



State of Vermont, Agency of Natural Resources  
**Environmental Justice Focus  
Population Fact Sheet and  
Visual Aids**

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Information

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## EJ Law Definition

Vermont's Environmental Justice Law ([Act 154 or the "EJ Law"](#)) defines the term "Environmental Justice Focus Population" (EJFP, 3 V.S.A. §6002(4)) as:

"Any census block group in which:

- the annual median household income is not more than 80 percent of the State median household income;
- Person of Color and Indigenous Peoples comprise at least six percent or more of the populations; or
- at least one percent or more of households have limited English proficiency."

This definition informs where and how covered agencies will consider environmental justice in making policy decisions, directing investments, and other activities. (3 V.S.A. §6004). The EJ Law does not specify what data to use when determining which census block groups would meet the definition of EJFP. The EJ Law tasks the EJ Advisory Council and Interagency EJ Committee to "consider and recommend to the General Assembly, on or before December 1, 2023, amendments to the terminology, thresholds, and criteria of the definition of environmental justice focus populations, including whether to include populations more likely to be at higher risk for poor health outcomes in response to environmental burdens." (3 V.S.A. §6006(c)(3)(A)).

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## Visualizing the Definition

To help visualize the information described in the EJFP definition, the Vermont Department of Environmental Conservation (VT DEC) created visual aids to compare two potential census block group data sources and present the data geospatially on a map of Vermont. VT DEC performed this work to provide administrative and technical assistance to the Advisory Council per the EJ Law (3 V.S.A. §6006(d)(6)).

The two data sources used in the visual aids are described below and in Table 1.<sup>1</sup>

- 2020 Census Data, which is based on the count of all people living in the United States and conducted every 10 years.

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<sup>1</sup> VT's Office of Racial Equity in their [2023 Language Access Report](#) has acknowledged that Census and ACS data should not be the only data used when evaluating population demographics as there may be undercounting and/or labels that do not fit all identities/family structures. The U.S. Census has also acknowledged both under and overcounting in [their release on the 2020 Census's Post-Enumeration Survey](#).



- 2021 American Community Survey (ACS) (5-year estimate), which relies on estimates from annual data collected from a small number of people to present the larger population, over a five-year period.

**What are Census Block Groups? ([Census.gov](https://www.census.gov))**

- ▶ Statistical divisions of census tracts.
- ▶ Consist of clusters of blocks within the same census tract.
- ▶ The smallest geographic entity for which the census tabulates and publishes sample data.
- ▶ Generally defined to contain between 600 and 3,000 people.

Table 1. Data sources available for EJFP definition in the EJ Law.

Environmental Justice Focus Population	Description	Block Group Data Source Available	Census Data Layer ID
Annual Median Household Income (MHI)	Not more than 80 percent of the State median household income. <ul style="list-style-type: none"> <li>• Median: \$67,674</li> <li>• \$54,139 is 80%</li> </ul>	2021 ACS 5-year	ACS DT5Y2021.B19013
Black, Indigenous, and People of Color (BIPOC)	At least six percent or more of the population. <ul style="list-style-type: none"> <li>• Data rounded to nearest tenths place (ex: 5.97 = 6.0 &amp; 5.94 = 5.9)</li> </ul>	2021 ACS 5-year & 2020 Census	ACS DT5Y2021.B02001 DECENNIALPL2020.P1
Limited English Proficiency (LEP)	At least one percent or more of households that do not have a member 14 years or older who speaks English “very well” as defined by the U.S. Census Bureau.	2021 ACS 5-year	ACS DT5Y2021.C16002



Upon review of the Census data available, VT DEC found the 2020 Census does not have data available for the MHI and LEP variables (Table 1). The most recent census where both were collected was in 2000.<sup>2</sup> Based on the available data, VT DEC created the following 10 visual aids using different combinations of data sources and EJFP variables:

1. The 2021 ACS 5-year data available for BIPOC, MHI, and LEP was used to develop:
  - One layer visualizing all three variables of the EJFP using the current definition (block group is triggered by at least one of three variables)
  - One layer visualizing all three variables of the EJFP with a legend indicating the number of EJFP thresholds met (shows communities that have multiple variables impacting them)
  - Three layers each visualizing one variable of the EJFP definition (BIPOC, LEP, MHI)
  - Three layers each visualizing two variables of the EJFP definition both being met (BIPOC & LEP, BIPOC & MHI, LEP & MHI)
2. The available 2020 Census BIPOC variable data was used to develop one layer visualizing BIPOC communities.
3. Both 2021 ACS 5-year & the 2020 Census data source were used to develop one layer visualizing all three variables of the EJFP using current definition (block group is triggered by at least one of three variables). Where:
  - 2020 Census BIPOC data was used and 2021 ACS 5 – year MHI and LEP data was used.

It is important to note these visual aids are not a proposed diagnostic or mapping tool for the State of Vermont. The purpose of the visual aids is to inform the Environmental Justice Advisory Council and Interagency Committee as these working groups consider the definition of Environmental Justice Focus Population. Table 2, below, is a guide for the visual aids developed and the Census data sources used.

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<sup>2</sup> VT DEC reviewed the Census Questionnaires from the [2020](#), [2010](#), and [2000](#) Census to determine when the MHI and LEP variables were last collected.

Table 2: Visual aids developed for comparing the 2020 Census and 2021 ACS 5-year data sources.

Visual Aid Number	Visual Aid Document Name	EJ Focus Population Variables Presented	Description	Block Group Data Source	Number of Census Block Groups	Percent of Total VT Population
Visual Aid 1	ACS 2021 5 Year Survey: MHI	MHI	Visualizing the definition for the MHI variable.	2021 ACS 5-year	195	19.13%
Visual Aid 2	ACS 2021 5 Year Survey: BIPOC	BIPOC	Visualizing the definition for the BIPOC variable.	2021 ACS 5-year	229	44.53%
Visual Aid 3	ACS 2021 5 Year Survey: LEP	LEP	Visualizing the definition for the LEP variable.	2021 ACS 5-year	78	15.18%
Visual Aid 4	ACS 2021 5 Year Survey: Any EJFP Threshold Met	MHI, BIPOC & LEP	Where a block group is triggered by at least one of three variables.	2021 ACS 5-year	348	62.16%
Visual Aid 5	ACS 2021 5 Year Survey: 1, 2, or 3 EJFP Thresholds	MHI, BIPOC & LEP	Where communities have multiple variables impacting them.	2021 ACS 5-year	348	62.16%
Visual Aid 6	ACS 2021 5 Year Survey: LEP and BIPOC	BIPOC & LEP		2021 ACS 5-year	51	10.63%
Visual Aid 7	ACS 2021 5 Year Survey: MHI and BIPOC	BIPOC & MHI	Where communities have two variables that overlap.	2021 ACS 5-year	93	17.14%
Visual Aid 8	ACS 2021 5 Year Survey: MHI and LEP	LEP & MHI		2021 ACS 5-year	33	6.55%
Visual Aid 9	Census (2020): BIPOC	BIPOC	Visualizing the definition for the BIPOC variable.	2020 Census	488	90.32%
Visual Aid 10	ACS (2021) and Census (2020): Any EJFP Threshold	BIPOC	Where a block group is triggered by at least one of three variables, with the BIPOC threshold taken from the 2020 census and the MHI and LEP thresholds taken from the 2021 ACS 5-year survey.	2021 ACS 5-year & 2020 Census	509	92.81%



## Federal Mapping Tool Data Sources

VT DEC researched what the federal environmental justice mapping tools use for data sources as well and found that at the federal level that ACS data is used for mapping tools.

- [EPA's EJScreen Tool's](#) socioeconomic data source is US Census Bureau's American Community Survey (ACS) 2016-2020 5-Year Estimates at the Census block group level.
  - [Climate and Economic Justice Screening Tool \(CEJST\)](#) uses the American Community Survey from 2015-2019 at the Census tract group level.
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## Visual Aids Considerations

- Visual aids were developed to be thoughtful of viewers who may experience color blindness. [Coblis — Color Blindness Simulator — Colblindor \(color-blindness.com\)](#) was used to select the colors and textures presented in the visual aids.
  - Colors associated with an implicit bias of “bad”, like red, were not used for visualizations.
  - Textures were applied to ease viewing if these files were printed in black and white.
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## Data Limitations

- As mentioned previously, the 2020 Census did not collect the MHI or LEP data. Over the next decennial period, this may change as these questions may be included in the next Census.
- These visuals were not adjusted for a margin of errors or buffers. The Census Bureau makes clear in documentation of the American Community Survey (ACS), the margin of error for an estimate in each block group is often very large relative to the estimate, so an estimate of percent low-income, for example, is often very uncertain for a single block group.
- Data presented may be missing for some communities where the data source may have margin of error or buffers embedded in both the [2020 Census](#) and the ACS 5-year data.



- [ESRI](#) uses Census and ACS data as their example for explaining the importance of margins of errors. This should be considered for VT’s development of a mapping tool.
  - The U.S. Census does have [well-documented limitations](#) that include [undercounting](#) BIPOC, revising racial categories over time, and a controversial history of racist policies.
  - Data quality for socioeconomic indicators can be worse for rural communities ([Headwaters Economics, 2022](#)).
  - ACS has non-overlapping datasets that allow [comparisons of current ACS data to past ACS data](#). The 2017-2021 ACS 5-Year estimates can be compared with 2012-2016 ACS 5-Year estimates. Meaning the data set will be updated next when the 2022-2026 data is available for the 1-year ACS. Similarly, the data collected for the census would be updated every 10 years. Changes to how this data is adjusted for census maps may change within these time periods.
  - ACS 5-year estimates were selected as it is more reliable than the alternative 1-year estimate. 3-year estimates were discontinued by the US Census Bureau. This is best described by a table comparison available on the US Census Bureau Website: [Distinguishing features of ACS 1-year, 1-year supplemental, 3-year, and 5-year estimates](#).
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## Nondiscrimination Statement and Language Access

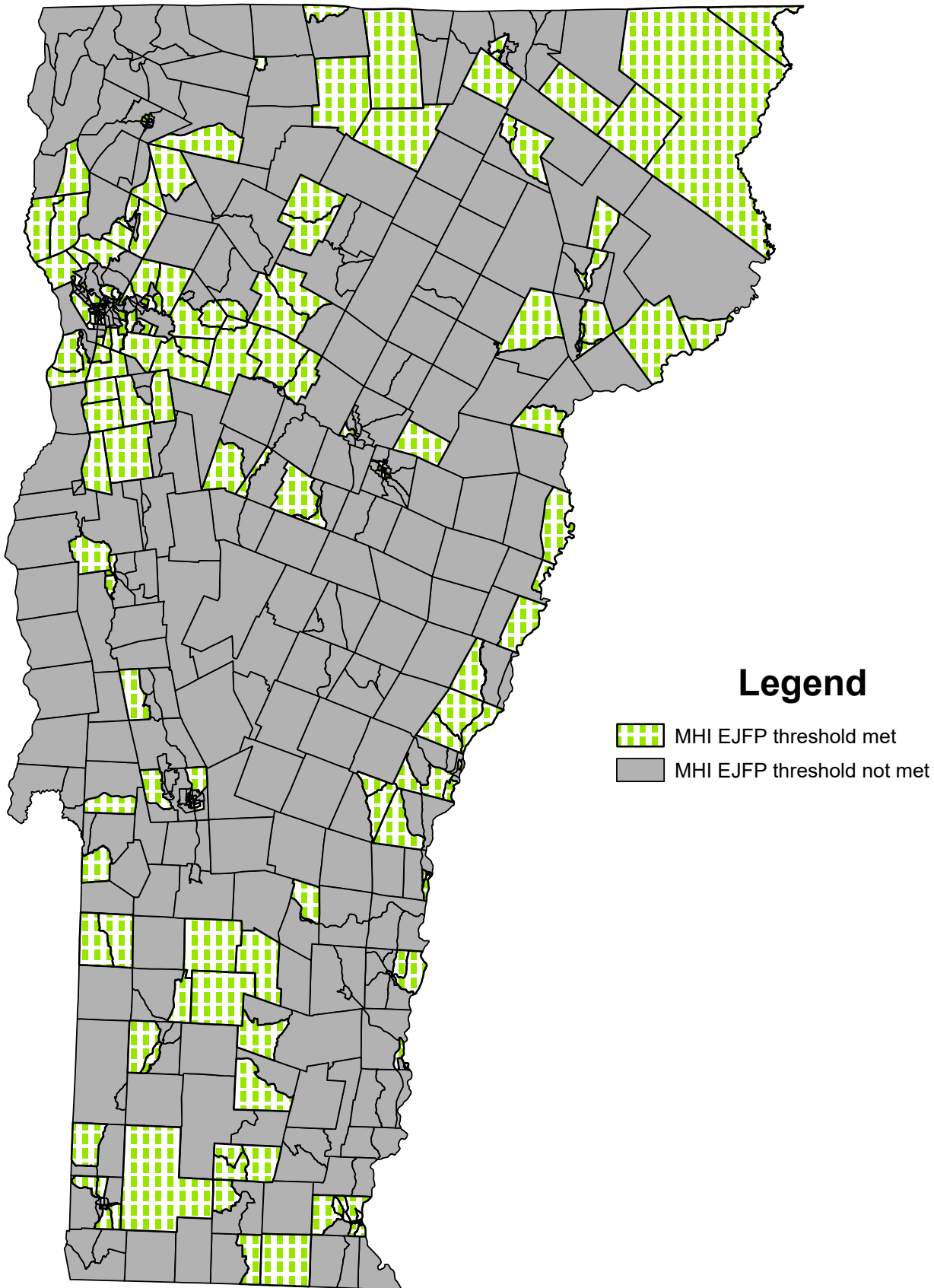
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لغة مجانية: [anr.civilrights@vermont.gov](mailto:anr.civilrights@vermont.gov) or 802-636-7827.

# EJFP Visual Aid 1

Census Block Groups that meet the Median Household Income (MHI) threshold in the definition of EJFP in VT EJ Law using 2021 American Community Survey 5 Year Data

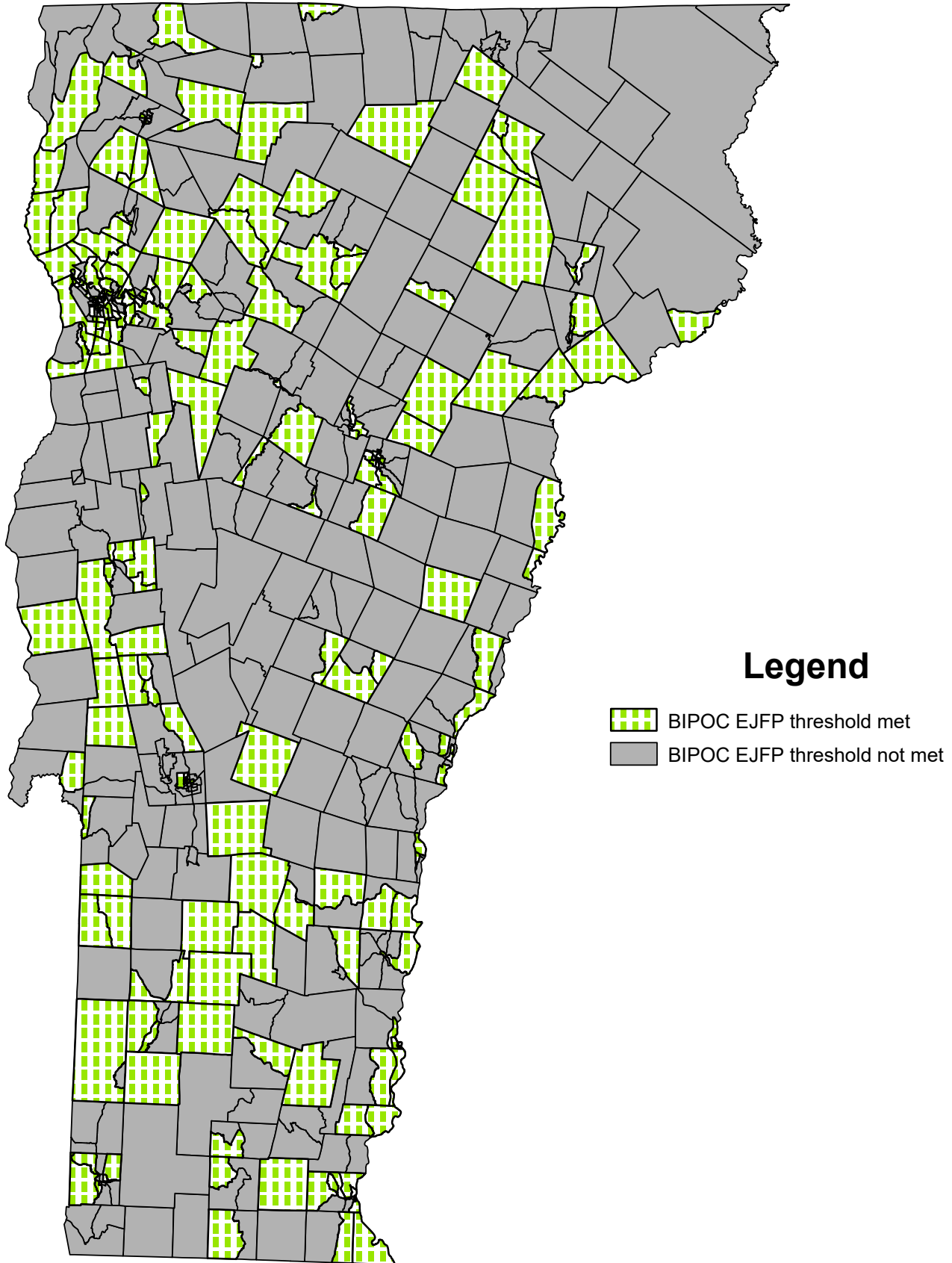


*Note: The purpose of this visual aid is to present this data geospatially for the Environmental Justice Advisory Council and Interagency Committee to review the definition of Environmental Justice Focus Population in VT's EJ Law (Act 154 of 2022). This visual aid is not a proposed diagnostic or mapping tool for the State of Vermont.*



## EJFP Visual Aid 2

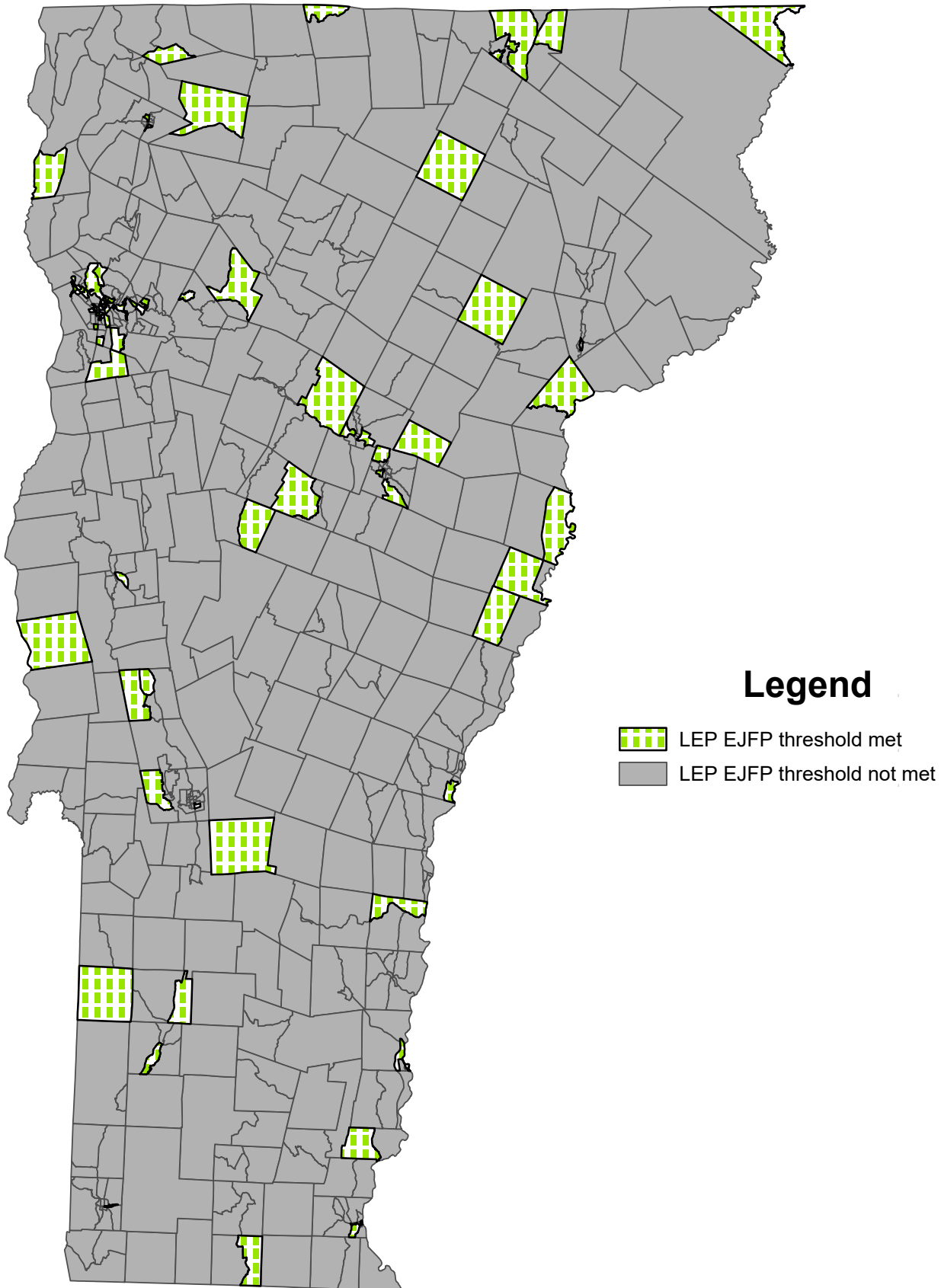
Census Block Groups that meet the Black, Indigenous, and People of Color (BIPOC) threshold in the definition of EJFP in VT EJ Law using 2021 American Community Survey 5 Year Data



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# EJFP Visual Aid 3

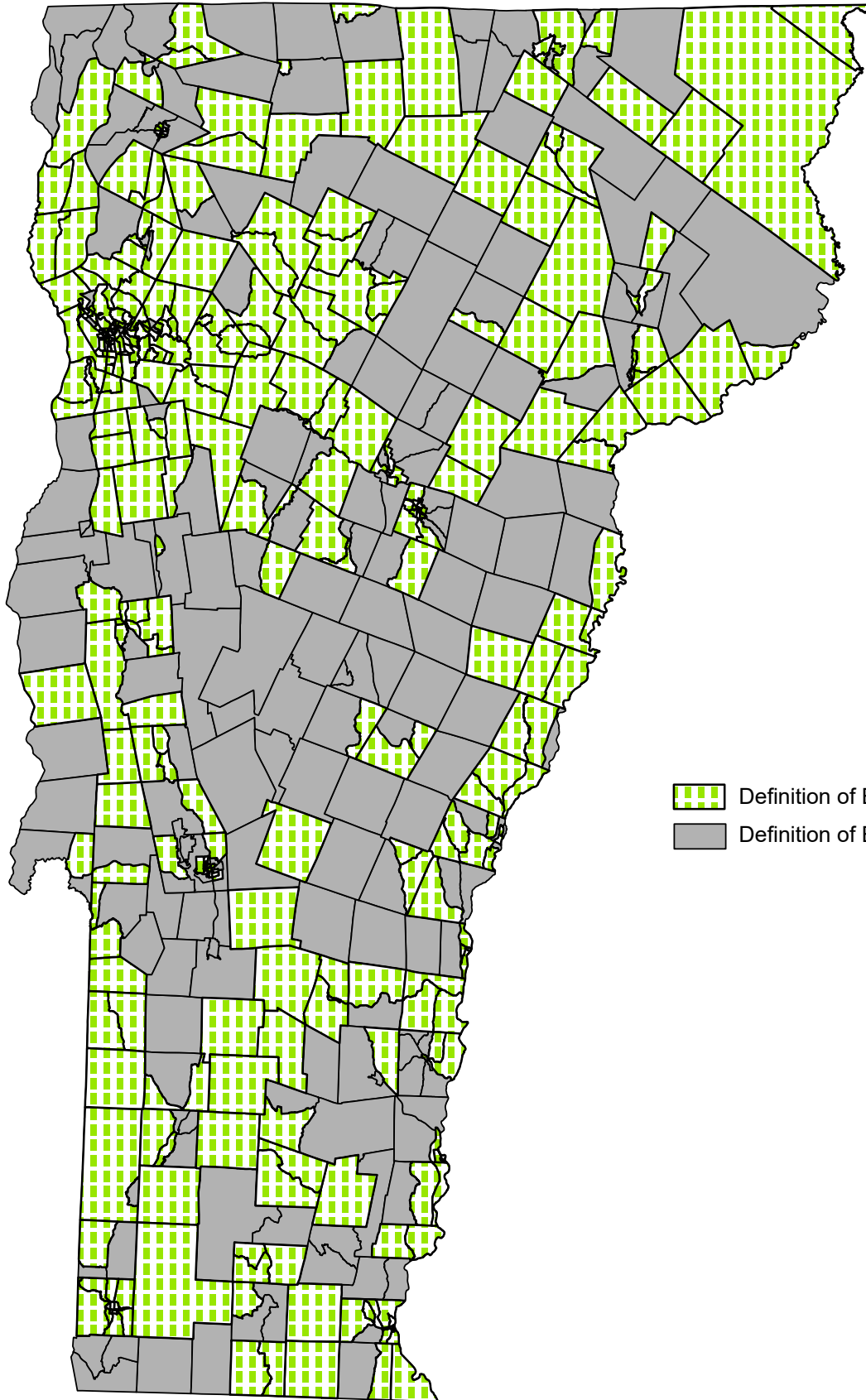
Census Block Groups that meet the Limited English Proficiency (LEP) threshold in the definition of EJFP in VT EJ Law using 2021 American Community Survey 5 Year Data





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## EJFP Visual Aid 4

VT Census Block Groups that meet the definition of EJFP in VT EJ Law using 2021 American Community Survey 5 Year Data



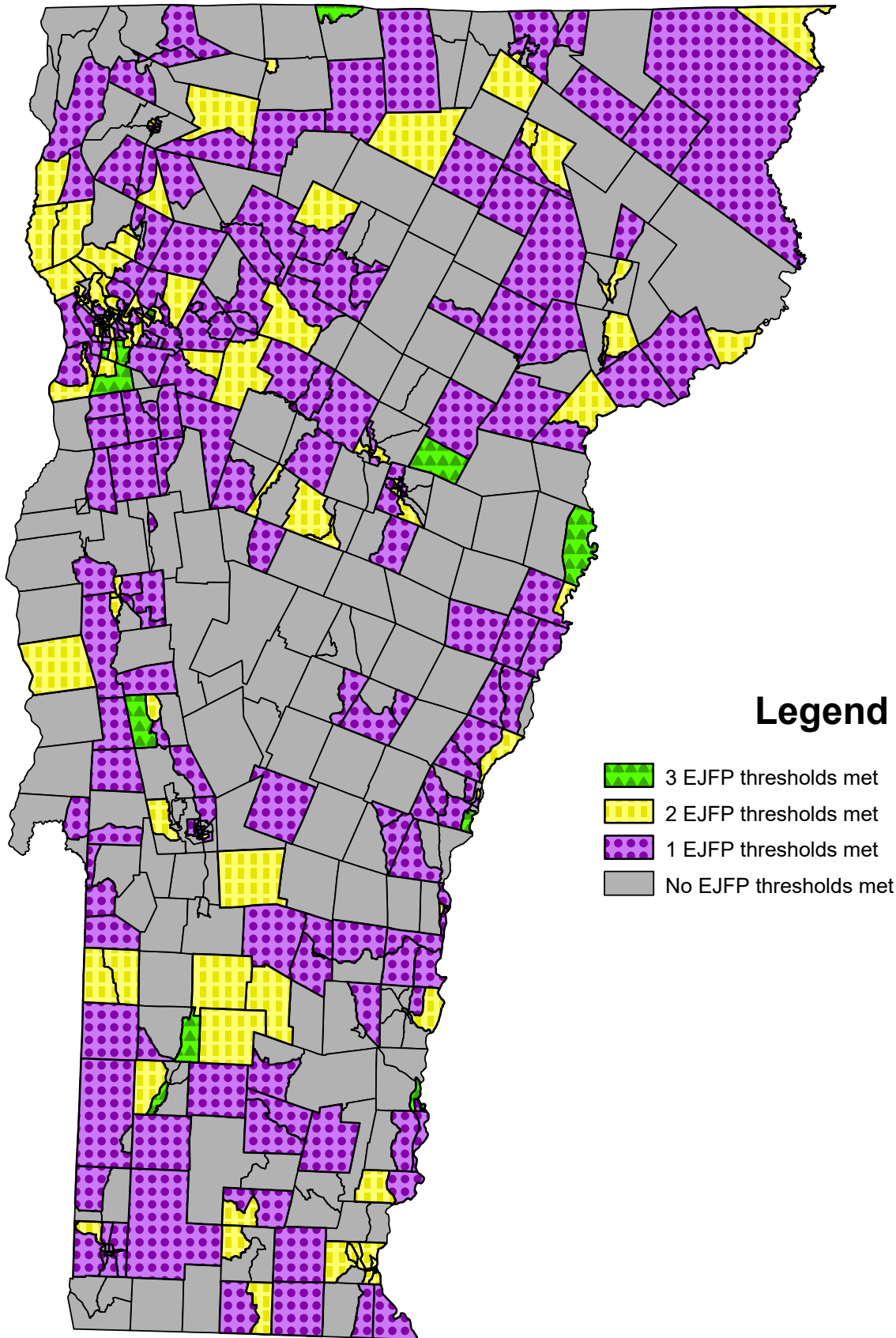
### Legend

-  Definition of EJFP in VT EJ Law met
-  Definition of EJFP in VT EJ Law not met

*Note: The purpose of this visual aid is to present this data geospatially for the Environmental Justice Advisory Council and Interagency Committee to review the definition of Environmental Justice Focus Population in VT's EJ Law (Act 154 of 2022). This visual aid is not a proposed diagnostic or mapping tool for the State of Vermont.*

# EJFP Visual Aid 5

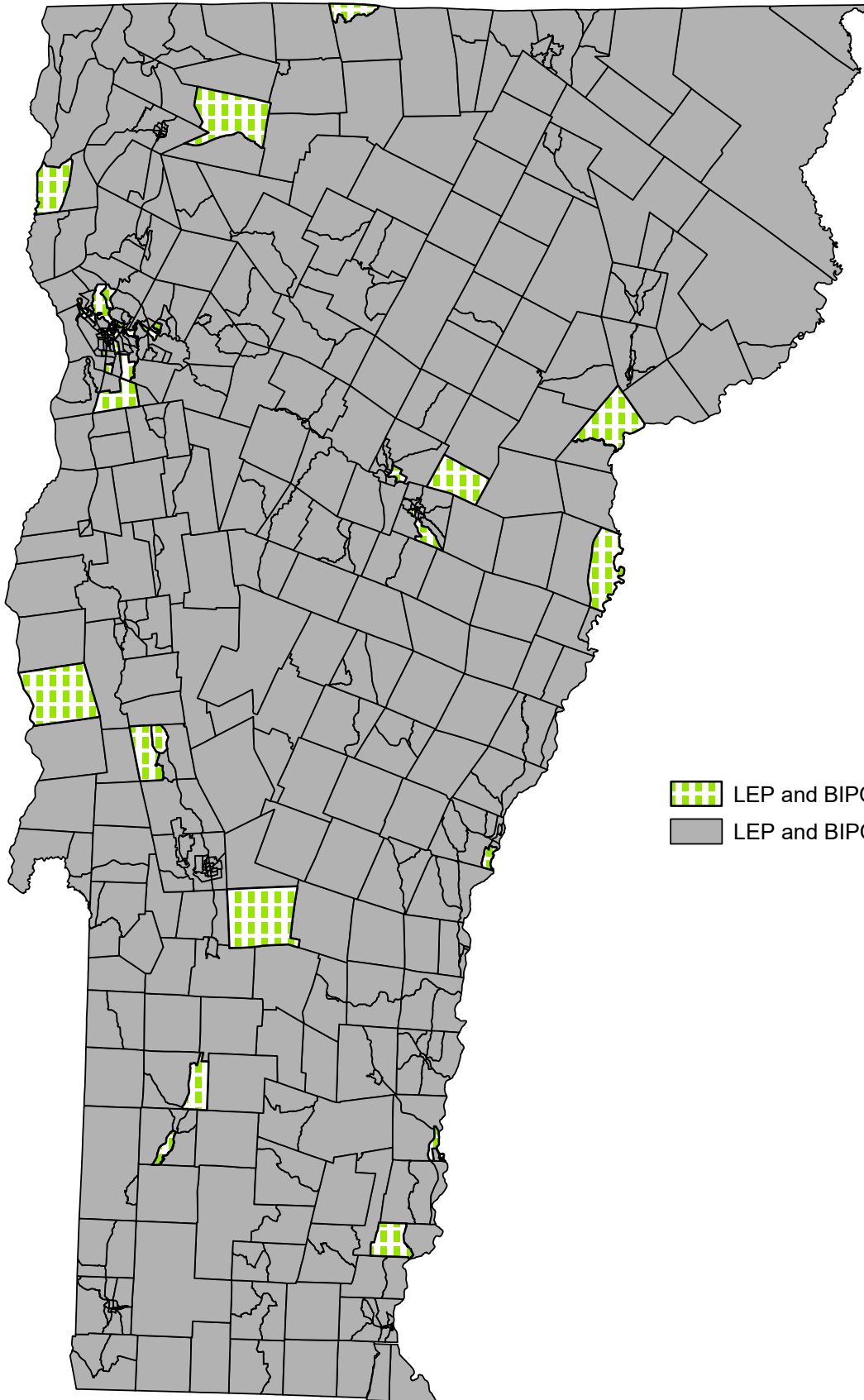
Census Block Groups that meet 1, 2, or 3 thresholds in the definition of EJFP in VT EJ Law using 2021 American Community Survey 5 Year Data





*Note: The purpose of this visual aid is to present this data geospatially for the Environmental Justice Advisory Council and Interagency Committee to review the definition of Environmental Justice Focus Population in VT's EJ Law (Act 154 of 2022). This visual aid is not a proposed diagnostic or mapping tool for the State of Vermont.*

# EJFP Visual Aid 6

Census Block Groups that meet both the Limited English Proficiency (LEP) and Black, Indigenous, and People of Color (BIPOC) thresholds in the definition of EJFP in VT EJ Law using 2021 American Community Survey 5 Year Data



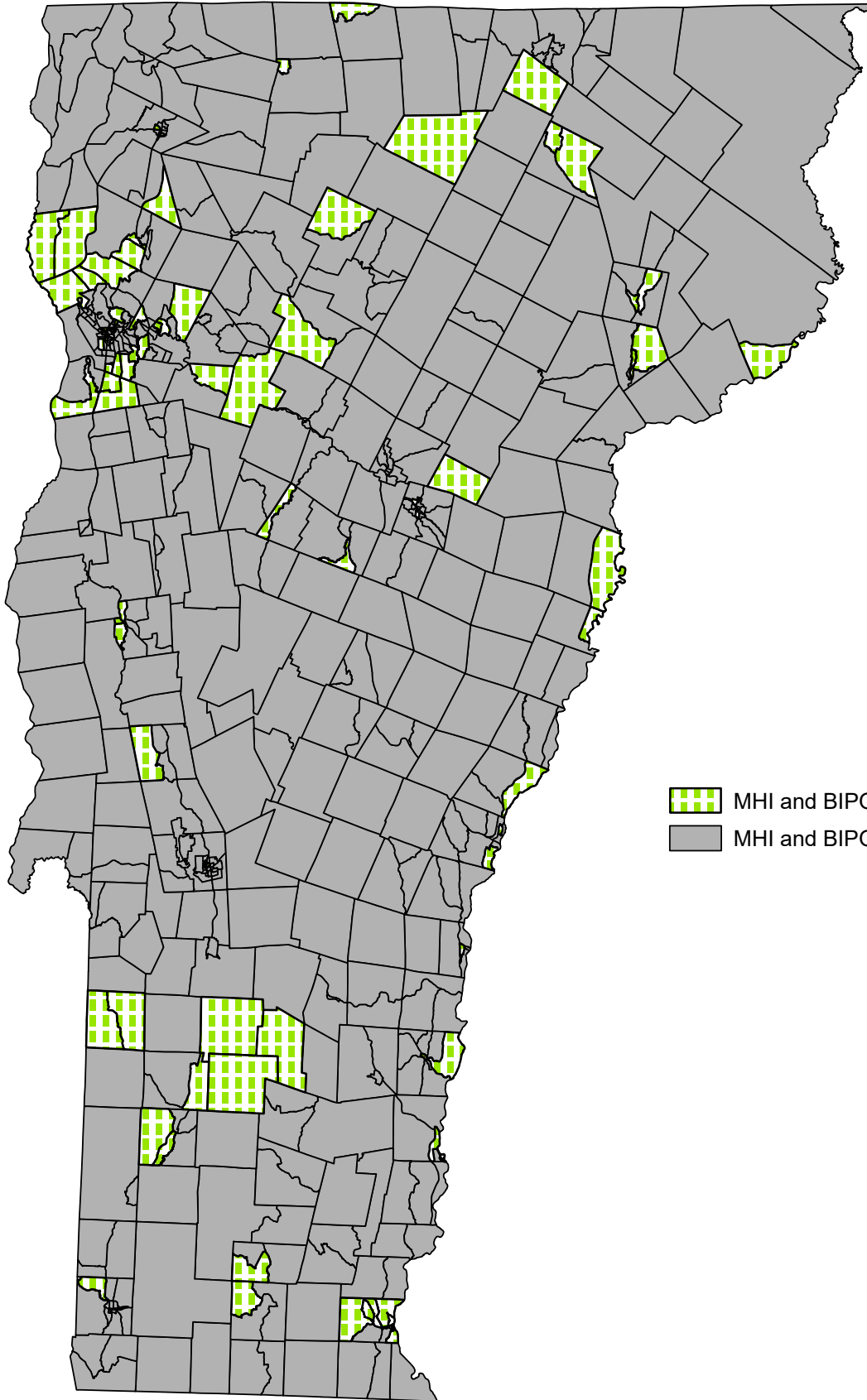
## Legend

-  LEP and BIPOC EJFP thresholds met
-  LEP and BIPOC EJFP thresholds not met



*Note: The purpose of this visual aid is to present this data geospatially for the Environmental Justice Advisory Council and Interagency Committee to review the definition of Environmental Justice Focus Population in VT's EJ Law (Act 154 of 2022). This visual aid is not a proposed diagnostic or mapping tool for the State of Vermont.*

# EJFP Visual Aid 7

Census Block Groups that meet both the Median Household Income (MHI) and Black, Indigenous, and People of Color (BIPOC) thresholds in the definition of EJFP in VT EJ Law using 2021 American Community Survey 5 Year Data



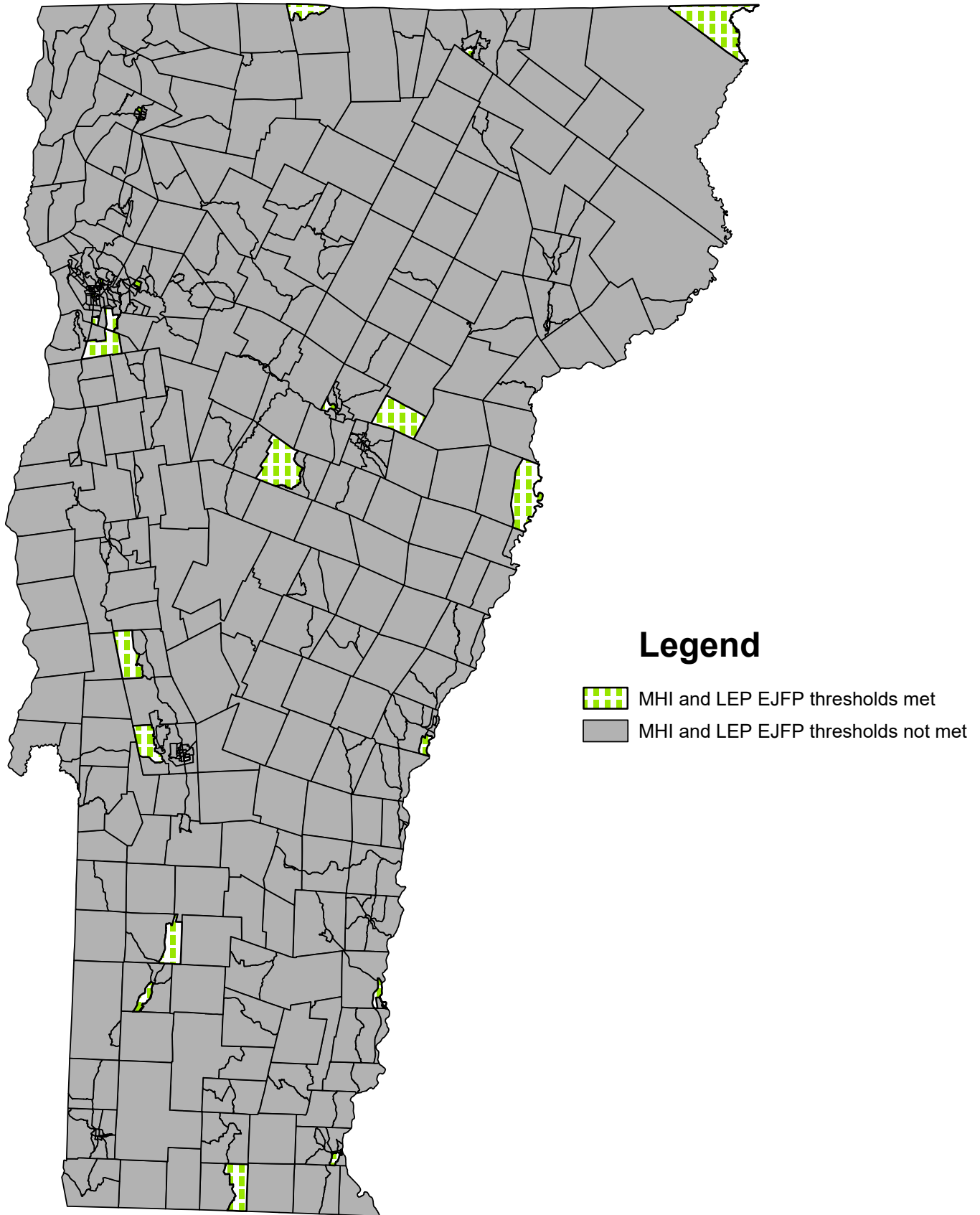
## Legend

-  MHI and BIPOC EJFP thresholds met
-  MHI and BIPOC EJFP thresholds not met

*Note: The purpose of this visual aid is to present this data geospatially for the Environmental Justice Advisory Council and Interagency Committee to review the definition of Environmental Justice Focus Population in VT's EJ Law (Act 154 of 2022). This visual aid is not a proposed diagnostic or mapping tool for the State of Vermont.*

# EJFP Visual Aid 8

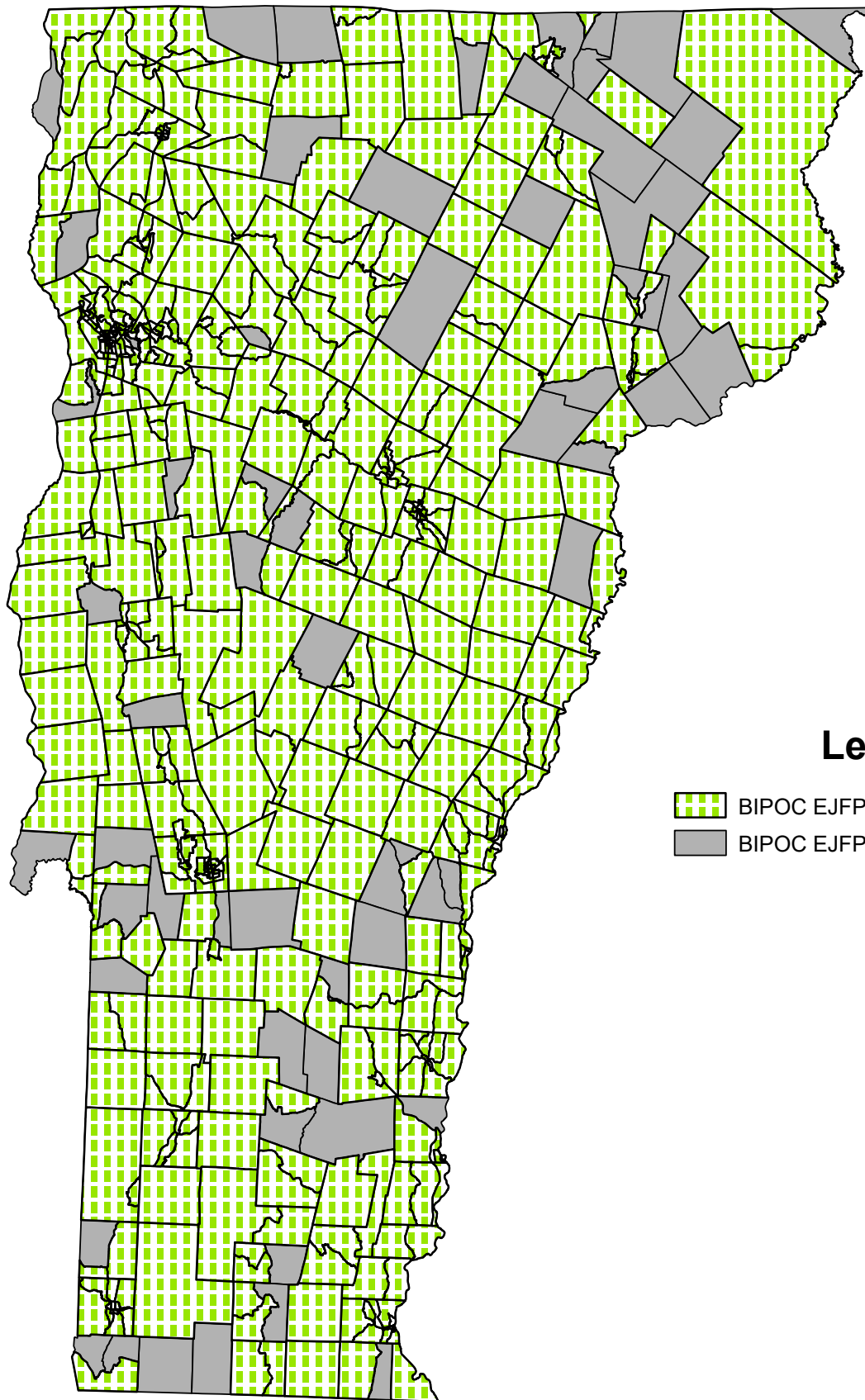
Census Block Groups that meet both the Median Household Income (MHI) and Limited English Proficiency (LEP) thresholds in the definition of EJFP in VT EJ Law using 2021 American Community Survey 5 Year Data





*Note: The purpose of this visual aid is to present this data geospatially for the Environmental Justice Advisory Council and Interagency Committee to review the definition of Environmental Justice Focus Population in VT's EJ Law (Act 154 of 2022). This visual aid is not a proposed diagnostic or mapping tool for the State of Vermont.*

# EJFP Visual Aid 9

Census Block Groups that meet the Black, Indigenous, and People of Color (BIPOC) threshold in the definition of EJFP in VT EJ Law using 2020 Census Data



## Legend

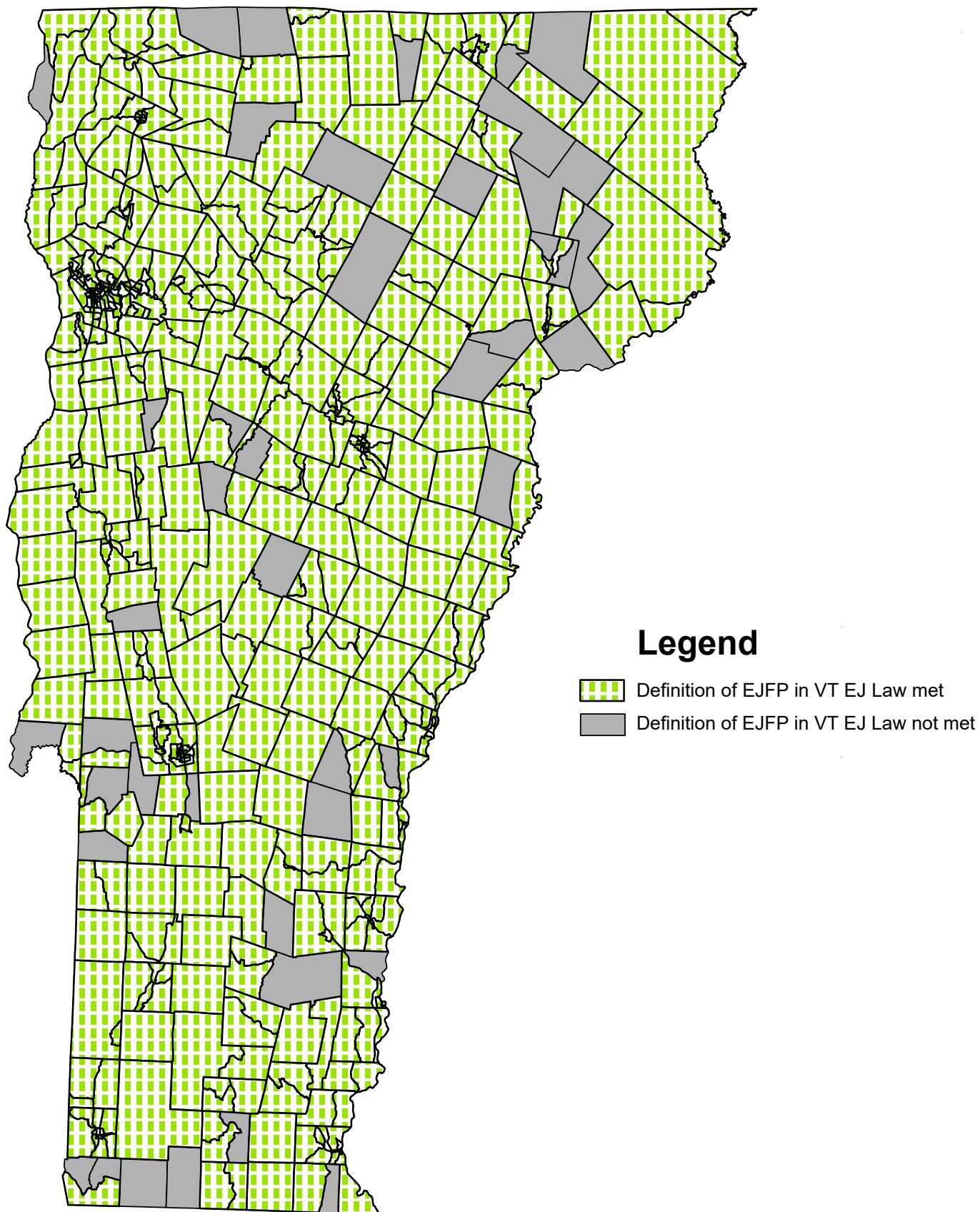
-  BIPOC EJFP threshold met
-  BIPOC EJFP threshold not met

*Note: The purpose of this visual aid is to present this data geospatially for the Environmental Justice Advisory Council and Interagency Committee to review the definition of Environmental Justice Focus Population in VT's EJ Law (Act 154 of 2022). This visual aid is not a proposed diagnostic or mapping tool for the State of Vermont.*



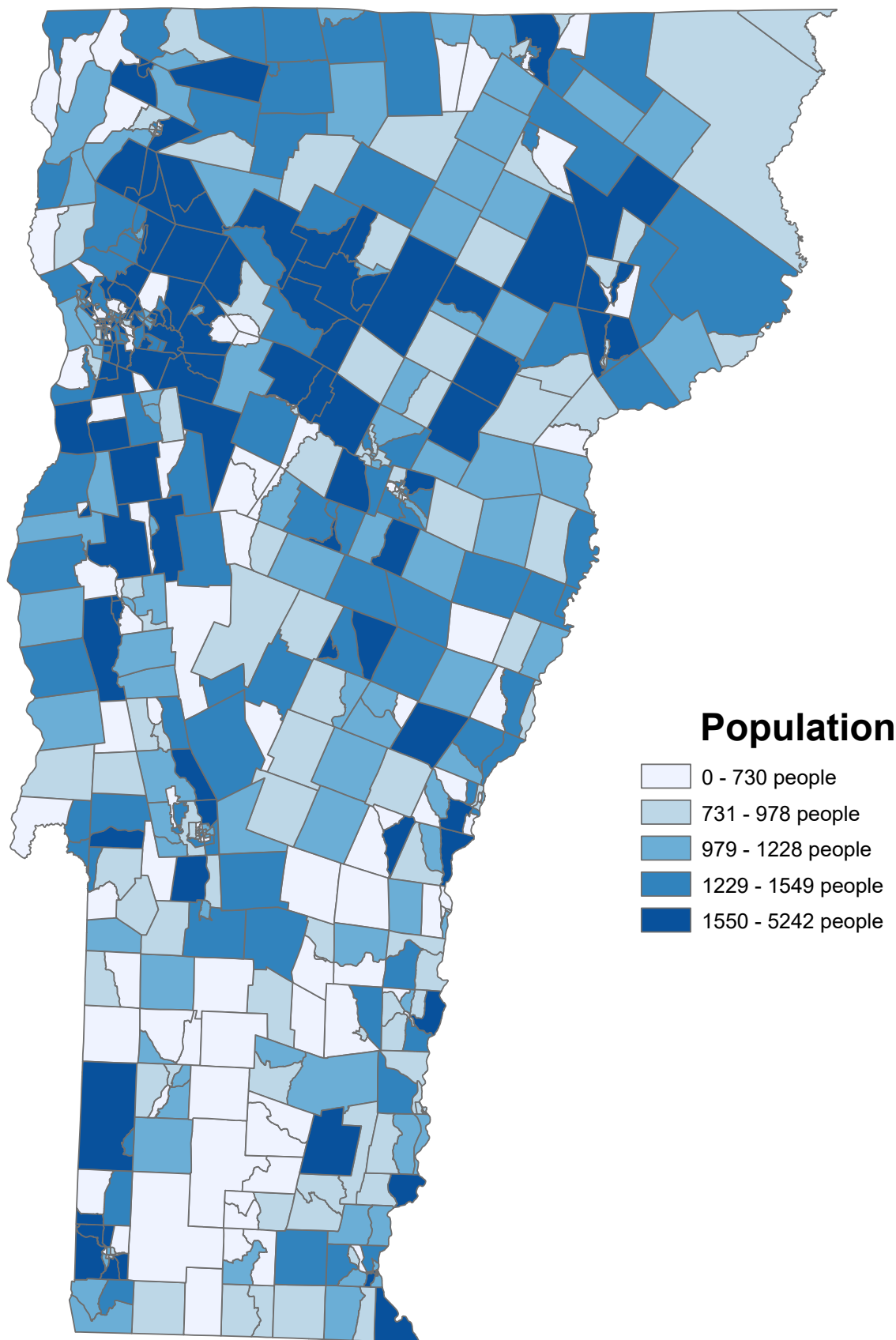
# EJFP Visual Aid 10

Census Block Groups that meet the definition of EJFP in VT EJ Law using 2021 American Community Survey 5 Year and 2020 Census Data



*Note: The purpose of this visual aid is to present this data geospatially for the Environmental Justice Advisory Council and Interagency Committee to review the definition of Environmental Justice Focus Population in VT's EJ Law (Act 154 of 2022). This visual aid is not a proposed diagnostic or mapping tool for the State of Vermont.*

# Total Population by Census Block Group using 2021 American Community Survey 5 Year Data



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