

Caltrans Transportation Equity Index (EQI)

Version 1.0 Response to Major Comment Themes

EQI Methodology

Demographic Overlay

How are Tribal lands accounted for in the EQI?

The EQI's demographic overlay includes federally recognized Tribal lands in California. All Census blocks that intersect or are contained within a federally recognized Tribal land are screened into the demographic overlay by default, regardless of income or population status. If a California Native American Tribe, listed with the California Native American Heritage Commission, has established that a particular area of land is under its control, it should contact the Caltrans EQI development team regarding inclusion in the EQI demographic overlay.

Does the EQI consider race and ethnicity?

The three EQI screens do not include race and ethnicity indicators. However, a separate web-based tool is being developed which will include the EQI data, along with additional datasets such as race and ethnicity. Unlike the EQI itself, this tool will be intended for analysis purposes only, not for the determination of funding.

Traffic Exposure Screen

Are sensitive receptors accounted for in the Traffic Exposure Screen?

The Traffic Exposure Screen doesn't explicitly account for---or weight by---sensitive receptors. The screen simply identifies Census blocks that meet the demographic overlay criteria (low-income and or Tribal land) and are also highly burdened by either traffic proximity and volume and or crash exposure. Future versions of the EQI may take these suggested factors into account.

Why is crash exposure not measured as a rate?

The EQI uses a spatial density approach to crash analysis instead of a rate for two primary reasons:

1. First, while crash rates are a widely used metric, they can be misleading when measuring progress over time. If driving (or other modal activity) increases and crashes remain constant or increase to a lesser degree, the crash rate would decrease. The EQI is focused on the decrease in total number of crashes, and ultimately, the elimination of all crashes in vulnerable communities.
2. Secondly, the EQI measures transportation outcomes on the Census block level, not for individual transportation facilities. Since the EQI crash exposure data includes bike and ped crashes in addition to auto-only crashes, a rate-based metric would need to account for multiple modes. Given the difficulty of

measuring activity for all modes on a granular scale, it was decided not to utilize a rate-based metric for EQI.

Several comments were received expressing concern that areas with large Census blocks would be disadvantaged under this metric and that a rate-based metric should be used. The EQI team will explore ways to address this concern for EQI version 2.0.

Access to Destinations Screen

Why are some geographies that lack access to basic services excluded from this screen?

The Access to Destinations Screen is designed to identify access barriers that are attributable to the transportation system. For example, a small rural downtown may have a limited, but dense concentration of destinations, with a low-stress street network connecting these destinations. However, some essential services, such as specialized medical care, may not be available in that area and could take hours to get to. While this is both an equity issue and an access gap, it is more so a land use and economics issue since most transportation investments wouldn't address the underlying problem. The EQI team will explore ways to represent the lack of destinations and improve the performance of the tool in less-destination dense areas over time.

Why doesn't the EQI Access to Destinations Screen disaggregate by destination type?

The EQI's access to destinations indicators differentiate between work and non-work destinations, but don't disaggregate within these two broad categories. While data are available to provide access to destinations figures by specific destination and job type, the EQI screens are intended to be narrowly focused and easy to use. A separate tool is being developed for analysis purposes, which will include additional non-EQI indicators. This tool may include access to destinations indicators broken out by destination and job type.

Does the EQI Access to Destinations Screen account for population density?

The EQI Access to Destinations Screen evaluates access to destinations for Census blocks, but the screen doesn't explicitly account for how many people live in a given Census block. Only Census blocks that are either low-income and or touch a federally recognized Tribal land are screened if multimodal access-to-destinations is poor. Ultimately, the EQI is intended to identify communities where access to destinations is lacking, and other methods, such as the draft Caltrans System Investment Strategy (CSIS) access-to-destinations-derived metrics are used to analyze how effective a given project would be at improving access to destinations. These metrics calculate both percent and average change in accessibility due to the project and weight the results by population density, including disadvantaged community population density.

Transportation-Based Priority Populations Screen

Why are certain areas screened as 'disadvantaged' in other tools (such as CalEnviroScreen) and not screened as transportation-based priority populations in the EQI?

When evaluating the coverage differences between the EQI and other tools, it is important to consider the distinct indicators and spatial granularity. Many other tools focus on equity more broadly and include various indicators that are not directly related to transportation, whereas the EQI includes transportation-specific indicators. Furthermore, many other tools use Census tracts, whereas the EQI quantifies impacts at the Census block level. While a Census tract could meet the threshold of significance for an indicator, conditions within Census tracts vary widely, especially in larger areas. Census blocks better capture these granular, neighborhood-scale transportation impacts. As a result, the EQI identifies transportation-based priority populations that are distinct from the disadvantaged geographies identified by other tools.

Additional Indicators

Why aren't additional indicators included in the EQI? Suggested indicators included:

- **Climate adaptation priorities**
- **Non-transportation environmental indicators (e.g., total max daily load water pollutants)**
- **CalEnviroScreen indicators (e.g., air quality)**
- **Other demographic data (e.g., gender, language, disability)**

The EQI methodology was designed to be simple and include a limited set of indicators that 1) can be measured granularly (neighborhood-scale), 2) are spatially significant, and 3) have a direct nexus with transportation. Many indicators, while potentially relevant to the EQI, are only available at the Census tract, Zip code, or City/County level. More granular data is needed since transportation projects create granular benefits and burdens. Other indicators such as disability or gender have a somewhat uniform spatial distribution throughout the state and or their spatial distribution is less informed by the state's transportation network than other indicators such as income. Although a limited set of indicators is used for version 1.0 of the EQI, additional indicators may be developed and included in future versions of the EQI if appropriate data are available.

Population Weighting

The EQI screens don't consider how many people live in screened areas. Will the tool take this into account?

The EQI measures the degree to which certain geographies are burdened and or benefitted by the transportation system. Screened geographies must meet demographic and socioeconomic criteria, so in theory they only include populated areas. However, Census block groups—the most granular geographic unit at which this demographic and socioeconomic data are available—can be large in some areas and include uninhabited land. The EQI includes block-level population estimates from

the 2020 Census, which allows inhabited and non-inhabited areas to be identified within an EQI screen. While the EQI screens themselves don't directly weight for population, this type of weighting may be considered in future applications of the EQI where it is used to directly analyze projects.

Non-Captured Geographies

Why does the EQI not capture certain geographies that would seem intuitively disadvantaged and appear in other equity screening tools?

The EQI aims to identify communities that are specifically transportation disadvantaged, unlike other tools that measure broader disadvantage or environmental justice issues. Furthermore, many local entities have their own definitions of disadvantaged communities based on localized issues and conditions. With these differences in mind, the EQI offers a transportation-specific, statewide definition of transportation-based priority populations.

The EQI is not intended to replace other statewide tools such as CalEnviroScreen or local definitions for disadvantaged communities.

Web Mapping Tool

Can the EQI include additional datasets, such as demographics from the Census?

The EQI web map is intended to show the three EQI screens and underlying indicators. However, a separate tool is being developed which will place the EQI screens and indicators in a broader context of datasets, including commonly used demographic indicators. This tool will be for analysis purposes only.

Use Cases

How will the EQI be used?

Currently, the EQI is being piloted in the Caltrans System Investment Strategy (CSIS) to measure access to destinations and traffic impacts for Disadvantaged Communities (DACs). Several other programmatic-specific use cases are also under development within Caltrans.

Will EQI replace other tools such as CalEnviroScreen?

No. The EQI is a distinct tool and is not intended to replace CalEnviroScreen. The EQI is designed to narrowly analyze transportation-related equity issues, whereas CalEnviroScreen is designed to evaluate environmental justice issues more broadly. For many use cases, CalEnviroScreen will still be the appropriate tool to use. In other cases, the EQI will be a more appropriate tool to use if the use case involves certain transportation-specific issues. It may also be appropriate to use both tools for certain applications.

The EQI relies on thresholds. How will communities that don't quite meet the threshold, but are still impacted, be treated?

Like many other tools, the EQI relies on thresholds of significance to screen communities. For example, the EQI Traffic Exposure Screen identifies low-income and or Tribal lands that are above the 80th percentile for either traffic proximity and volume and or crash exposure. This implies that communities at the 79th percentile wouldn't be screened, even though the 79th percentile has very similar conditions to the 80th percentile. This is one of the shortcomings of the EQI, but this remains an issue with most other tools that screen geographic areas for significant impact.

The EQI makes an effort to address this issue in various use cases. For example, when measuring access to destinations for Disadvantaged Communities (DACs) in the Caltrans System Investment Strategy, the EQI is used as a weighting factor where all members of low-income households are considered, regardless of their Census block group's low-income status.

Technical Documentation

Several comments were received pointing out typos in the EQI beta documentation and asking for clarification on certain variable names and acronyms. These typos have been corrected in the EQI version 1.0 documentation and additional clarification is being provided on variable names and definitions.