air toxins and traffic proximity, among others. Demographic socioeconomic indicators include people of color, low income, unemployment rate, limited English speaking, less than high school education, under the age of 5 or over the age of 64.

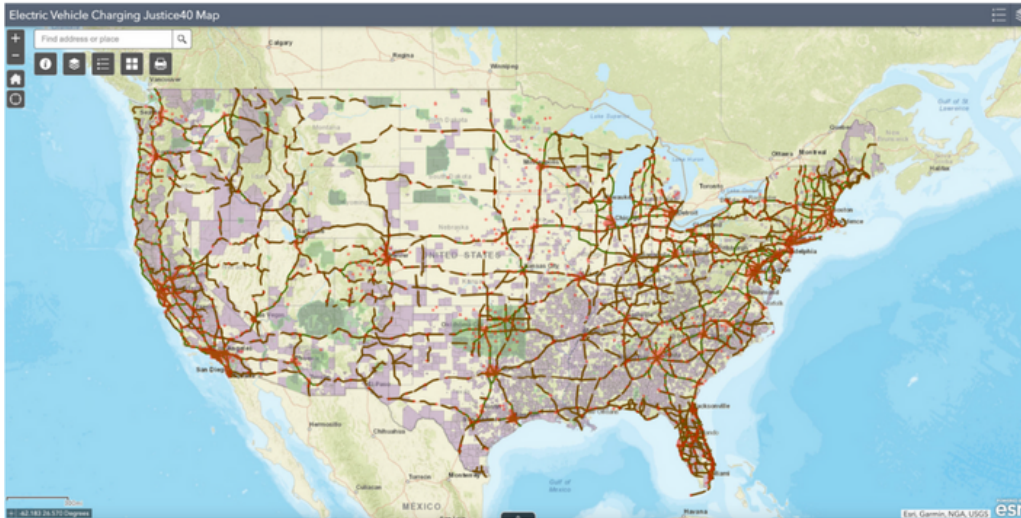
With respect to implementing the National Electric Vehicle Infrastructure (NEVI) program, DOT and DOE through Argonne National Laboratory developed an **EV Charging Justice40 Mapping Tool**, shown in Figure 2, that overlays alternative fuel corridors and DACs.

[14] Federal Highway Administration, Planning and Equity Tool, <https://plan-equity-tool-usdot.hub.arcgis.com/> (last accessed Sept. 18, 2023).

[15] HEPGIS at <https://hepgis.fhwa.dot.gov/fhwagis/#>

[16] Environmental Protection Agency, What is EJScreen? at <https://www.epa.gov/ejscreen/what-ejscreen> (last updated June 26, 2023).

Figure 2: EV Charging Justice40 Mapping Tool



Source: Argonne National Laboratory

In short, the equity initiatives deployed under the Biden Administration emphasize the use of data, mapping and analysis to more precisely identify DACs so that those communities can be better identified, understood and engaged, and so that federal funding, projects and assistance reach those communities more effectively. In the TE context, these tools are also meant to help states and MPOs do the same as they conduct transportation planning.

Electric Vehicles as a Focus for TE

The concept of equity has become part of the broader conversation around the scale up of EVs nationwide. Although the secondary/used and more affordable EV market is beginning to slowly develop, many in DACs view EVs as an unaffordable means of practical transportation, compounded by a lack of EV charging infrastructure. This appears to be true even in more well-developed markets like California.[17] The Natural Resources Defense Council (NRDC) has noted:

“Currently, most of the nation’s public chargers remain clustered in areas where wealthy, predominantly white, early EV adopters live. That’s not altogether surprising, given charging station developers went where there was demand. But this has also created areas with little to no public charging access that often fall along racial and socioeconomic lines.”[18]

[1] See e.g., Berkeley Law, *Driving Equity: Policy Solutions to Accelerate Electric Vehicle Adoption in Lower-Income Communities*, May 2022 at <https://www.law.berkeley.edu/wp-content/uploads/2022/04/Driving-Equity-May-2022.pdf>. “Even with significant state rebates and lower total ownership costs driven by cheaper fueling and maintenance, new electric vehicles often are out of reach for lower-income residents. Lower-income Californians are less likely to have access to the capital necessary to buy new electric vehicles (with higher upfront costs than conventional vehicles), as well as access to charging stations and information on zero-emission vehicle benefits and incentive programs.”

[1] See also Courtney Lindwall, Natural Resources Defense Council (NRDC), *Making Electric Vehicle Charging More Equitable Is Key to Our Clean Vehicle Future*, May 23, 2023 at <https://www.nrdc.org/stories/making-electric-vehicle-charging-more-equitable-key-our-clean-vehicle-future> (hereafter “NRDC Article”).

[1] See NRDC Article.

Initial research shows that EVs (or zero emission vehicles (ZEVs)) are viewed as a primary solution for achieving TE in the personal mobility space. To date, alternative powertrains (e.g., hybrids) and fuels (including low carbon and e-Fuels) have not been part of the TE conversation. In fact, the reverse is true: They are not viewed as a potential solution at all because of their connection to fossil fuels which contribute to climate change, air pollution and adverse public health. The NRDC notes:

“For some, a lack of charger access may hinder EV adoption. And, ultimately, all residents in those communities end up missing out on several important EV-related benefits—namely cleaner air and better health. That’s because these are often the same people who live in high-traffic and industrial areas with the highest levels of harmful tailpipe and fossil fuel pollution. Chronic exposure to such pollutants can have devastating effects on health, from asthma to a heightened cancer risk to premature death.

This is why advocates emphasize that replacing gas- and diesel-powered vehicles with cleaner electric ones must go hand in hand with equitably deploying EV charging infrastructure. And the communities that have been most harmed by the current transportation system must be included in the shaping of related policies and investments.”[19]

The focus of the Biden Administration’s TE efforts for personal mobility thus has been to ensure that as the EV market scales up, the adoption trend becomes expansive and more inclusive. The mechanism for doing this was through the Infrastructure Investment and Jobs Act (IIJA) which created the NEVI program. NEVI will direct \$5 billion over the next five years to help build 500,000 EV chargers across the country, particularly along national highways, by 2030.[20] States were required to submit implementation plans to DOT that were required to address equity. Complimenting the NEVI program is the Charging and Fueling Infrastructure Discretionary Grant Program (CFI) which offers an additional \$2.5 billion, competitively, for EV charging, hydrogen, propane, and natural gas fueling infrastructure. The CFI program is generally recognized as a tool to reach rural and underserved communities that may be overlooked under the NEVI program which is primarily focused on corridor charging.

All state plans, for the NEVI program, have been approved with \$615 million distributed to the states in 2022 and \$885 million in 2023.[21] How did states address equity for DACs in these plans, particularly for those in rural, tribal and urban areas? A few states that were surveyed used Argonne’s EV Charging Justice40 Mapping Tool to identify DACs, providing a map or table of those areas in their submission along with commitments to engage those communities as charging sites begin to be selected. Applicants under the CFI program are required to submit an

[19] See NRDC Article.

[20] Federal Highway Administration, National Electric Vehicle Infrastructure Formula Program, Feb. 10, 2022 at https://www.fhwa.dot.gov/bipartisan-infrastructure-law/nevi_formula_program.cfm.

[21] See Joint Office of Energy and Transportation, State Plans for Electric Vehicle Charging, <https://driveelectric.gov/state-plans/> (last accessed Sept. 18, 2023).

assessment using the DOE/Argonne mapping tool. Are the TE efforts sufficient for DACs to really receive the benefits intended under Justice40 and NEVI and CFI? It is not clear, but it is still early in the development process.

Next Steps

The initial concept behind the TEI working group and whitepaper was to investigate major barriers to cleaner transportation options in DACs. This is beginning to be done by the Administration through its equity efforts, but again, the focus has generally been on electrification. In many areas, electrification may not reduce the overall energy burden for DACs in the near future. The issue of equity could benefit from a study that more fully addresses the barriers and costs to cleaner transportation options in DACs, focusing on rural, tribal and urban areas and perhaps selecting representative DACs in these three areas for further study. Such a study could include the transportation needs, uses and burdens for these DACs, along with air quality and other equity-related criteria noted above. It could look at existing and planned EV infrastructure in these areas, community improvements through new amenities, as well as existing low carbon fuel infrastructure, ultra-low carbon fuel conversions for existing vehicles, the current fuels distribution logistics and supply chain, as well as safety training demands by first responders, related costs and environmental health considerations related to path options addressing TE.

With each potential next step, perspective from representatives of DACs is critical. Further, state-level DAC engagements should be assessed as to whether or not all community outreach is occurring in rural, tribal, and urban communities.

About TEI

The Transportation Energy Institute is a non-advocacy research organization dedicated to studying transportation energy. We are the most diverse organization in the fuels and vehicles markets, creating a place in which stakeholders of all persuasions can come together to collaborate, share perspectives and commission objective research analyzing the challenges and opportunities facing the market.

<https://www.transportationenergy.org/>

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