Guidance on Using the Aviation Environmental Design Tool (AEDT) to Screen for Potential Environmental Justice Populations and Identify Populations of Limited English Proficiency

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Purpose

This guidance provides information on the use of Aviation Environmental Design Tool (AEDT) to identify potential environmental justice (EJ) and Limited English Proficient (LEP) populations to assist in community outreach efforts associated with FAA actions subject to the National Environmental Policy Act (NEPA). This document provides information on how to use the capability to satisfy the requirements of NEPA in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and related FAA guidance documents. It supersedes previous guidance dated September 12, 2016 to reflect updated methodology to acquire U.S. Census data and to incorporate a new methodology for the identification of LEP populations.

Applicability

The guidance outlined in this document should be considered for FAA actions subject to NEPA and for any project that may be considering community outreach. The EJ capability provides an initial screening to help identify potential minority and low-income populations, and the LEP capability can assist in identifying populations for which outreach in languages other than English may be needed.

Background of AEDT Environmental Justice Capability

AEDT's EJ capability is an extension of existing AEDT capabilities (noise, emissions and fuel burn) that aids the user in the identification of potential EJ and LEP populations. AEDT uses the U.S. Census's American Community Survey (ACS) data at the census block group level to identify minority and/or low-income populations, and Census tract level data to identify LEP populations.

Use of the AEDT EJ capability does not require expert knowledge of AEDT, nor does the user need to be familiar with the process for modeling emissions, fuel burn or noise. Further, the AEDT EJ capability relies on the geospatial analysis capability within AEDT, and as such, the methodology incorporated into AEDT can be easily performed in a stand-alone GIS program with the same dataset.

It is important to note that the methodology now incorporated into AEDT relies on information provided by the U.S. Census. Census data may not identify all potential EJ populations, therefore as appropriate, the responsible FAA official or designee should seek to supplement Census data using local sources of information. To sufficiently identify small concentrations (i.e., pockets) of potential EJ and LEP populations, coordination is needed with others including but not limited to FAA lines of business, airport officials, local elected officials, special interest groups, and community groups.

Definitions

The following sections present the background information necessary to understand the functionality of AEDT for the purposes of EJ and LEP identification. Additional information is available in the AEDT User Guide and Technical Manual. In general, users should consult the User Guide to address how a task is accomplished and the Technical Manual for more in-depth technical information.

Data Source

The U.S. Census publishes ACS data[1] as part of the Decennial Census Program. The ACS replaces the previous Census Long Form questionnaire and expands on the very basic questions provided in the 2010 Short Form. Approximately 1 in 38 households receive an invitation to participate in the ACS each year.

ACS data has historically provided data in three 'period estimates' (1-, 3-, and 5-year estimates). AEDT uses 5-year datasets, which represent 60 months of continuous data and thus represents the largest sample size.[2] ACS data are very timely because they are released in the year immediately following the year in which they are collected. Note that, for documentation purposes, the dataset should be referenced to include all five years (e.g. 2011-2015 ACS 5-year estimates), rather than only the last year of data collection. Users who wish to further explore the limits of ACS data should consult available resources provided by the US Census Bureau.[3]

Potential EJ Census block groups and LEP Census tracts can be viewed within AEDT with other available data sources, such as aerial photography or street maps (both available within AEDT), air traffic procedures, radar data, and other sources as available in the shapefile format.

Geography

The AEDT EJ capability utilizes ACS data at the Census block group level. Block groups are divisions of census tracts (i.e. a series of block groups make up a single census tract), which typically have a population of between 600 and 3,000 people. Block groups are further divided into blocks (i.e., a series of blocks make up a block group). The LEP functionality relies on

[1] U.S. Census American Community Survey Data
[2] The AEDT EJ capability was constructed around data provided by the Census in 2013 and 2014. Should future changes to the data structure occur, AEE will update AEDT to accommodate future datasets.
[3] U.S. Census American Community Survey General Handbook

Census tracts, which are larger and include a larger population than a Census block group. Census tracts typically encompass a population between 1,200 and 8,000 people, with an optimum size of 4,000 people.

Identifying Potential Minority and Low-Income Populations

When a user runs the EJ capability, AEDT determines the average minority and low-income population[4] within the study boundary and uses this as the default threshold to display data. However, to enhance flexibility, AEDT allows the user to set custom values, which could include a national, state or county average. In addition, the EJ capability allows the user to use a sliding scale to set a custom percentage.

AEDT color codes the individual census block groups, depending on whether the census block group meets certain criteria: orange indicates that the block group exceeds the threshold for minority population, yellow indicates that the block group exceeds the threshold for low-income population, and blue indicates that the block group exceeds both thresholds. The resulting data can be exported as a shapefile to be used in a stand-alone GIS program.

Identifying Linguistic Isolation

Linguistic isolation refers to households in which no one over of the age 14 speaks English as their primary language and only or speaks their native language at home. Understanding where language may be a barrier to communicating a proposed project's details in order to solicit meaningful feedback is important for effective community outreach. Identification of these populations can inform and shape community outreach efforts.

To supplement the identification of potential minority and low-income populations, AEDT also allows the identification of linguistic isolation by Census block group. It is calculated by AEDT and is presented in the same manner as minority and low-income populations. For simplicity, it is recommended to be run separately from the identification of potential minority and low-income populations.

Identifying Potential Limited English Proficiency Populations

LEP refers to individuals who do not speak English as their primary language and who have a limited ability to read, speak, write, or understand English. Understanding where language may be a barrier to communicating details about a proposed project and soliciting feedback is important for meaningful community outreach. Identification of these populations can inform the specific parameters of a project's community outreach efforts.

[4] Minority population refers to the non-white population of a census block group. The Census indicates that people who identify as Hispanic, Latino, or Spanish may be any race. Low-income populations are those that are below the Census one times poverty level. For the purposes of the AEDT capability, FAA relies on the Census statement that the best approximation for the number of people below the HHS poverty guidelines in a particular area would be the number of persons below the Census Bureau poverty thresholds in that area. Consult the AEDT Technical Manual for more detailed descriptions of the variables.

To supplement the identification of potential minority and low-income populations, AEDT also allows the identification of potential LEP populations by Census tract. It is presented by AEDT in the same manner as minority and low-income populations.

Steps to use AEDT to Identify Potential Minority and Low-Income Populations

The following sections outline the general steps required to identify potential EJ and LEP populations using AEDT. References to the relevant AEDT documentation (AEDT User Guide and Technical Manual) are provided where necessary.

Obtain Demographic and Economic Data via ACS

In order to utilize the most recent ACS data, AEDT uses the API (Application Programming Interface) from the U.S. Census Bureau to retrieve the ACS dataset. The U.S. Census Bureau ACS API endpoint[5] is configurable through the preferences screen in AEDT. The AEDT User Guide provides detailed instructions on how to configure the ACS API Endpoint. AEDT uses information directly from the ACS dataset, and calculates new variables, as well as providing easier-to-read column headings. Consult the AEDT Technical Manual for the detailed description of ACS fields.

Define Study Area

The study area used for the identification of potential EJ populations serves multiple purposes: 1) it defines the affected area within which potentially impacted minority populations and low-income populations considered, and 2) it uses the census block groups within and adjacent to calculate an average minority and low-income population as an initial threshold. For LEP the study area uses the Census tract to determine the low to high range within the specific language group.

AEDT allows the user to create a study area based on a user-defined area, (e.g. circle, polygon or rectangle) or through certain types of layers already created in AEDT. The geographic extent of the affected environment may vary for each resource topic analyzed in the NEPA document. As stated in the 1050.1F Desk Reference, "The combination of all study areas for the other relevant impact categories represents the potential impact area for environmental justice, because environmental justice impacts may be realized in conjunction with impacts to any other impact category."

In some instances, however, a smaller, more localized study area (such as the location in which flight tracks may be expected to change) may be more appropriate. AEDT allows the user to define a smaller area of focus. In these circumstances, consider re-evaluating and adjusting the initial average threshold used, as the demographics of a small area may not be representative of the surrounding county, state or other reference population.

[5] The Census Bureau ACS API lets developers use Census Bureau statistics into application that provide users quick and easy access from an ever increasing pool of publicly available datasets. Typically API endpoints are hosted on the web for easy access.

Run EJ Capability

The AEDT User Guide provides instructions on how to use AEDT to identify potential EJ populations, which can be performed independent of any AEDT noise or air quality analysis. AEDT populates the study area with color-coded values for those census block groups that exceed the initial threshold (average within the study area) as either minority (shown in orange), low-income (shown in yellow), both minority and low-income (shown in blue), or grey (census block groups that do not meet the initial threshold).

The user should determine the appropriate threshold to be used for the project. AEDT allows the user to use a sliding scale to adjust low-income and minority population thresholds. Further consideration of the range of thresholds is available in the document *Promising Practices for Environmental Justice Methodologies in NEPA Reviews*, published by the Environmental Justice (EJ) Interagency Working Group (IWG), available at https://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews.

Run LEP Capability

The user may choose to use the same study area or define a new study area for the identification of LEP populations. Although the Census collects much more detailed language information, the most detail used in standard data products and therefore available in AEDT identifies 39 different languages. Once a study area has been identified, information about the total population and the total LEP population and percent is displayed. The population and overall percentage by language is provided. The user has the ability to visualize the spatial distribution of any one of 39 languages by selecting that language.

Explore and Export Results

In addition to evaluating large groups of Census block groups, AEDT allows the user to explore the characteristics of individual Census Block Groups. Users can identify race and ethnicity information, median household incomes, linguistic isolation, and other variables by using AEDT's Identify feature. Use caution when evaluating race and ethnicity, as the Census allows respondents to report more than one race, thus the potential for double counting a population exists.

As stated, the AEDT EJ and LEP capabilities work as a screening tool. It does not take the place of coordination with other FAA lines of business, airport officials, local elected officials, special interest groups, and community groups to fully identify potential EJ communities and understand their specific concerns. Output from AEDT can be used to narrow down potential areas of interest and can be useful in conversations with others to help identify where to target outreach.

When identifying areas for potential outreach, the user should consider the demographics of all census block groups combined with other input. When combined with other project data, such as potential air traffic procedures and changes in noise exposure, AEDT allows the user to identify

specific census block groups that may represent populations with a high interest in the project. Efforts should be made to consider EJ populations in community outreach, including methods of outreach, identifying appropriate meeting facilities and ensuring that meetings are well advertised, accessible by public transportation, etc.

Documentation

AEDT can be used to create basic maps that can serve as a guide for further investigation. Documentation should be maintained that includes rationale for the definition of the study area, the 5-year ACS data set, input received from other sources, and the methods used to identify appropriate thresholds to identify potential EJ populations.