BLUEPRINT
FOR | MARYLAND'S FUTURE

Blueprint for Maryland's Future:

Interim Report on Neighborhood Indicators of Poverty

Division of Assessment, Accountability, and Performance Reporting

November 2021 Legislative Report

MARYLAND STATE DEPARTMENT OF EDUCATION
EDUCATION
EQUITY AND EXCELLENCE

MARYLAND STATE DEPARTMENT OF EDUCATION

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1 | Introduction

The Maryland Commission on Innovation and Excellence in Education was created in part to review and update the current funding formula for the schools in Maryland. As a part of the Commission's Policy Area of More Resources for Students Who Need Them, the Commission and subsequent legislation The Blueprint for Maryland's Future created a new Concentration of Poverty School Grant program for schools with a high concentration of poverty.

Under the Blueprint for Maryland's Future, the Maryland State Department of Education is tasked with a study on incorporating neighborhood indicators of poverty to determine a school's eligibility for the concentration of poverty grant and the compensatory education program. The MSDE is required to submit a final report to the Accountability and Implementation Board on or before October 1, 2022, and the results of the study are to evaluate:

- The American Community Survey data available across geographic areas in the small area income and poverty estimates program to provide school district poverty estimates; and

- The Area Deprivation Index developed by the University of Wisconsin – Madison to rank neighborhoods by socioeconomic status disadvantage.

The MSDE is required to submit an interim report on or before November 1, 2021 to the General Assembly to provide an update on:

- The progress on analyzing and incorporating neighborhood indicators of poverty,

- The fiscal year for which Medicaid data can be incorporated into the direct certification of students eligible for the compensatory education program, and

- The plan for developing and using the state alternative income eligibility form to determine eligibility for the compensatory education program.

2 | Requirement I: Progress on Analyzing Neighborhood Indicators of Poverty

INDICATORS OF POVERTY IN EDUCATION DATA

Background on Indicators of Poverty

The impact of poverty on student achievement, educational attainment, and other educational outcomes has long been a concern for educators and policymakers. State aid formulas, grant programs, and legislation use available data to target resources to help mitigate the effects of poverty on students.

The educational community has relied on the count of students eligible for free or reduced-price meals (FARMs) under USDA's National School Lunch Program (NSLP) to measure poverty. The U.S. Department of Agriculture makes annual adjustments to the Income Eligibility Guidelines used to determine eligibility for free or reduced-price meals based on the federal income poverty guidelines. For a family of four the Federal Poverty Line for school year 2021-2022 is $26,500. Students are determined as eligible for free or reduced-price meals in one of two ways:

- **Annual household applications:** Annual forms are used to collect information from families on household size and family income to determine eligibility.

- **Direct Certification:** Eligible students are identified based on participation in programs such as the Temporary Assistance for Needy Families (TANF), Supplemental Assistance Nutrition Program (SNAP), Foster Care, or status as a homeless student.

Limitations of Indicators of Poverty

The eligibility for FARMs is regularly updated, the data is accessible and widely available, and has universal participation and criteria. However, the use of FARMs participation data is a proxy for income and poverty. Furthermore, there are limitations in the use of FARMs data in the quality, and accessibility of the data:

- **The family income information on free- and reduced-price meal applications is intended only to determine a student's eligibility for the National School Lunch Program.** FARMs eligibility data has been interpreted as a representation of a student's family income rather than the student's eligibility for free- or reduced-price meals. Due to NSLP guidelines[1] requiring that state education agencies, local school systems, and schools ensure that their data systems, school records, and other means of viewing a student's FARMs eligibility status are accessible only to officials directly connected with the administration of the meals program, access to FARMs eligibility data is often limited. Teachers, guidance counselors, principals, and education staff who are not providing such assistance may not have access to FARMs data.

- **FARMs eligibility data provides little variation in income.** FARMs eligibility data is severely limited in its ability to capture variation in income as it focuses only on three categories: not eligible, eligible for free-lunch, or eligible for reduced-price lunch. Additionally, FARMs eligibility data is a single measure, at a single point in time. For example, schools typically collect income eligibility

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[1] Disclosure of Children's Free and Reduced Price Meals and Free Milk Eligibility Information in the Child Nutrition Programs, A Rule by the Food and Nutrition Service on 03/12/2007

applications at the start of the school year. As the global coronavirus pandemic has shown, a family's income can change drastically over the course of the school year.

- **FARMs eligibility data are becoming less applicable as a measure of income.** In 2010, the Healthy, Hunger-Free Kids Act was amended to provide an alternative to household applications for free- and reduced-price meals in high-poverty school systems and schools. The Community Eligibility Provision (CEP) allows local school systems to elect CEP on behalf of a single school, group or groups of schools, or all schools in the system to provide free meals to all students. To be eligible for CEP, school systems and schools are required to have a percentage of enrolled students certified for free school meals. When school systems and schools implement the CEP, they are prohibited from collecting NSLP household applications. Although the CEP has expanded participation in the NSLP, the reporting on students from low-income households through using FARMs status is less accurate due to the elimination of NSLP annual household applications. (National Forum on Education Statistics, 2015)

POVERTY MEASURES BEYOND INCOME

Poverty is "the extent to which an individual does without resources" (Payne, 2005). However, the current indicator of poverty, FARMs eligibility, reflects the availability of only one resource –household income (National Forum on Education Statistics, 2015). A range of resources and the availability of the resources beyond income contribute to students in poverty, including:

- family or household income,

- highest level of education completed by parent or guardian,

- occupation of parent or guardian,

- home ownership,

- neighborhood factors, and

- household composition.

Access to financial, social, cultural, and human capital resources are broadly defined under the term "socioeconomic status" (SES) (National Center for Education Statistics, 2012). Understanding the socioeconomic status of local communities allows policymakers and practitioners to:

- equitably allocate financial, instructional, and support resources to groups of people (e.g., students, schools, and communities)

- identify individuals who are eligible to participate in a range of supplemental programs and services or otherwise receive public benefits

- understand potential socioeconomic differences when comparing educational conditions across students, schools, and school systems

- report on the effectiveness of schools, programs, and services for a wide range of student groups. (National Forum on Education Statistics, 2015)

SES is correlated with skill development, academic achievement, work and life outcomes, and overall psychological and behavioral well-being across a lifespan. High SES has particularly positive effects on children and students. Young children from high-SES households and communities are less likely to develop learning-related behavior problems than those from environments with lower SES (Morgan, Farkas, Hillemeier, & Maczuga, 2009). SES has positive effects on individual and school-level literacy indicators, as

well as correlations with the quality of students' home learning environments and their classroom instruction (Buckingham, Wheldall, & Beaman-Wheldall, 2013).

CONCENTRATION OF POVERTY

In addition to the influence of an individual's poverty on educational and life outcomes, the concentration of poverty within a neighborhood in which an individual resides has an additional effect. Both poverty and place matter. Research indicates that poor families in a neighborhood with a concentration of poor families have a double disadvantage – it is meaningfully worse to grow up poor in a poor neighborhood than to grow up poor in a better resourced neighborhood (Jargowsky, 2015). The concentration of poverty within an area can further limit individuals and families' lack of access to resources and support to overcome the resulting challenges. There is a large body of research on the impact of concentrated poverty on students' outcomes and opportunities.

- The many barriers imposed by living in a neighborhood with concentrated poverty make it much harder for residents to move up the economic ladder and their chances of doing so only diminish the longer they live in such neighborhoods (Chetty R. , Hendren, Kline, & Saez, 2014).

- A study of the federally sponsored Moving to Opportunity program found that moving young children from a high-poverty housing project to a lower-poverty neighborhood increased college attendance and earnings and reduced single parenthood rates (Chetty, Hendren, & Katz, 2016).

- The concentration of poverty within schools has also shown to have negative effects on student outcomes. The socioeconomic composition of a school influences students' educational outcomes above and beyond the students' own family background, prior achievement, race, gender, and levels of effort or motivation (Mickelson, 2018).

- Low-poverty schools are 22 times more likely to reach consistently high academic achievement compared with high-poverty schools (Harris, 2007).

Neighborhoods do not exist in social or physical isolation and are often surrounded by other socioeconomically similar neighborhoods with residents of neighborhoods also visiting other neighborhoods in their everyday routines. Triple neighborhood disadvantage is a concept that builds on the idea that resources and well-being of a neighborhood are also dependent on the conditions in neighborhoods its residents visit and are visited by. A triple neighborhood disadvantage may lack the needed public or private investment as well as proximity to organizational resources further exagerating the concentration of poverty (Levy, Phillips, & Sampson, 2020).

GEOCODING OF K-12 STUDENT DATA

Pursuant to Education Article §24–703.3, the Maryland Longitudinal Data System (MLDS) Center is required to develop a protocol for geocoding K-12 Student Data. Specifically, the requirements are as follows:

- The Maryland Longitudinal Data System Center is required to develop a protocol for a county board to convert a student's home address and geolocation information into Census tract and block numbers.

- Local School Systems are required to convert student addresses into Census tract and block numbers.

- The MSDE is required to collect Census tract and block numbers from Local Systems, and to provide the collected Census tract and block numbers to the MLDS Center.

The MLDS Center and the MSDE collaborated with four local school systems (LSSs) to pilot a protocol to fulfil the requirements of the law. The pilot was completed September 2021 and statewide implementation is planned for fall 2022. As part of the pilot, the four LSSs have provided data to the MSDE to support the analysis and study of neighborhood indicators of poverty. Figure 1 highlights the activities as part of the Geocoding of K-12 Student Data workgroup.

Figure 1: Geocoding of K-12 Student Data Workgroup

MLDS Center with the MSDE Convenes a Workgroup

August 2020 —
September 2021

- Four Local School Systems
- Explored similar work across the nation

Protocol and Utility Development

December 2020 —
September 2021

- Protocol developed and utility tested
- Piloting local school systems convert addresses into geolocation information including Census tract and block numbers

Closure of Pilot and Workgroup

October 2021 —
September 2022

- Piloting local school systems provide data to MSDE
- MLDS Center finalizes protocol and utility
- The MSDE prepares for statewide implementation fall 2022

NEIGHBORHOOD INDICATORS OF POVERTY

Review of National Neighborhood Indicators of Poverty

The MSDE has reviewed available and emerging models of neighborhood indicators of poverty across the nation. Highlights of state and district measures from Texas, New Mexico and Chicago are included below.

1. **Texas Education Agency Statewide Socioeconomic Tier Model for Texas School-Age Residents.**
   In Texas, a statewide five-tier socioeconomic status (SES) classification model was developed based on four factors using ACS data including household income, home ownership, household composition, and educational attainment. A composite SES score was calculated for each of the 15,286 Texas Census block groups that contained family households and for which the most recent 5-year ACS provided a median household income estimate.

   - Calculated each students' economically disadvantaged status by the Census block group where their home/residence is located.

   - Increased compensatory education funding for students in lower socioeconomic tiers. The compensatory funding is based on a tiered multiplier with the highest weight resulting in the greatest amount of additional funding provided for students in the lowest SES tier. Homeless students are automatically assigned to the lowest SES tier.

   - Funding must be used for programs that meet the needs of educationally disadvantaged students including childcare services, assistance with childcare for students at risk of dropping out of school, life skills programs, programs eligible under Title I, and other permitted programs depending on needs of students.

- Via House Bill 3, the Texas Legislature created the Teacher Incentive Allotment (TIA), a statewide career ladder initiative to recruit, retain, and reward highly impactful teachers to teach in rural and high-needs schools. Under the TIA, districts can create local systems that designate accomplished teachers on three different levels: Recognized, Exemplary, and Master. Nationally Board Certified teachers are automatically considered Recognized. Districts receive additional state funding of $3,000 to $32,000 per year for every designated teacher they employ. The larger dollar amounts are allocated for those designated teachers who teach at rural and/or high-needs campuses, and 90 percent of the funds must be used on teacher compensation at the designated teacher's campus.

2. **New Mexico Public Education Department Family Income Index.**
   In New Mexico, a statewide five-tier family income index is calculated for every school in the state based on data from other state agencies as well as the Census data. For every school, the percentage of students in five income categories is calculated, which results in a ranked list of schools with the highest populations of low-income students.

   - Calculated each school's Family Income Index, or the percentage of students in families with the lowest incomes.

   - Allocated $15 million to 108 schools, with awards ranging from $20,000 to $434,174, to fight concentrated poverty in schools.

   - Funding must be used for specified purposes such as reading and math interventions, hiring school counselors and social workers, creating family information and resource centers, adopting culturally and linguistically diverse classroom texts, offering innovative professional learning opportunities, or after-school enrichment.

3. **Chicago Public School Tiers**.
   The Chicago Public Schools (CPS) developed a socioeconomic score (SES) four-tier methodology to increase diversity in the student body at selective schools. The CPS model used six factors from ACS data: household income, home ownership, household composition, educational attainment, percentage of households where English is not the primary language, and school performance.

Under the Blueprint for Maryland's Future, the MSDE is required to evaluate the American Community Survey and the Area Deprivation Index as part of the study.

The American Community Survey (ACS) collects data on demographics, household income, education, employment, and home ownership and is administered annually by the Census to a stratified random sample of approximately 2.5% of households across the United States. ACS data is aggregated and made available to the public for download on the Census website at several levels, including the block, block group, tract, and county levels.[2] In addition to results of each administration of the survey, the Census also aggregates results from the prior five years to provide more reliable estimates.

The Area Deprivation Index (ADI) developed by the University of Wisconsin-Madison uses the ACS to rank neighborhoods by socioeconomic disadvantage status. The ADI calculates a composite of 17 measures at the block group level. The measures capture education, income/employment, housing, and household characteristics. Block groups are ranked in nationwide percentiles and statewide deciles, which are available to the public.

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[2] Census block groups are aggregations of Census blocks and are the smallest unit for which detailed household data is available to the public.

Neighborhood Indicator of Poverty Exploration

The MSDE is leveraging existing and emerging models that use socioeconomic scores and tiers including those used by Chicago Public Schools, Dallas Independent School District, San Antonio Independent School District, and the Texas Education Agency. These models address many of the limitations of free and reduced-price meal eligibility data and capture the multiple dimensions of poverty beyond income. The foundation of these models is the use of Census block groups to identify neighborhoods and the use of American Community Survey (ACS) measures to identify multiple dimensions of poverty beyond school, local school system boundaries, or zip codes. An advantage of using the publicly available ACS data is that it allows flexibility in which variables can be included in the indicator.

The neighborhood indicator of poverty exploration presented in this interim report replicates the Texas approach due to its relative simplicity in using four measures which focus on neighborhood factors without the inclusion of school outcomes. These four measures represent distinct elements of poverty, are used in existing methodologies studied, and have been shown to be correlated with student achievement (Davis-Kean, 2005) (Ghimire, 2021) (Milne, Myers, Rosenthal, & Ginsburg, 1986) (Pong, 1997).

To create the neighborhood indicator of poverty, four Census block group measures were selected from the ACS:

- median household income,
- adult education level,
- home ownership, and
- household composition.

There are measures available in ACS beyond the four used in the current exploration including school performance, language proficiency, race and ethnicity, health disparities, computer ownership, and internet access that impact socioeconomic status. Future explorations may include possible expansions or supplemental use of the available measures.

A composite index of these four measures was calculated for 3,718 Census block groups in Maryland using the 2019 ACS 5-year estimates.[3] The 3,718 Census block groups were ranked high to low and assigned to one of five tiers where each tier contains a similar number of school-age residents (not a similar number of block groups). Tier 1 is high socioeconomic status (low poverty), and Tier 5 is low socioeconomic status (high poverty). See the Appendix A for the methodology developed for Maryland's exploration of a neighborhood indicator of poverty.

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[3] Maryland has 3,926 Census block groups but 208 block groups were missing one or more indicators and were not assigned a score or tier.

Results

Census block groups are classified into one of 5 tiers so that each tier contains a similar number of school-age residents. Statewide, 17.5% of block groups fall in Tier 1, 19.0% in Tier 2, 20.7% in Tier 3, 21.3% in Tier 4, and 21.5% in Tier 5. On average, block groups in each tier are differentiated from one another along all four indicators as highlighted in Table 1.

Table 1: Average Census block group characteristics by socioeconomic tiers

SES tier	Median household income ($)	% Home ownership	% Single Parent Households	Educational Score[4]	Total SES score[5]	N School-age residents
Tier 1	158,811	95.0	7.1	73.9	2.54	192,957
Tier 2	113,177	87.3	15.2	66.0	2.07	192,795
Tier 3	88,817	76.7	25.5	62.0	1.60	192,443
Tier 4	69,699	58.7	38.3	59.2	1.11	193,226
Tier 5	46,843	34.6	69.7	52.3	0.49	191,965

Figure 2 shows the socioeconomic tiers across the state of Maryland. Census block groups are colored according to the assigned tier, with red indicating the lowest SES Tier 5 and dark green indicating the highest SES Tier 1.

Figure 2: Map of Maryland Census Block Groups by Socioeconomic Tier

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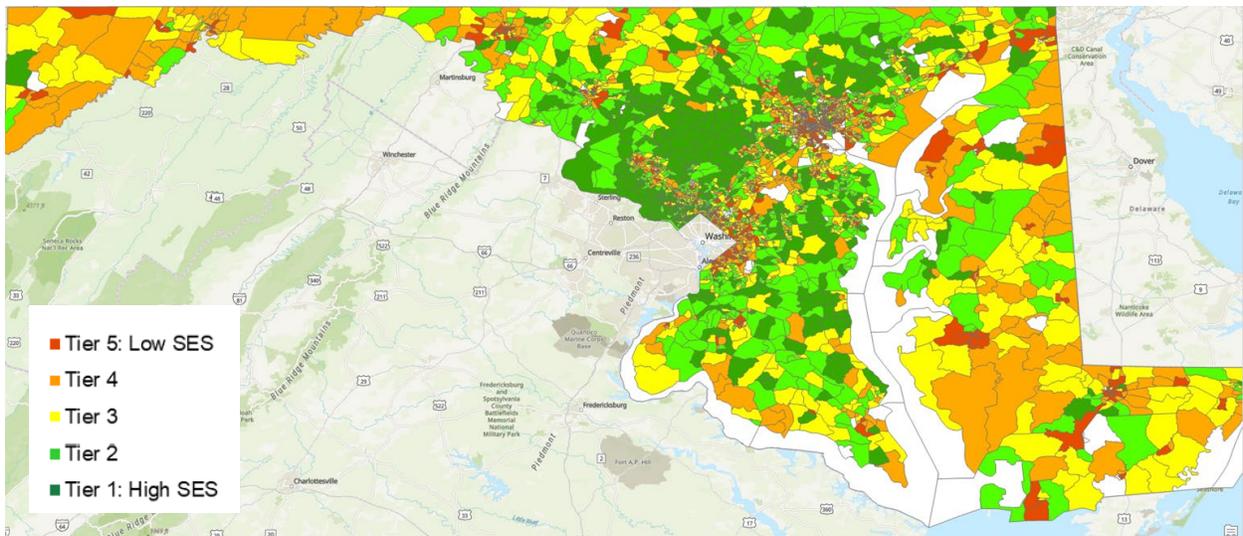
[4] Education score is calculated as a weighted percentage of adult in a Census block group who have attained different levels of education, from 20 for less than a high school diploma, to 100 for an advanced degree. See the Appendix A for more information.

[5] SES Score is the sum of state percentile rankings of the four indicators and can range from 0.04 (low SES) to 3.96 (high SES).

While statewide there are between 18% and 22% of Census block groups in each of the five SES tiers, Figure 3 shows there is considerable variation across school systems in Maryland in the percentage of high and low SES tiers within each of the school systems. For example:

- While more than half (54%) of the Census block groups in Baltimore City are in Tier 5 (low SES), zero low SES Census block groups are in Calvert County,

- Five local school systems (Allegany, Caroline, Dorchester, Kent, and Somerset) have zero high SES Census block groups (Tier 1),

- In Allegany, Baltimore City, Kent, and Wicomico counties, 70% or more of the Census block groups are in Tiers 4 or 5 (lower SES), and

- More than 50% of Census block groups in Calvert, Carroll, Harford, Howard, and Montgomery Counties are in Tiers 1 or 2 (higher SES).

**Figure 3: Distribution of Socioeconomic Tiers by Local School System**
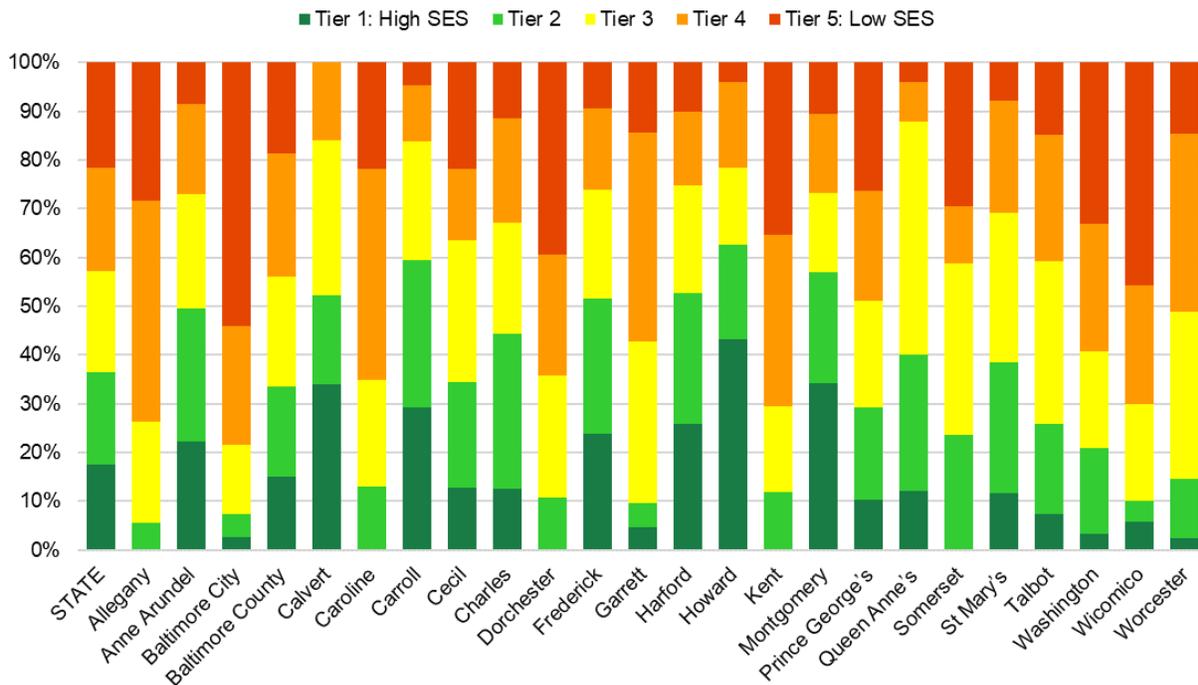
Table 2: Distribution of Census Block Groups by Socioeconomic Tiers and Local School System

Local School System	Tier 1: High SES	Tier 2	Tier 3	Tier 4	Tier 5: Low SES	Total
STATE	650	705	770	793	800	3,718
Allegany	0	3	11	24	15	53
Anne Arundel	68	83	72	56	26	305
Baltimore City	14	26	77	133	294	544
Baltimore County	77	95	116	130	95	513
Calvert	15	8	14	7	0	44
Caroline	0	3	5	10	5	23
Carroll	31	32	26	12	5	106
Cecil	7	12	16	8	12	55
Charles	10	25	18	17	9	79
Dorchester	0	3	7	7	11	28
Frederick	43	50	40	30	17	180
Garrett	1	1	7	9	3	21
Harford	41	43	35	24	16	159
Howard	66	30	24	27	6	153
Kent	0	2	3	6	6	17
Montgomery	205	138	97	98	63	601
Prince George's	53	97	113	116	135	514
Queen Anne's	3	7	12	2	1	25
Somerset	0	4	6	2	5	17
St Mary's	6	14	16	12	4	52
Talbot	2	5	9	7	4	27
Washington	3	16	18	24	30	91
Wicomico	4	3	14	17	32	70
Worcester	1	5	14	15	6	41

ANALYSES OF DATA IN PROGRESS

As reflected in this interim report, the MSDE has made progress in analyzing neighborhood indicators of poverty. Ongoing analysis and development continues around the the following areas:

- **Confirming and testing of the model measures and number of tiers.**
  The exploratory model used in this interim report includes four available ACS measures. The MSDE will continue to analyze the available ACS measures to ensure the robustness of the selected model. The exploratory model established 5 tiers based on statewide standards, which could limit the usefulness of the results in areas with little variation in SES at the block group level. Further exploration is needed to confirm the appropriate number of tiers.

- **Developing of school level SES tiers.**
  School level SES tiers will be based on student data provided by the pilot LSS, as required by Md. Ann. Code, Ed. Art. §24–703.3. The MSDE will explore how school level SES tiers relate to other available measures of poverty (FARMs) and student enrollment in a school.

- **Studying the relationship between school level SES tiers, school outcomes, and school resources.**
  Further exploration will include determining the correlations between school level SES tiers and

student achievement, growth, and attendance. The MSDE will also explore the relationship of school level SES tiers on access to school resources like inexperienced and out-of-field teachers.

- **Supporting the collection of high-quality student geolocation data.**
  Through the collaboration with local school systems, the MLDS Center and the MSDE identified challenges to the collection of high-quality address data in local school systems. The MSDE will continue the collaborative development of data collection procedures to ensure the availability of high-quality student geolocation data.

POLICY CONSIDERATIONS

The use of currently available data to identify low-income students has limitations, particularly with the inception of CEP. A large body of research also has identified the compounding effects of concentrated poverty on the outcomes and opportunities of students. There is a critical need for a measure to better allocate resources to drive student outcomes positively and at scale. A neighborhood indicator of poverty may be a feasible method of measuring and adequately providing funding to improve the outcome of disadvantaged students. Policy considerations for the use of emerging neighborhood indicators of poverty include:

- **Compensatory and funding allocations**
  Neighborhood indicators of poverty may provide a more accurate measure of poverty and concentrated poverty resulting in adequate funding of schools (Texas, New Mexico).

- **Equity and access**
  Additional funding could be allocated for specified uses grounded in evidence-based results to improve outcomes and opportunities for disadvantaged students (Chicago Public Schools).

- **Teacher incentives and placement**
  Resulting school level data could be leveraged to recruit, retain, and reward highly impactful teachers to teach in rural and high needs schools (Texas).

3 | Requirement II: Progress on Incorporating Medicaid Data

BACKGROUND ON INCORPORATING MEDICAID DATA

Under the Blueprint for Maryland's Future, the Maryland State Department of Education is required to provide as part of the interim report, the progress towards incorporating Medicaid data into the direct certification of students eligible for the compensatory education program.

PROGRESS TOWARD INCORPORATING MEDICAID DATA

MSDE has applied for participation in the [United States Department of Agriculture Medicaid Demonstration Project](#) for the 2023 school year. Applications for that time period were due September 30, 2021, and, if approved, MSDE will implement the program on July 1, 2022.

The Office of Health Care Financing, that is within the Maryland Department of Health, is coordinating with the Maryland Health Benefits Exchange (MHBE), Maryland's state-based health insurance exchange, to ensure student aged Medicaid data is shared with the Maryland State Department of Education (MSDE). MSDE will coordinate with the Maryland Health Benefits Exchange to establish a new Data Use Agreement that provides Modified Adjusted Gross Income (MAGI) enrollee data by income category needed for this project.

4 | Requirement III: Progress on Using and Developing State Alternative Income Eligibility Forms

BACKGROUND ON STATE ALTERNATIVE INCOME ELIGIBILITY FORM

Under the Blueprint for Maryland's Future, the Maryland State Department of Education is required to develop an alternative income eligibility form. The form must include a statement indicating that the income information requested on the form is used to determine local and state funding for education. The form must be used by all schools participating in the U.S. Department of Agriculture Community Eligibility Provision and may be collected by all other schools beginning in the 2022-2023 school year.

PROGRESS TOWARDS THE STATE ALTERNATIVE INCOME ELIGIBILITY FORM

Because of CEP and other changes to the NSLP, states and local school systems can no longer rely on federal resources to collect household forms from students' families to determine eligibility for meals. The result is that schools lack an accurate count of low-income students due to a decline in the collection of household forms. States therefore are turning to alternatives with varying levels of success (Greenberg E. , 2018). Some states do require household alternative income forms to be administered annually by CEP participating school systems[6].

The MSDE has planned to develop the alternate form during school year 2021-2022.

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6 Alternative Approaches to Using School Meals Data in Community Eligibility (CEP) Schools, Center on Budget and Policy Priorities, Food Research & Action Center, June 2017.

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APPENDIX A: METHODOLOGY

The American Community Survey (ACS) 5-year estimate tables were downloaded from the United States Census Bureau website and imported into Stata statistical software for each of the 3,926 Census block groups in Maryland. The following measures were constructed using ACS data:

- Median household income in the last 12 months

- Percent home ownership

    - Calculated as the number of homeowners divided by the total occupied housing units.

- Percent single parent households

    - Calculated as the number of single parent householders with children under 18 divided by the total households with children under 18.

- Education score

    - A number from 0 to 1, calculated as the percentage of residents over age 25 who had attained each education level, weighted as follows:

        - Less than a HS Diploma – 0.2

        - HS Diploma or GED – 0.4

        - Some College – 0.6

        - Bachelor's Degree – 0.8

        - Advanced Degree – 1.0

- Student age population

    - Defined as the number of residents between the ages of 5 and 17.

Out of the 3,926 Census block groups in Maryland, there were 155 block groups missing median household income, 34 block groups that contained no residential housing units, 104 block groups in which no family households resided, and 27 block groups in which no individuals 25 or older resided. Not surprisingly, there was considerable overlap among block groups missing one of these measures. The total number of block groups excluded due to a missing or zero value on one or more of these variables was 208 (5.3%) containing 13,428 school-age residents, while 69 of these block groups had zero school-age residents.

Each of the four variables were ranked and assigned a percentile score from 0 to 1, with single parent households reverse coded. A unique percentile score was calculated for each percentage score, such that two block groups sharing the same percentage score on a given indicator received the same percentile score for that indicator. The scores were then added to create an overall Socioeconomic Score falling between 0 and 4, using the following calculation:

$Total\ Socioeconomic\ Score =$ Median Household Income Score $+$ Home Ownership Score $+$ Single Parent Family Score $+$ Education Score

After calculating a total socioeconomic score for each of 3,718 block groups with complete data, the block groups were ranked in order from lowest to highest. Census block groups were then divided so approximately 20% (~195,363) of school-age residents were in each of five tiers.

APPENDIX B: PRESENTATION TO THE MARYLAND STATE BOARD OF EDUCATION

Blueprint Deep Dive: Neighborhood Indicators of Poverty, Presentation to the Maryland State Board of Education, September 28, 2021 Meeting

Mohammed Choudhury
State Superintendent of Schools

TO:	Members of the State Board of Education
FROM:	Mohammed Choudhury
DATE:	September 28, 2021
SUBJECT:	Blueprint Deep Dive: Neighborhood Indicators of Poverty

PURPOSE:

To provide an update on the progress towards developing a neighborhood indicator of poverty in the Blueprint for Maryland's Future.

EXECUTIVE SUMMARY:

The Blueprint for Maryland's Future requires the Maryland State Department of Education to conduct a study on neighborhood indicators of poverty with an interim report due November 1, 2021 to the Maryland General Assembly and the Accountability Implementation Board (AIB), and a final report due October 1, 2022 to the AIB.

The presentation to the Board will highlight the efforts underway to collect more comprehensive and meaningful data, and the progress the Maryland State Department of Education has made in developing a neighborhood indicator of poverty.

Information presented will include the following topics:
- Background on Poverty, Limitations of Data and Concentration of Poverty;
- Maryland's Timeline and Progress towards a Neighborhood Indicator of Poverty; and
- Exploring Neighborhood Indicators of Poverty.

Additionally, at the Maryland State board meeting a case study of the use and impact of neighborhood indicators of poverty in Texas will be presented.

ACTION:

No action is necessary; for discussion only.

Blueprint Deep Dive: Neighborhood Indicators of Poverty

Maryland State Department of Education
September 28, 2021

The Blueprint for Maryland's Future

MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

The progress on **analyzing neighborhood indicators of poverty.**

The study shall evaluate:
1. The **American Community Survey data** available across geographic areas in the Small Area Income and Poverty Estimates Program to provide school district poverty estimates; and
2. The **Area Deprivation Index** developed by the University of Wisconsin – Madison to rank neighborhoods by socioeconomic status disadvantage.

The fiscal year for which **Medicaid data** can be incorporated into the direct certification of students eligible for the compensatory education program.

The plan for developing and using the **State alternative income eligibility form** to determine eligibility for the compensatory education program.

NOVEMBER 1, 2021

The Department **shall submit an interim report to the General Assembly, and the Accountability and Implementation Board.**

OCTOBER 1, 2022

The Department **shall submit a report to the Accountability and Implementation Board** on incorporating neighborhood indicators of poverty to determine a school's eligibility for the compensatory education program and the concentration of poverty grant based on the study.

Topics

➢ Background on Poverty, Limitations of Data and Concentration of Poverty

➢ Maryland's Timeline and Progress Towards a Neighborhood Indicator of Poverty

➢ Exploring Neighborhood Indicators of Poverty

➢ Case Study: Texas

Multiple Factors Impact Poverty

Poverty is "the extent to which an individual does without resources."

(Payne, R. K. (2005). A framework for understanding poverty. Aha! Process.)

Neighbor-hood

Home Ownership

Household Composition

Occupation of Parent or Guardian

Highest Level of **Education** Completed by Parent or Guardian

Family or Household **Income**

MARYLAND STATE DEPARTMENT OF **EDUCATION** EQUITY AND EXCELLENCE

Why does measuring poverty matter?

Understanding the socioeconomic conditions of local communities allows policymakers and practitioners to:

Differences in demographic and economic conditions are often associated with differences in educational opportunities and outcomes.

- **allocate financial, instructional, and support resources** to groups of people (e.g., students, schools, and communities);

- identify individuals who are eligible to participate in a range of **supplemental programs and services** or otherwise receive public benefits;

- understand potential socioeconomic differences when **comparing educational conditions** across students, schools, and school systems; and

- **report on the effectiveness** of schools, programs, and services for a wide range of student groups.

How is poverty measured in education?

The count of students eligible for a free or reduced price meal under USDA's **National School Lunch Program** (NSLP) is the most commonly used measure of poverty in education.

Pros (Core Conditions Met)	Cons (Limitations and Data Quality Issues)
• Universal participation and criteria • Regularly updated • Stable infrastructure with long history and well funded • Accessible and widely available	• Binary measure capturing little variation in **household income** (Domina et al., 2018) • Measure is of **an individual at a point-in-time** and not a neighborhood measure. • Participation rates are **not constant across grades** (Harwell & LeBeau, 2010) • **Systemic differences** in participation • Community Eligibility Provision **limits availability of student level data** • Eligibility of students relies on household forms and/or direct certification

Both Poverty and Place Matter

- The **socioeconomic composition of school influences students' educational outcomes** above and beyond their own family background, prior achievement, race, gender, and levels of effort or motivation (Mickelson, 2018).

- The many barriers imposed by living in a poor neighborhood make it much **harder for residents to move up the economic ladder** and their chances of doing so only diminish the longer they live in such neighborhoods. (Chetty et al., 2014).

- **Moving to a lower poverty neighborhood at a young age** increases college attendance and earnings (Chetty et al., 2016).

- While racial segregation within a district is a very strong **predictor of achievement gaps,** school poverty - not racial composition of schools - accounts for this effect (Reardon, 2019).

- **Low-poverty schools are 22 times more likely to reach consistently high academic achievement compared with high-poverty schools** (Harris, 2007).

Concentration of Poverty

Concentration of poverty is different than a measure of poverty at the individual or family level.

The concentration of poverty is a measure of the percentage of poor residents in an area.

Poor families in a neighborhood with a high concentration of poverty have a **double disadvantage** (Jargowsky, 2015).
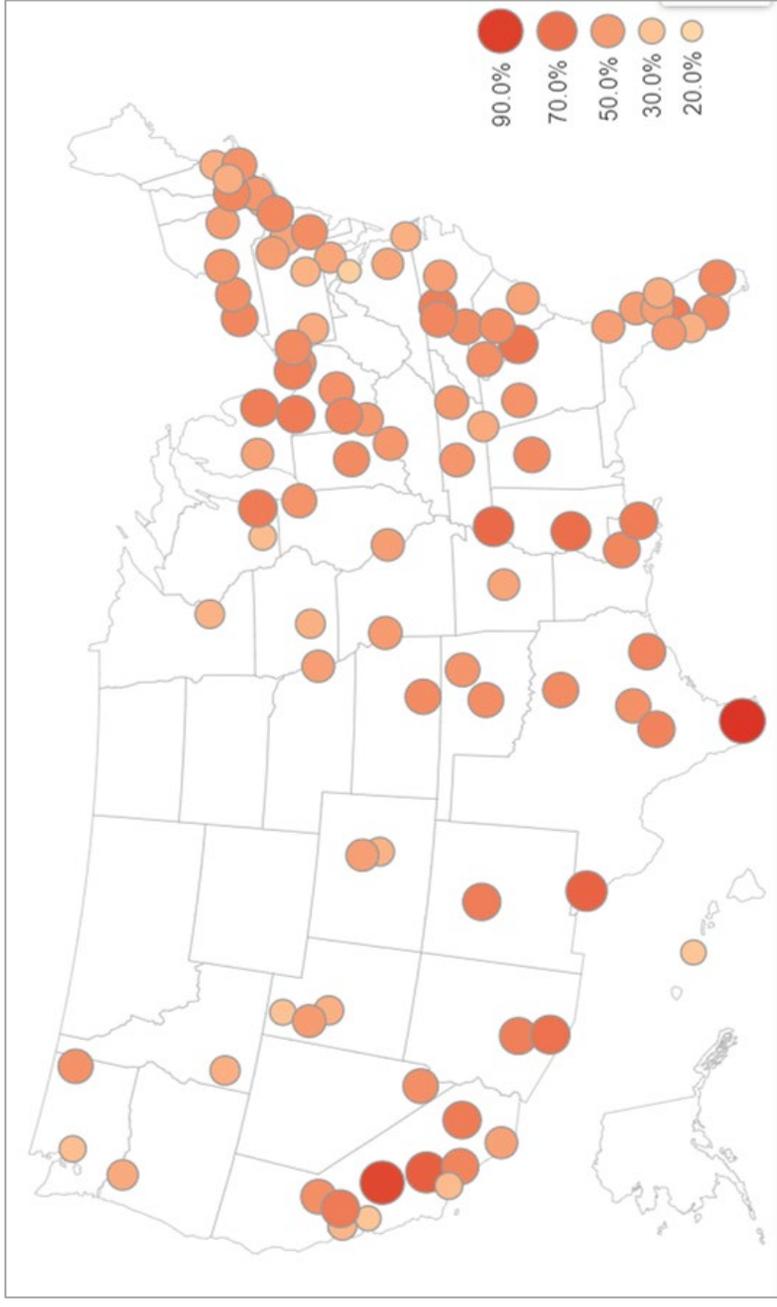
Share of the poor population living in a neighborhood with a 20%+ poverty rate

Legend: 90.0% 70.0% 50.0% 30.0% 20.0%

HB 1206 (2019) - Census Tracts and Blocks
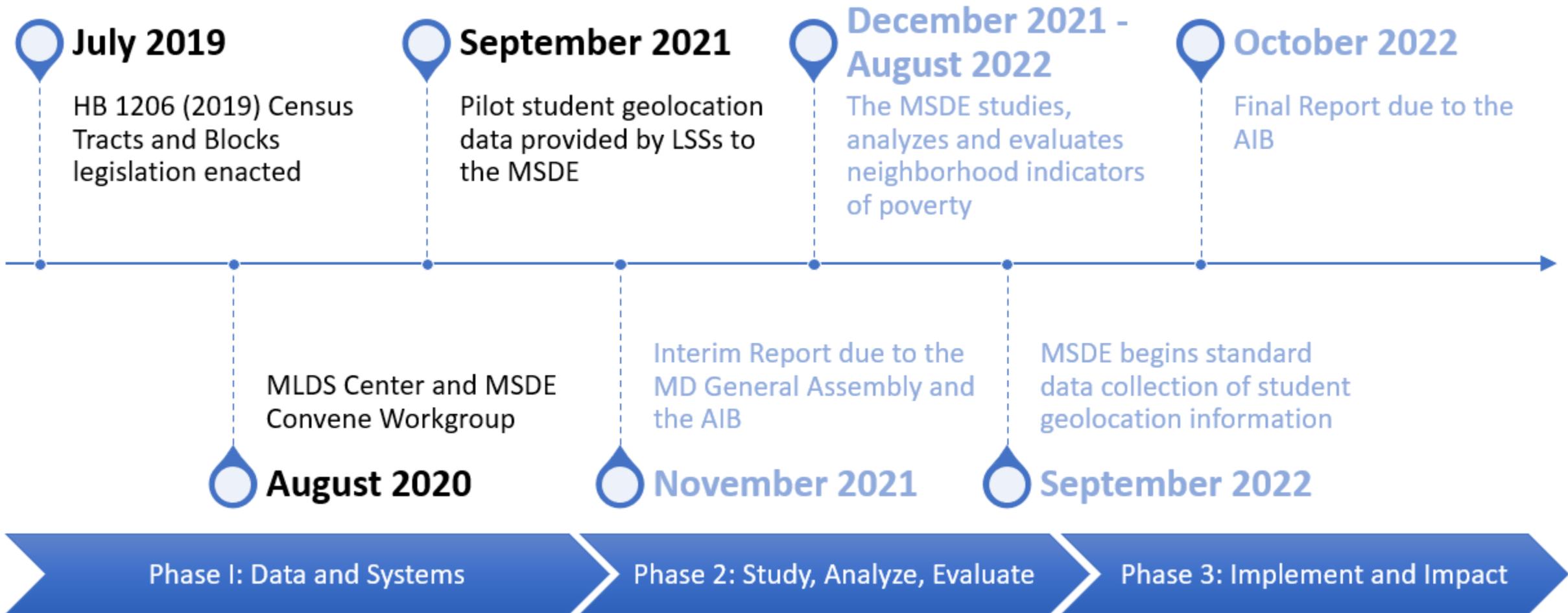
The Maryland Longitudinal Data System Center

➢ Required to develop a protocol for a county board to convert a student's home address and geolocation information into Census tract and block numbers.

Local School Systems

➢ Required to convert student addresses into Census tract and block numbers.

Maryland State Department of Education

➢ Required to collect Census tract and block numbers from Local System, and to provide the collected Census tract and block numbers to the MLDS Center.

Blocks

Block Groups

Tracts

Counties
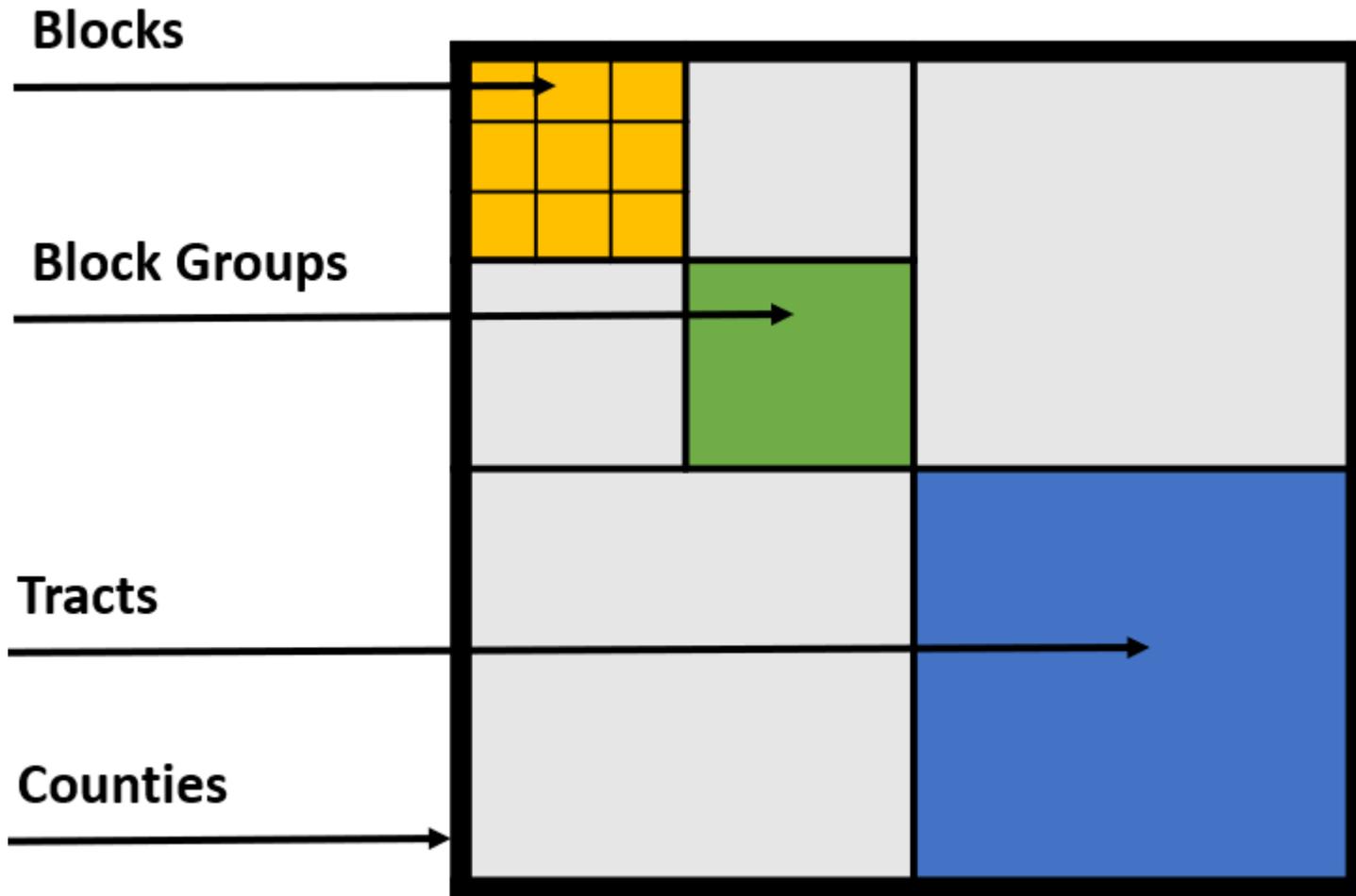
What are Census Tracts and Blocks?

HB 1206 (2019) - Census Tracts and Blocks

MLDS Center with MSDE Convenes Workgroup	Protocol and Utility Development	Workgroup Members Conduct Pilot	Closure of Pilot and Workgroup
August 2020 - Present	December 2020 - Present	April 2021 - September 2021	October 2021 - September 2022
• 4 local school systems • Explored similar work across the nation	• Protocol and utility developed • LSSs convert address and geolocation information into census tract and block numbers.	• Workgroup members pilot the utility and convert student addresses.	• Pilot student data provided to the MSDE • MLDS Center finalizes Protocol and Utility

Progress Towards a Neighborhood Indicator of Poverty

MARYLAND STATE DEPARTMENT OF **EDUCATION**
EQUITY AND EXCELLENCE

July 2019
HB 1206 (2019) Census Tracts and Blocks legislation enacted

September 2021
Pilot student geolocation data provided by LSSs to the MSDE

December 2021 - August 2022
The MSDE studies, analyzes and evaluates neighborhood indicators of poverty

October 2022
Final Report due to the AIB

MLDS Center and MSDE Convene Workgroup
August 2020

Interim Report due to the MD General Assembly and the AIB
November 2021

MSDE begins standard data collection of student geolocation information
September 2022

Phase I: Data and Systems → Phase 2: Study, Analyze, Evaluate → Phase 3: Implement and Impact

Maryland Blueprint Interim Report - Highlights

| The progress on ⟶	Update
Analyzing **neighborhood indicators of poverty** 1. The US Census American Community Survey 2. The Area Deprivation Index developed by the University of Wisconsin	Using the American Community Survey (ACS), Census block groups have been categorized and a socioeconomic score calculated based on a composite index of: • median household income; • adult education level; • home ownership; and • household composition.
Incorporating Medicaid data into the direct certification of students eligible for the compensatory education program	MSDE is applying for participation in the USDA Medicaid Demonstration Project for the 2023 school year. Applications for that time period are due September 30, 2021 and, if approved, MSDE will implement the program July 1, 2022.
Developing and using the **State alternative income eligibility form** to determine eligibility for the compensatory education program	No Alternate Form has been developed by the State.

Maryland's Exploration of a Neighborhood Poverty Indicator
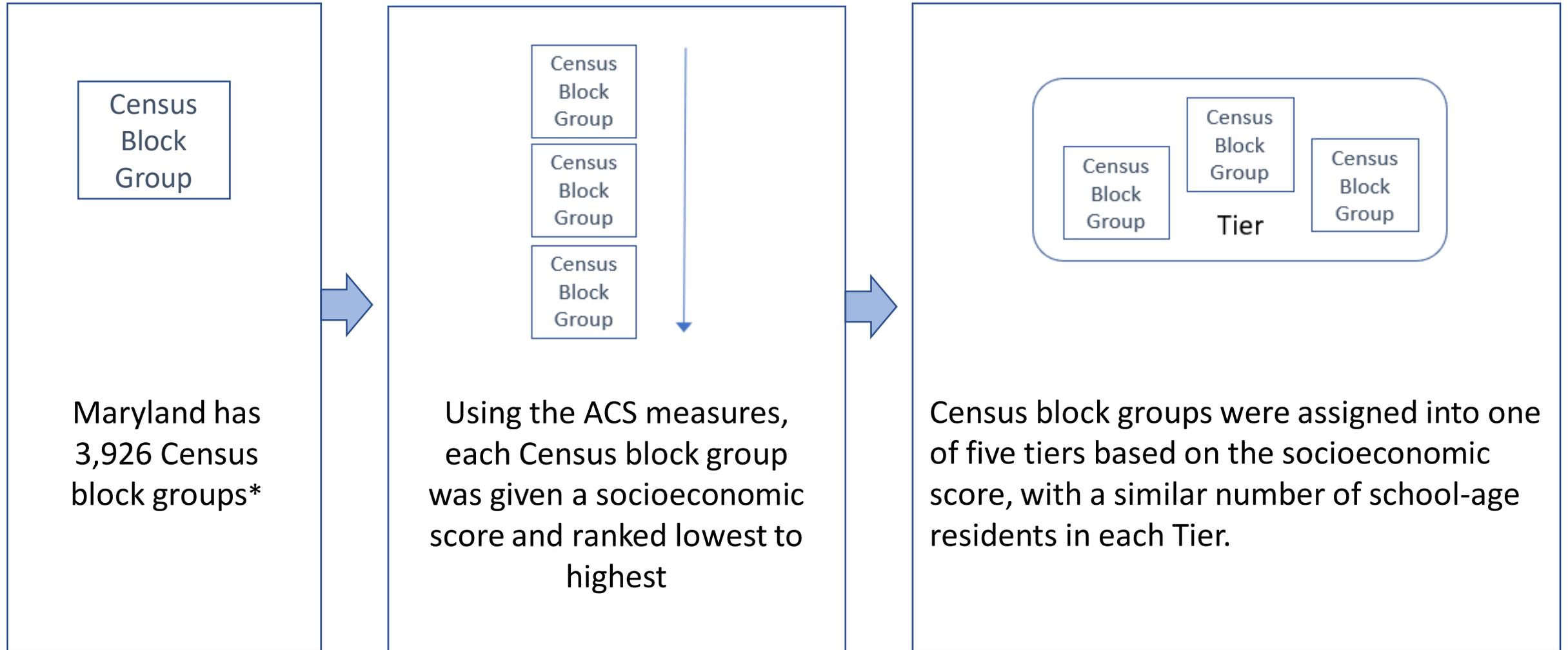
Maryland has 3,926 Census block groups*

Using the ACS measures, each Census block group was given a socioeconomic score and ranked lowest to highest

Census block groups were assigned into one of five tiers based on the socioeconomic score, with a similar number of school-age residents in each Tier.

# Maryland's Exploration of a Neighborhood Poverty Indicator

Tier*	Median household income	Home ownership (%)	Single Parent Households* (%)	Educational Level 20 = Less than HS 100 = advanced degree	Block Groups (N)	Block Groups (%)
Tier 1	$158,811	95.0%	7.1%	73.9	650	17.5%
Tier 2	$113,177	87.3%	15.2%	66.0	705	19.0%
Tier 3	$88,817	76.7%	25.5%	62.0	770	20.7%
Tier 4	$69,699	58.7%	38.3%	59.2	793	21.3%
Tier 5	$46,843	34.6%	69.7%	52.3	800	21.5%

*Tier 5 is considered high poverty/low socioeconomic score and Tier 1 is low poverty/high socioeconomic score.

# Maryland's Exploration of a Neighborhood Poverty Indicator

Legend:
- Tier 5: Low SES
- Tier 4
- Tier 3
- Tier 2
- Tier 1: High SES
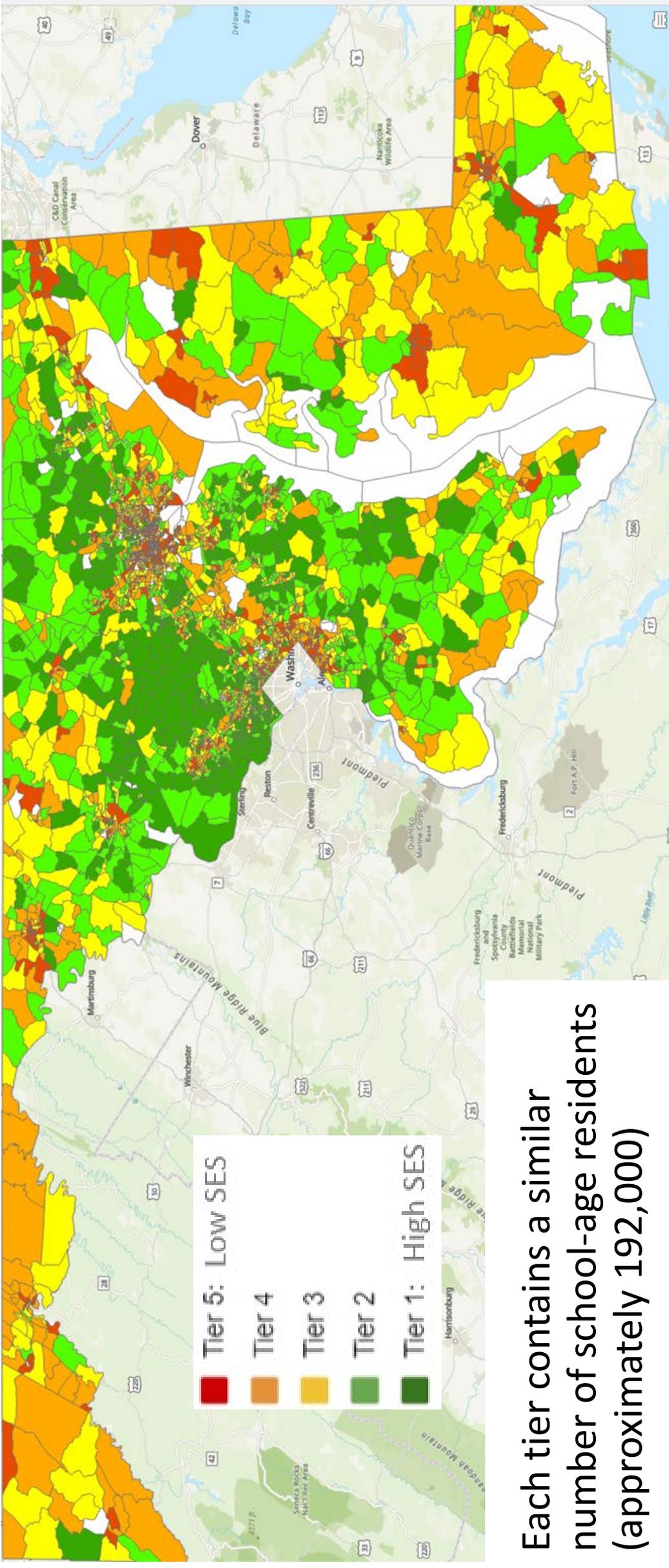
Each tier contains a similar number of school-age residents (approximately 192,000)

MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

Maryland's Exploration of a Neighborhood Poverty Indicator

Socioeconomic Tiers by Local School System
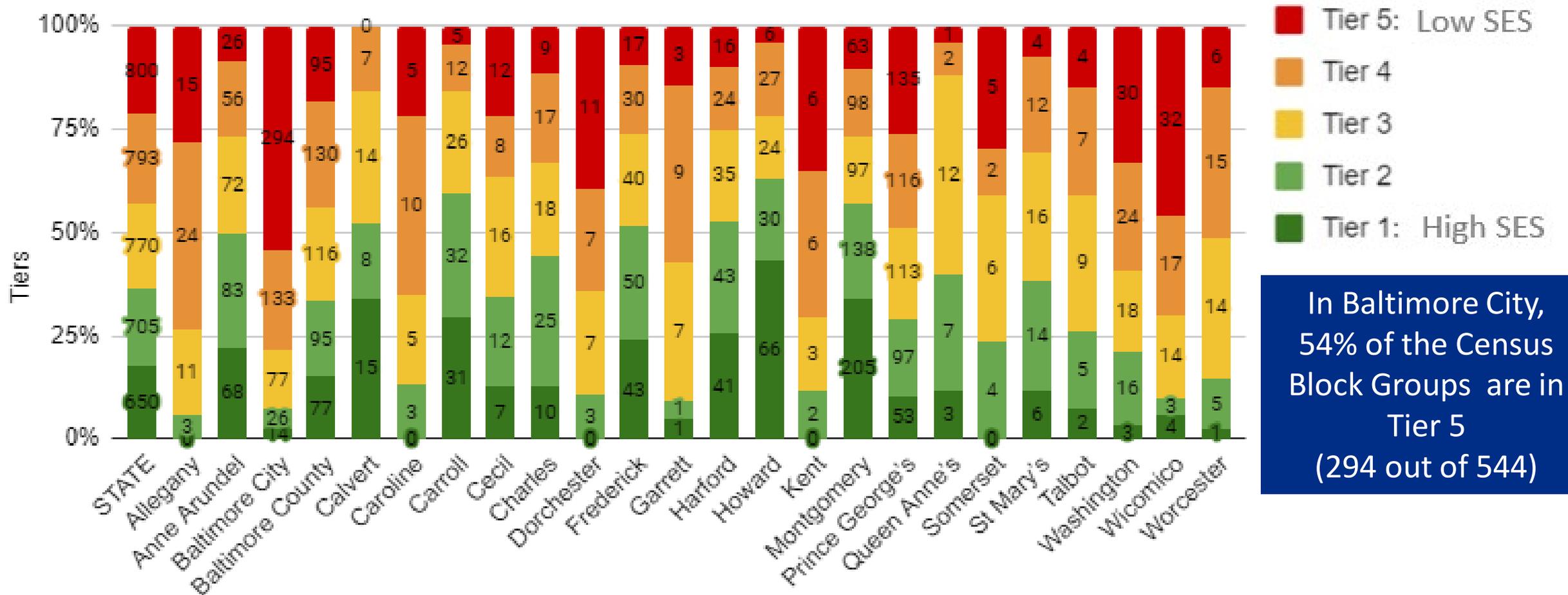
In Baltimore City, 54% of the Census Block Groups are in Tier 5 (294 out of 544)

Maryland's Exploration of a Neighborhood Poverty Indicator

Percent Tier 4 and Tier 5 in Local School Systems
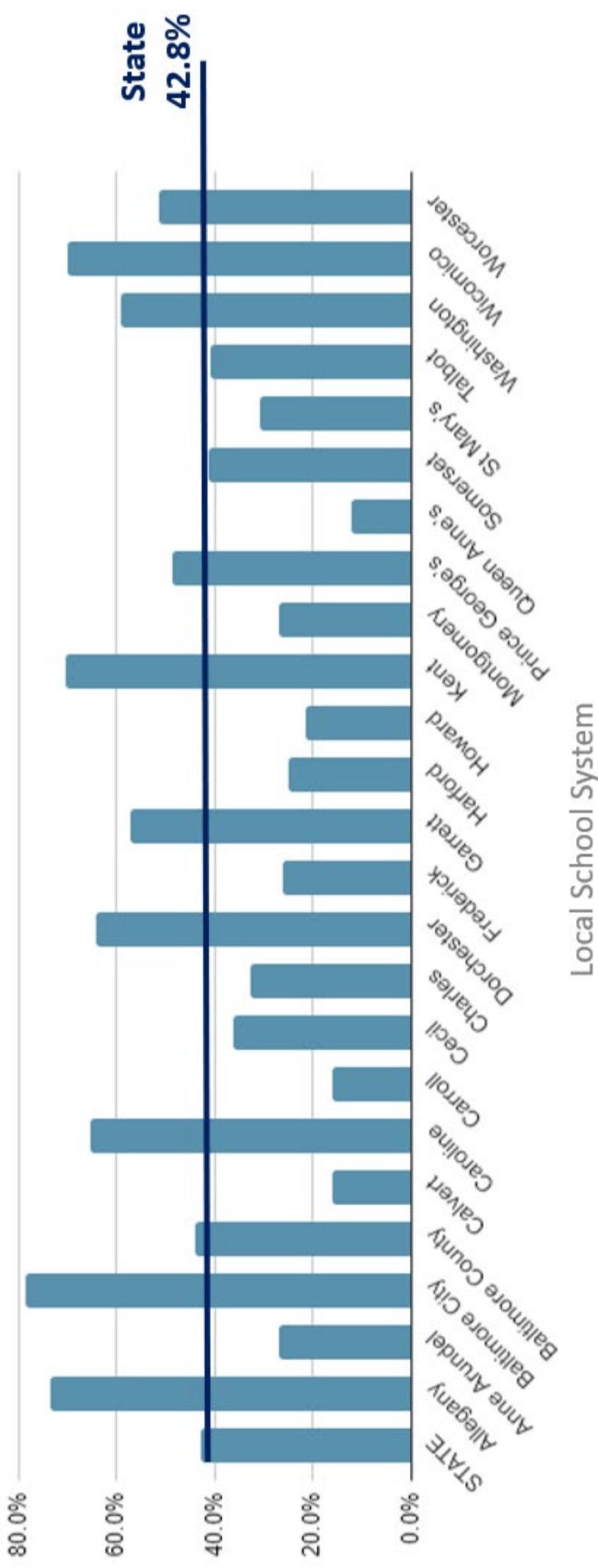
State 42.8%

Local School System

Maryland's Exploration of a Neighborhood Poverty Indicator

Prince George's County
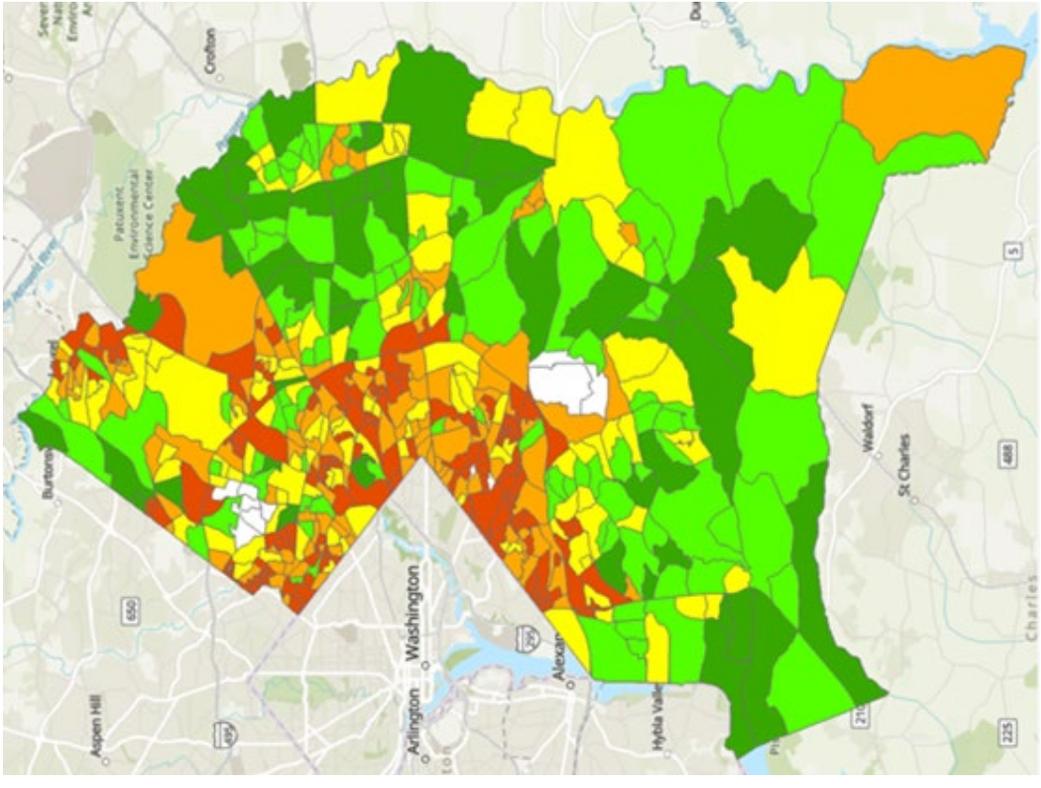
Howard County

Tier 5: Low SES

Tier 4

Tier 3

Tier 2

Tier 1: High SES

Maryland's Exploration of a Neighborhood Poverty Indicator
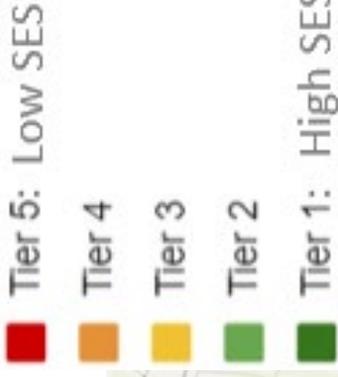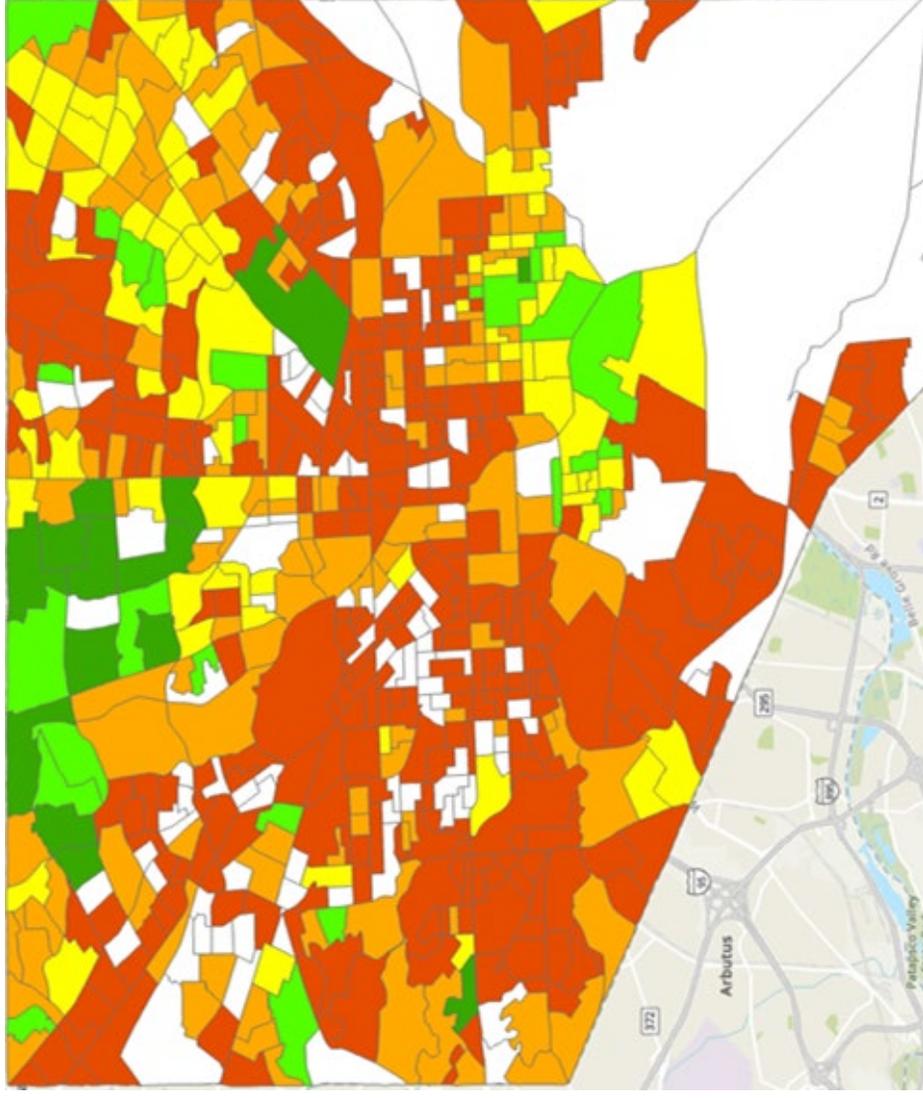
Montgomery County

Baltimore City

Tier 5: Low SES
Tier 4
Tier 3
Tier 2
Tier 1: High SES
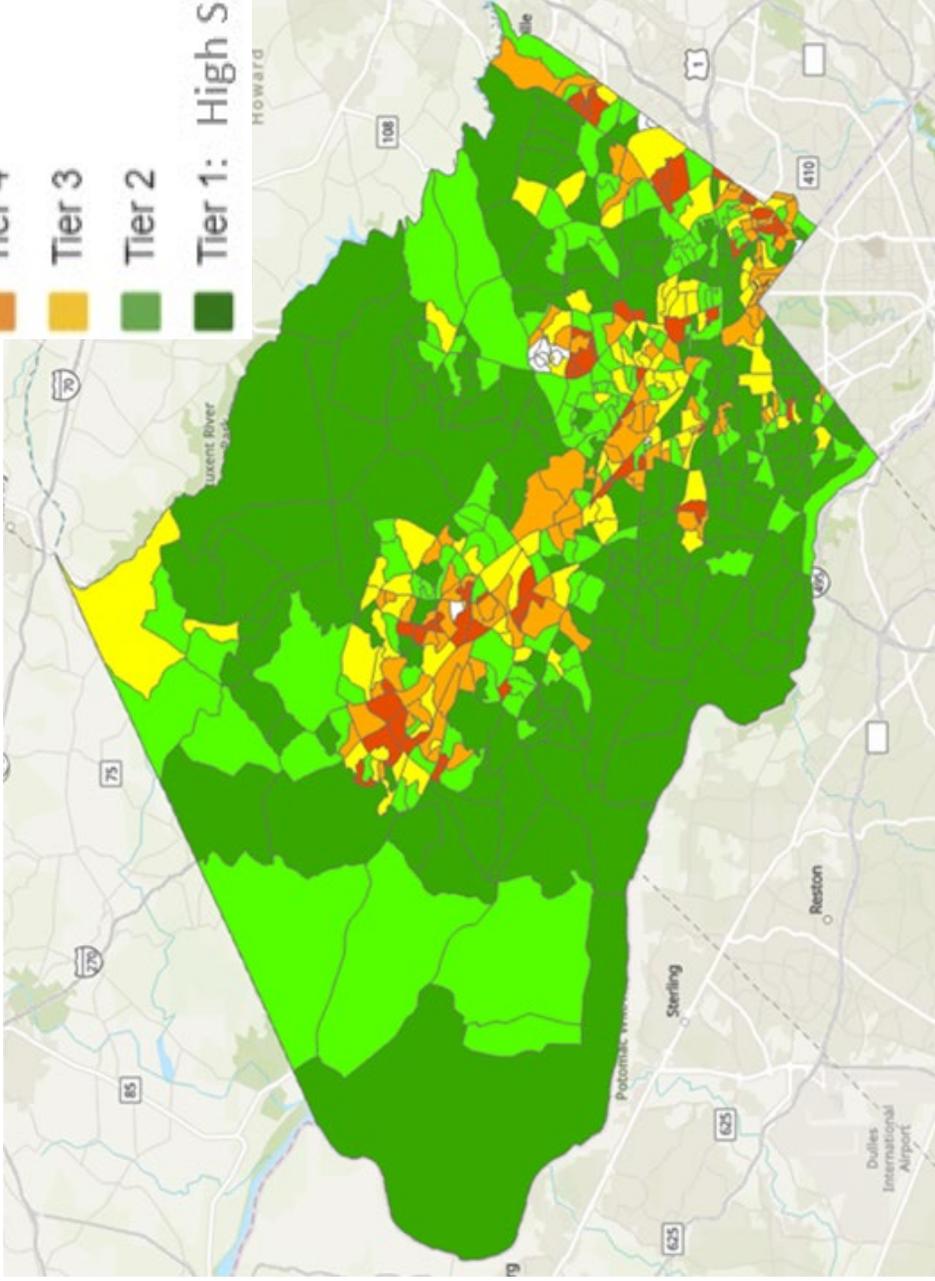
Future Explorations

Pilot — Data from pilot provided to MSDE

Use — School composite created

Analyze — Analyze within school variance

Compare — Compare school composite to other school student groups (FARMS, Econ. Dis.)

Investigate — Investigate how school composite correlates with achievement

Engage — Engage stakeholders for additional feedback
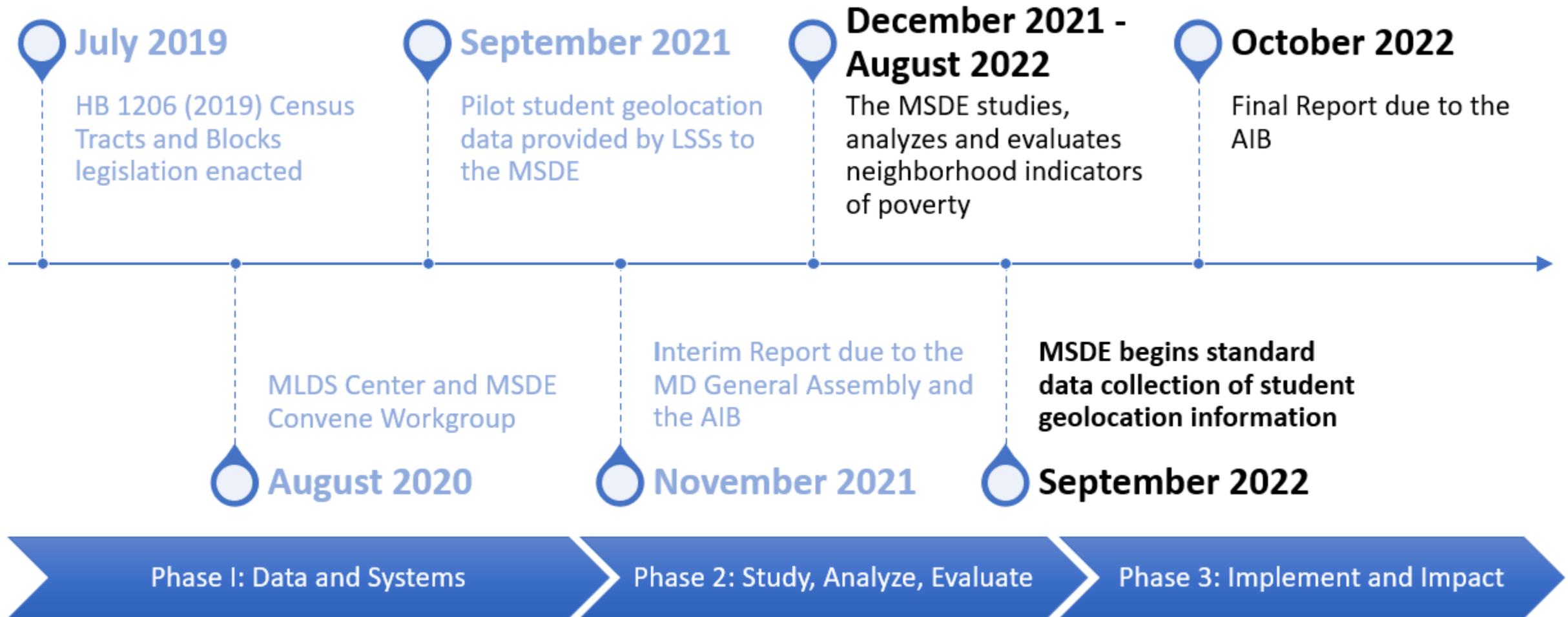
National Exploration of a Neighborhood Poverty Indicator

With the support of the National Center on Education Statistics (NCES) and the Institute of Education Sciences (IES) participating states will combine information, including geolocation of students, to summarize existing and proposed poverty measures.

Sixteen states are participating in the project to evaluate the value of supplementing poverty measures.

Powered by Bing
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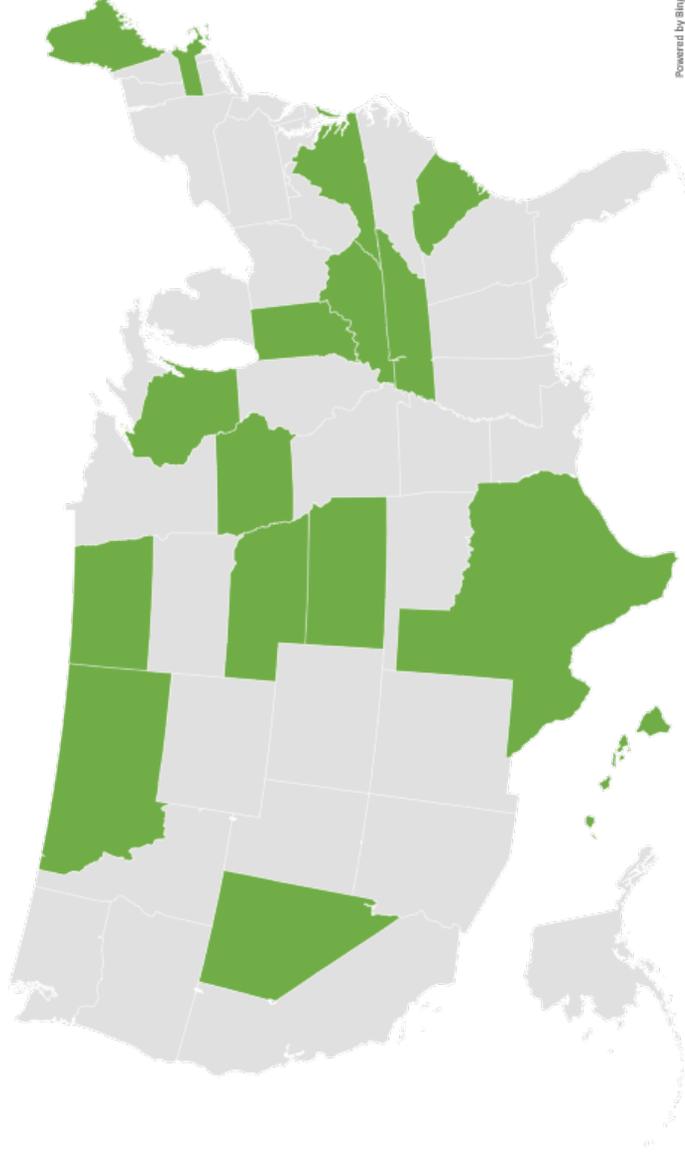
National Exploration of a Neighborhood Poverty Indicator

New Mexico's Family Income Index Act signed into law April 2021

- Census data used to identify household income of every NM public school student.

- Calculated each school's Family Income Index, or the **percentage of students in families with the lowest incomes.**

- Allocated $15 million to 108 schools, with awards ranging from $20,000 to $434,174, to **fight concentrated poverty in schools.**

Funding must be used for:

- ✓ reading and math interventions,

- ✓ hiring school counselors and social workers,

- ✓ creating family information and resource centers,

- ✓ adopting culturally and linguistically diverse classroom texts,

- ✓ offering innovative professional learning opportunities, or

- ✓ after-school enrichment.

National Exploration of a Neighborhood Poverty Indicator

Texas House Bill 3 passed in July 2019

- Established the Texas Education Agency Statewide Socioeconomic Tier Model for Texas School-Age Residents.

- Census block groups **are tiered by income and household characteristics** using ACS data.

- Students are designated **as economically disadvantaged by the Census block group** where their home/residence is located.

- Increased **compensatory education funding for students in lower socioeconomic tiers.**

- Created the Teacher Incentive Allotment, **a statewide career ladder initiative to recruit, retain, and reward highly impactful teachers to teach in rural and high needs schools.**

San Antonio ISD is the main urban core district in Bexar County

- The district has about 49,000 students in 90+ campuses
- 92% students qualifying for Fre or Reduced Lunch
- 93% Hispanic Students
- 6% Black Students
- 19% English Language Learners
- 12% Special Education

Map provided by Go Public
WeGoPublic.com
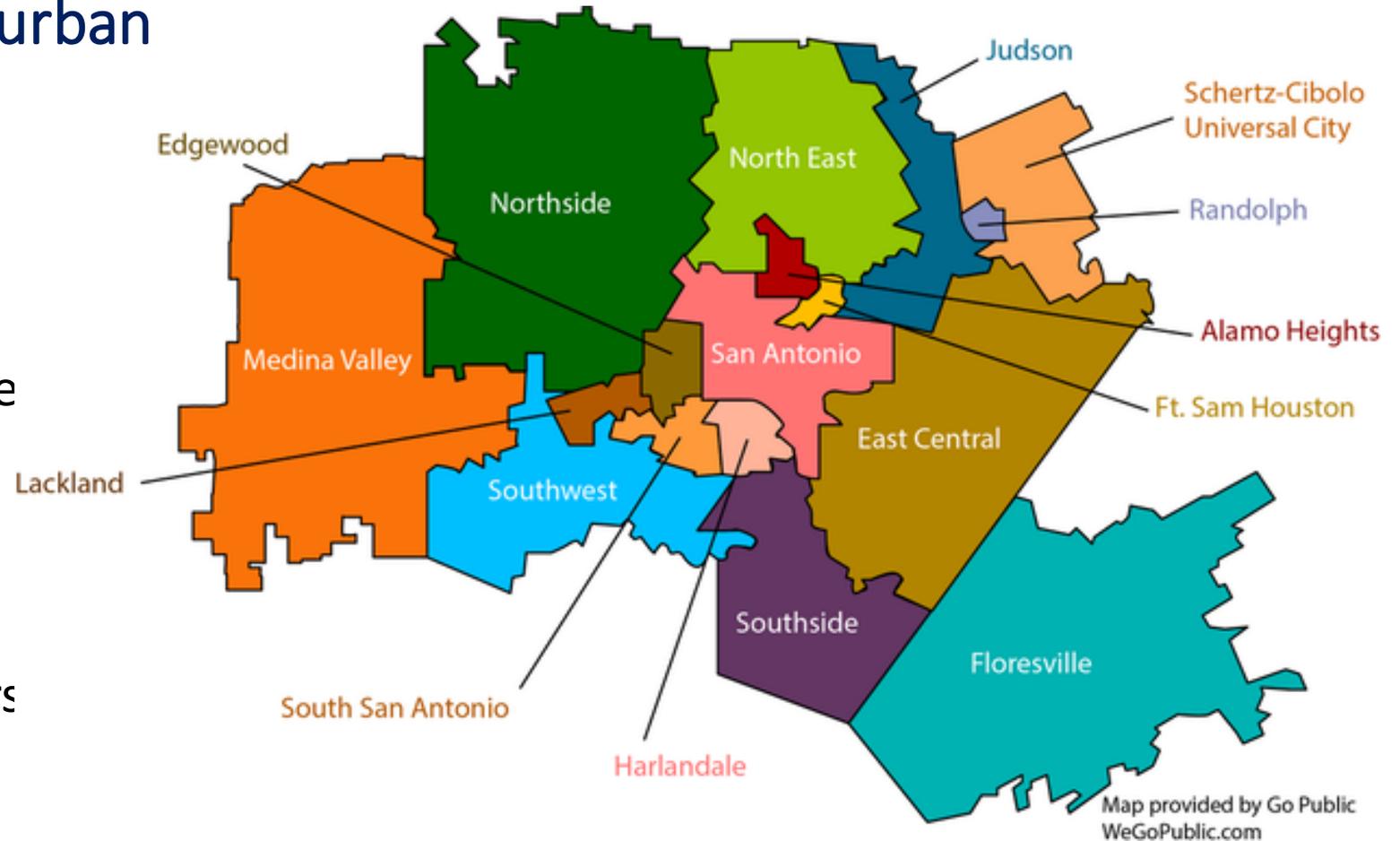
Texas (TEA) Socioeconomic Tiers 2020-2021
San Antonio ISD District Boundaries

Block Assignments

321 Census Block Groups categorized into five levels based on:

- Median Household Income
- Home Ownership rate
- Single Parent Households
- Adult Education Levels

An equal number of school-aged children reside in each of the five colored blocks

Federal Income Criteria for Family of Four

Poverty Level:	$26,500
Reduced Lunch Program:	$48,470
Free Lunch Program:	$34,060

SAISD	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Econ. Disadv. Students	1,923	4,521	10,499	17,297	26,022
Median Income	$115,651	$57,349	$47,961	$35,936	$26,728
Percent Single Parent Households	17%	24%	34%	45%	56%
Percent Home Ownership	75%	64%	62%	56%	41%
Education Score	71%	58%	51%	45%	40%
Total SES Score	3.01	2.22	1.68	1.15	0.65

Texas	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Econ. Disadv. Students	642,317	642,533	642,740	642,481	584,077
Median Income	$102,627	$61,172	$49,108	$39,185	$28,873
Percent Single Parent Households	13%	24%	33%	42%	56%
Percent Home Ownership	83%	68%	60%	49%	32%
Education Score	66%	56%	51%	46%	41%
Total SES Score	3.15	2.25	1.70	1.19	0.64
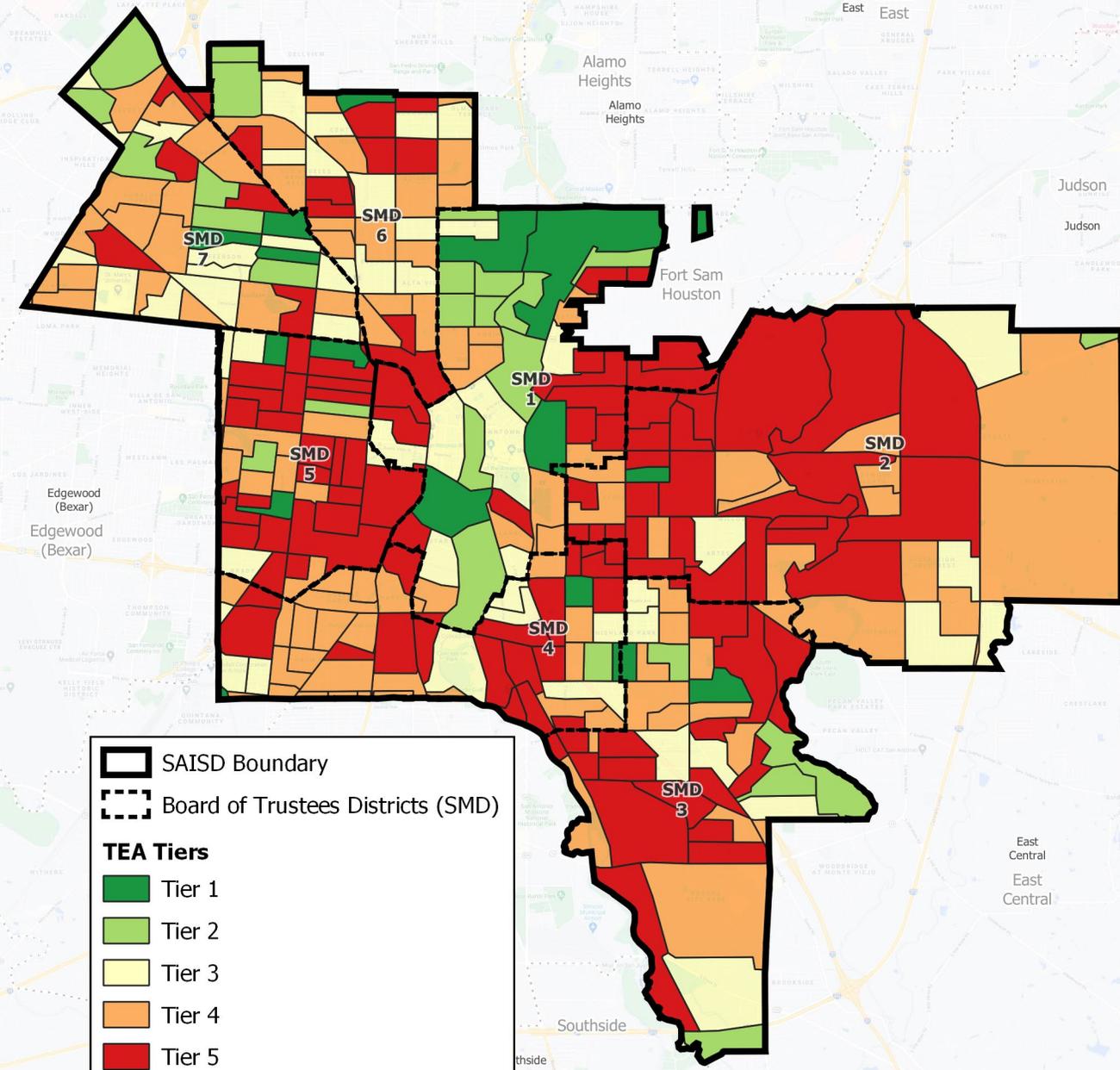
Legend:
- SAISD Boundary
- Board of Trustees Districts (SMD)

TEA Tiers
- Tier 1
- Tier 2
- Tier 3
- Tier 4
- Tier 5

Dallas ISD

SOCIOECONOMIC BLOCKS

808 Census Blocks

Equal number of students in each Block

Blocks based on:
- Median Income
- Single-Parent
- Home Ownership
- Adult Education

Legend:
- DISD Boundary
- Block 1
- Block 2
- Block 3
- Block 4
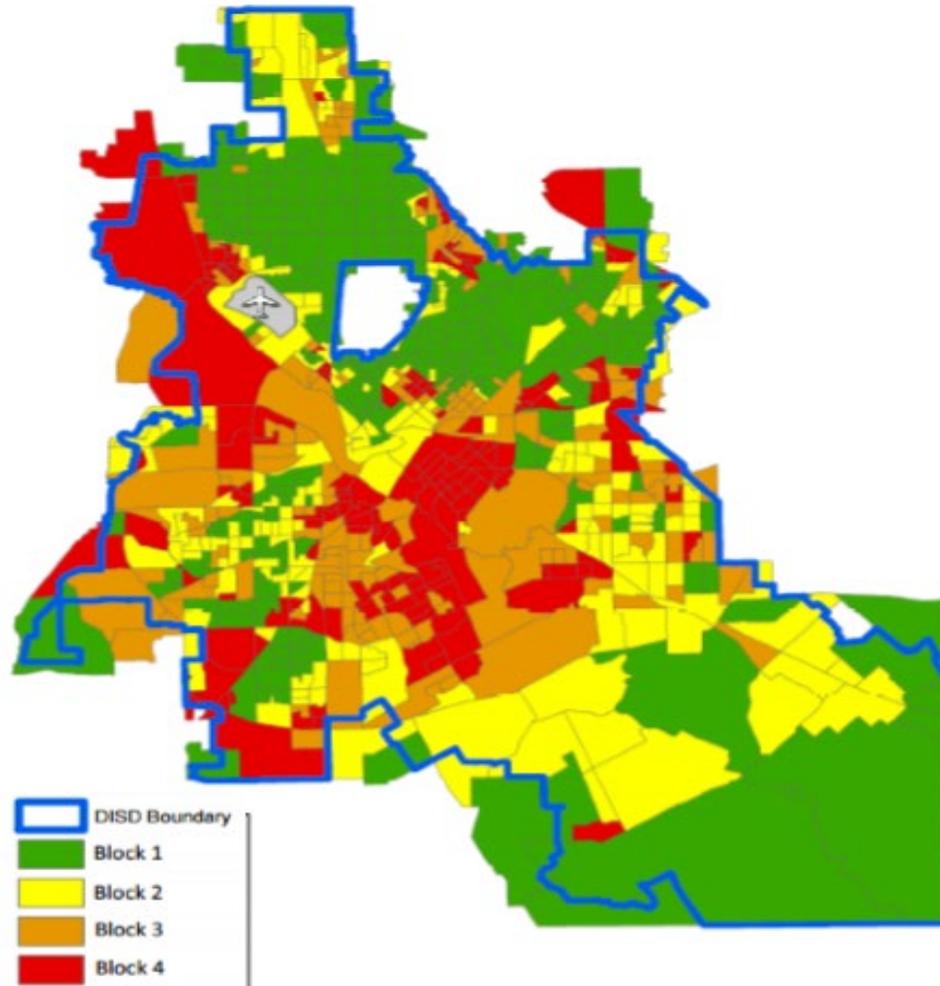
SES Block	Median Household Income
Block 1	$71,473
Block 2	$40,228
Block 3	$29,823
Block 4	$22,955

Percentage of Census Blocks by Poverty Tier for SAISD and Surrounding Districts

	Tier 5	Tier 4	Tier 3	Tier 2	Tier 1
San Antonio ISD	**50%**	**32%**	**13%**	**4%**	**1%**
Edgewood	75%	21%	4%	0%	0%
Harlandale	44%	46%	10%	0%	0%
South San Antonio	37%	46%	12%	5%	0%
Northeast	**13%**	**21%**	**19%**	**24%**	**24%**
Alamo Heights	**13%**	**8%**	**20%**	**20%**	**40%**
Northside	**12%**	**20%**	**18%**	**27%**	**22%**
Judson	12%	16%	30%	29%	13%
East Central	5%	23%	39%	27%	7%

Poverty Tier Distribution Based on Current TEA Projections

TEA Census Tiers

Key Point: Students are funded if they are identified as eligible for a free or reduced lunch. But the **level of funding for each student is based on the tier of the student's home address census block group**.

Highest Socio-economic / Lowest Socio-economic _Highest Funded Tier_

Tier 1	0.225
Tier 2	0.2375
Tier 3	0.25
Tier 4	0.2625
Tier 5	0.275
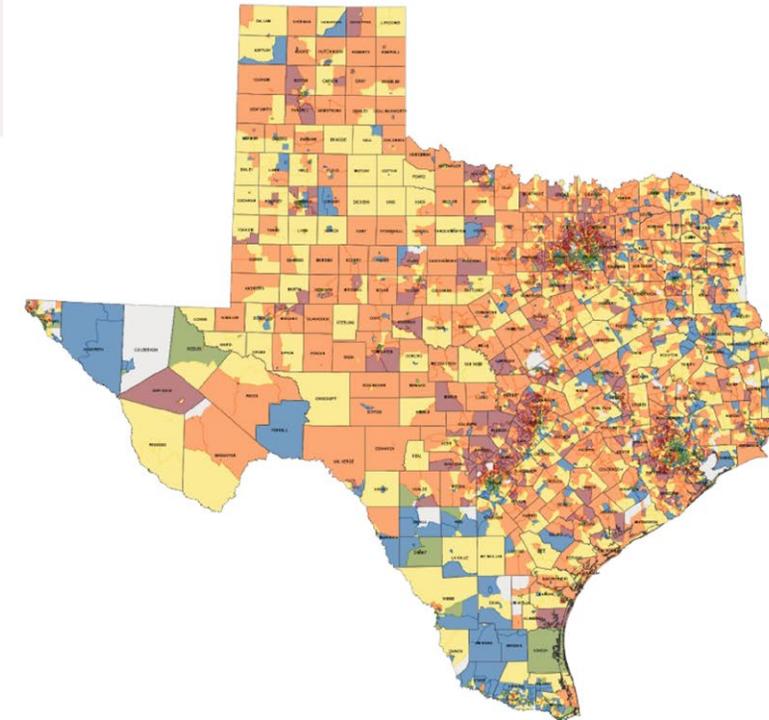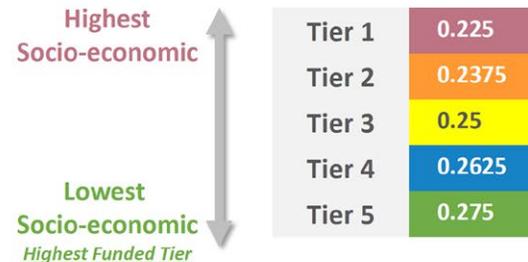
Case Study: Texas
Teacher Incentive Allotment

TEA SES Tiers 2020-2021 Bexar County

TEA 5-Tier SES Measure

Legend:
- SAISD Boundary
- Board of Trustee Districts (SMD)
- School Districts
- Counties

TEA SES Tiers
- Tier 1
- Tier 2
- Tier 3
- Tier 4
- Tier 5

Tier 1
Tier 2
Tier 3
Tier 4
Tier 5
Not Scored
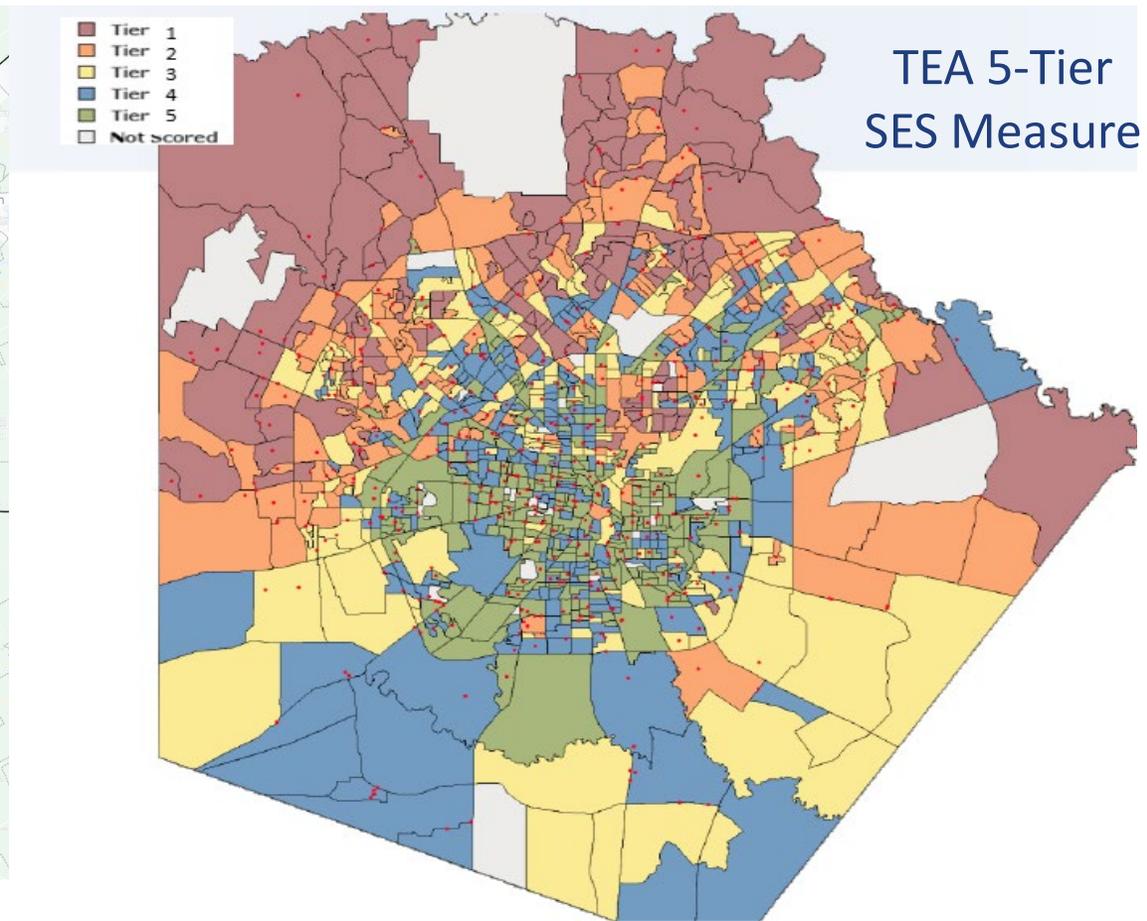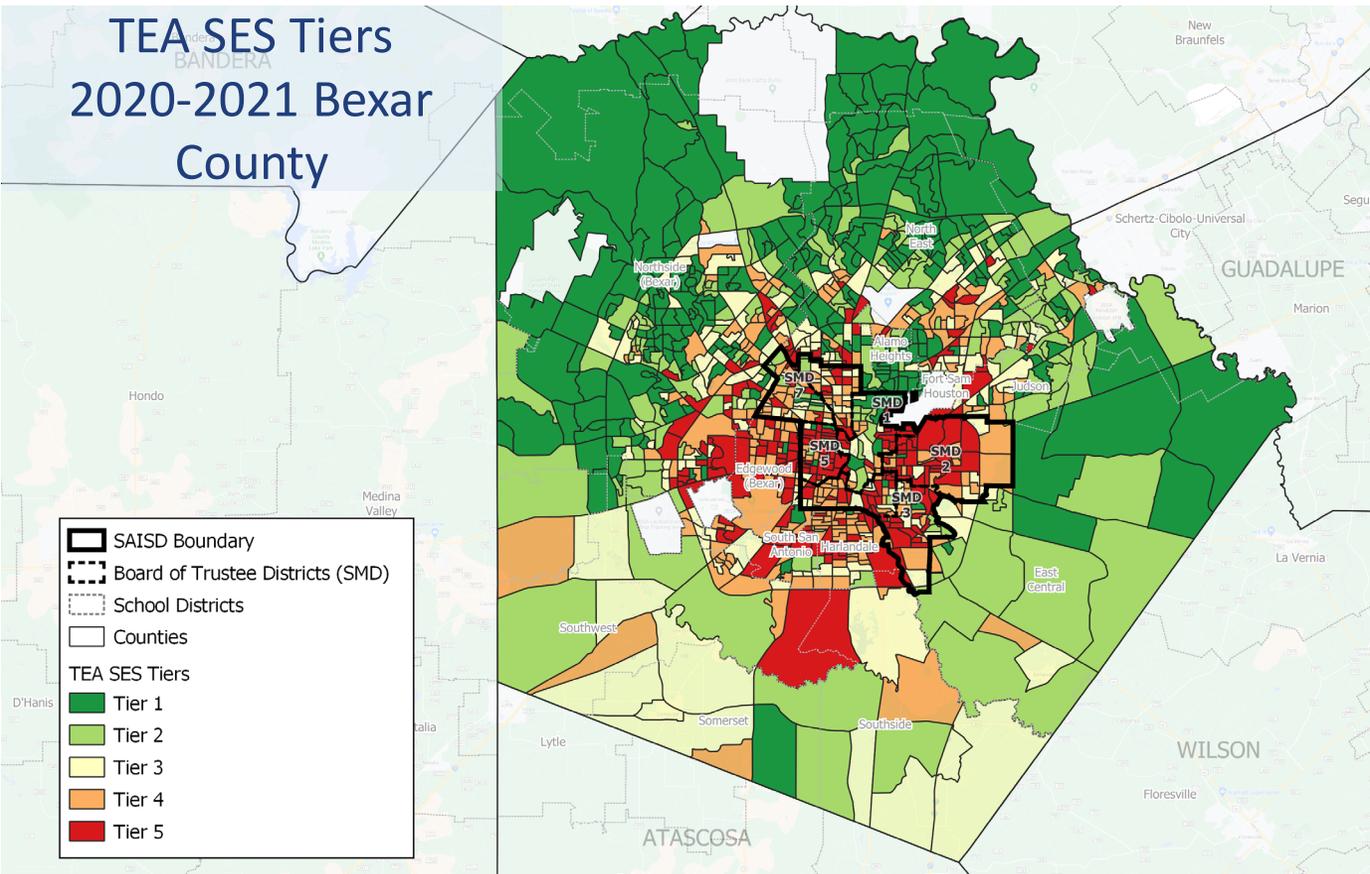
San Antonio ISD | Office of Innovation
Socioeconomic Blocks are calculated from the neighborhood's median income, percentage of single-parent homes, percentage of family home ownership, and level of adult education. Data Sources: US Census Bureau: 2018 American Community Survey 5-year Estimates; October 2020 Fall PEIMS.

Updated 01/15/2021

Districts receive $3,000 - $32,000 per teacher depending on designation level, school's socioeconomic status, and school's location (urban vs rural).

Case Study: Texas
Master Teacher Initiative

Master Teacher Initiative

Quicklinks

Master Teacher Home

Master Teacher Initiative (MTI) 1.0

Master Teacher Initiative (MTI) 2.0 and Beyond

Master Teacher Initiative (MTI) 2.0 and Beyond SharePoint Site

National Board Certification

About the Master Teacher Initiative (MTI) 2.0 and Beyond

MTI 2.0 and Beyond is a proposed multi-measure teacher designation system that will incorporate domains and metrics that collectively define excellent teaching based on SAISD's values for teacher development and performance. It is an evolution of MTI 1.0 that will meet the state's rigorous requirements under the House Bill 3 Teacher Incentive Allotment (TIA). As part of this bill, the legislature and TEA have committed to supporting districts with initiatives that recognize excellent teaching on the condition that local initiatives meet rigorous state requirements. SAISD is applying to secure TIA funding and pending approval, SAISD will begin to designate teachers in the 2020-21 school year under MTI 2.0 and Beyond.

| Eligibility | Timeline | FAQs & Resources | Contact Us |

Teachers do not need to apply for MTI 2.0 and Beyond. Under MTI 2.0, teachers of STAAR/EOC-tested subjects are eligible for a designation, starting in the 2020-21 school year. By the 2022-23 school year, the system will evolve into MTI 3.0, and all teachers across all grade levels and subjects will be eligible to earn a designation.

When TEA publishes the SES Multiplier values, SAISD will finalize the School Funding Categories and associated payouts. The State will recalculate the SES Multiplier for each school based on student enrollment each year, and SAISD will also update its School Funding Categories annually.

Preliminary School Funding Categories and associated payouts by designation level are shown below.

School Funding Category	State SES Multiplier	# Schools	Payout Per Teacher		
			Recognized	Exemplary	Master
A (Highest SES)	0.0-2.7	25	$5,000	$10,000	$18,500
B	2.8-3.1	25	$6,000	$12,500	$22,500
C	3.2-3.4	24	$6,500	$13,500	$24,500
D (Lowest SES)	3.5-5.0	25	$7,000	$14,500	$26,500

This table reflects the gross payout amount for each designation level. Standard employee deductions will apply. SAISD's budget for TIA also accounts for standard employer benefit costs and taxes, not shown here.

Measure teacher effectiveness → Support teacher development → Recognize & reward highly effective teachers → Recruit & retain highly effective teachers → Accelerate student achievement

- **Measure teacher effectiveness:** MTI uses multiple measures of teacher performance, including observation and assessment data, to measure teacher effectiveness and holistically evaluate a teacher's performance.

- **Support teacher development:** Teacher observation and student assessment data enable school and district leaders to support teachers at all levels in their growth and professional development.

- **Recognize, reward, recruit, and retain highly effective teachers:** SAISD recognizes highly effective teaching by designating high performing teachers and financially rewarding them. This, in turn, enables the district to recruit and retain effective teachers, especially within our highest need communities and schools.

- **Accelerating student achievement:** the ultimate goal of the MTI is to accelerate student achievement and prepare SAISD students for a lifetime of success.

2020-21 Texas (TEA) Socioeconomic Tier Distribution Advanced Learning Academy Students

Legend:
- SAISD Boundary
- Board of Trustees Districts (SMD)
- School Districts
- Students Attending Campus

TEA Tiers
- Tier 1
- Tier 2
- Tier 3
- Tier 4
- Tier 5

In-District SES Distribution (669 Students)

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
47 7%	65 10%	162 24%	169 25%	226 34%

Out-Of-District SES Distribution (237 Students)

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
83 35%	73 31%	35 15%	20 8%	11%
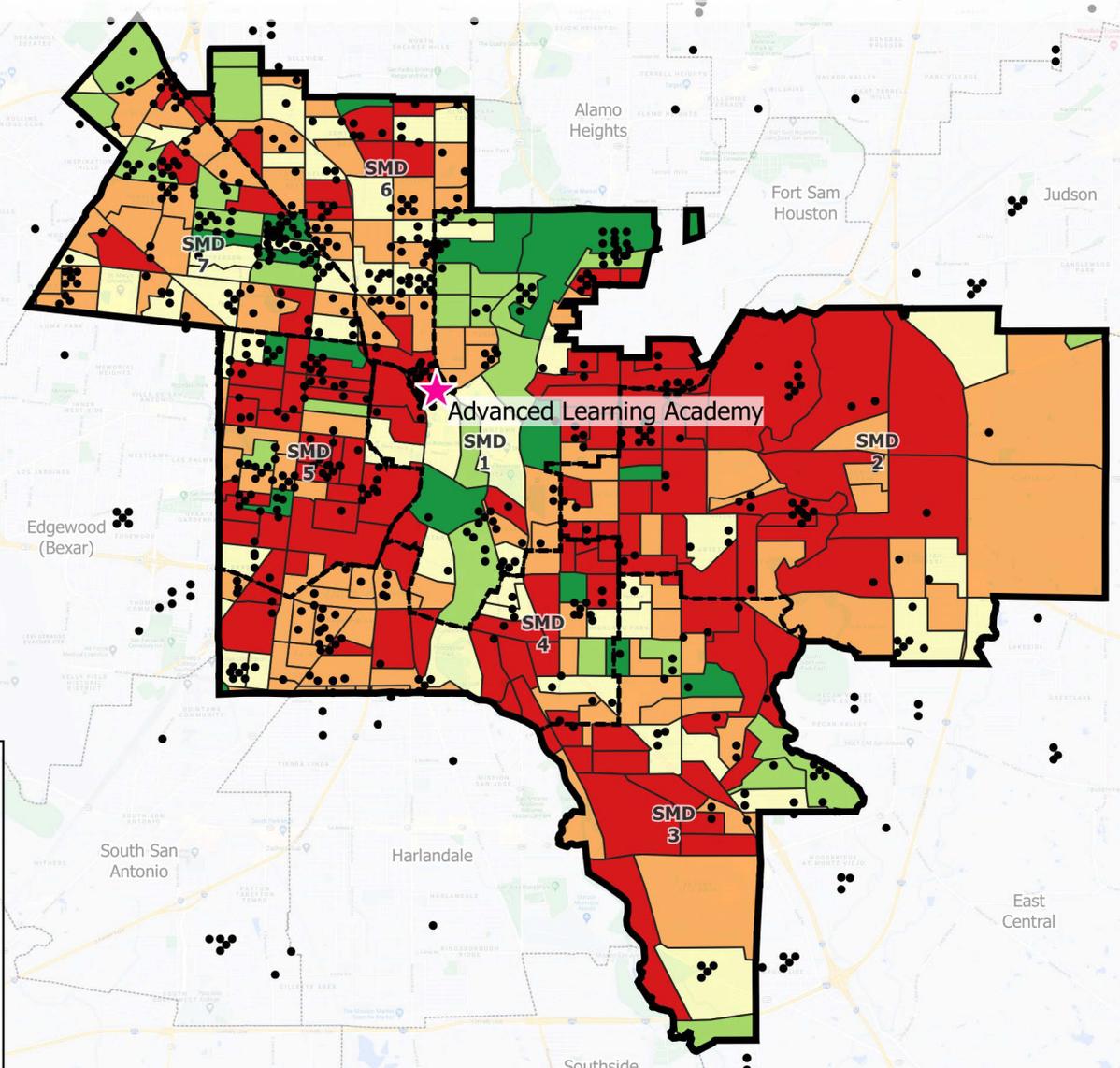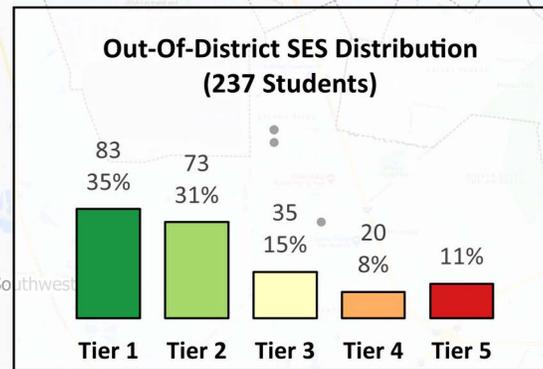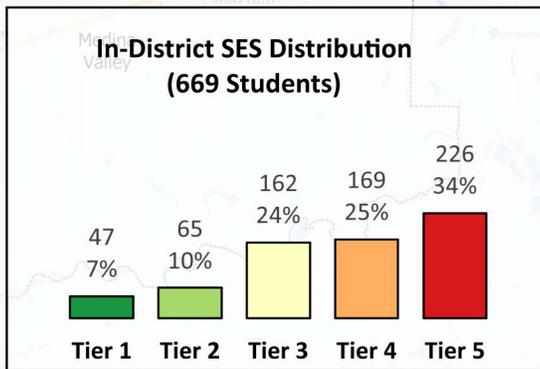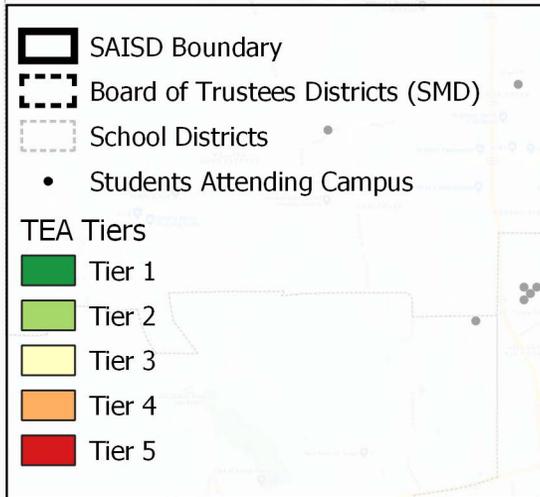
Since 2017, the district has **tripled the number of A- and B-rated campuses.**

Recognized in 2019 as **one of the fastest-improving districts in the state**. In almost every grade level, the district either met or outperformed statewide student achievement gains over the past two school years.

The percentage of **students graduating college-ready rose from 10 percent in 2015 to 68 percent with more than half of all graduates now attending 4-year colleges** and universities.

In the last 5 years SAISD has **DECREASED** the number of students attending low performing schools **by about 93%**

35,089 — 2016
23,725 — 2017
8,206 — 2018
7,126 — 2019
2,644 — 2020*

Case Study: Texas

2016

SAISD Rating: F		
Student Achievement	58	F
Progress A: Growth	59	F
Progress B: Relative	65	D
Closing the Gap	51	F
Overall = 59		

2017

SAISD Rating: D		
Student Achievement	61	D
Progress A: Growth	58	F
Progress B: Relative	70	C
Closing the Gap	63	D
Overall = 68		

2018

SAISD Rating: C		
Student Achievement	64	D
Progress A: Growth	70	C
Progress B: Relative	75	C
Closing the Gap	72	C
Overall = 74		

2019

SAISD Rating: B		
Student Achievement	73	C
Progress A: Growth	70	C
Progress B: Relative	87	B
Closing the Gap	73	C
Overall = 83		

Progress Towards a Neighborhood Indicator of Poverty

July 2019

HB 1206 (2019) Census Tracts and Blocks legislation enacted

August 2020

MLDS Center and MSDE Convene Workgroup

September 2021

Pilot student geolocation data provided by LSSs to the MSDE

November 2021

Interim Report due to the MD General Assembly and the AIB

December 2021 - August 2022

The MSDE studies, analyzes and evaluates neighborhood indicators of poverty

September 2022

MSDE begins standard data collection of student geolocation information

October 2022

Final Report due to the AIB

Future Emerging Work

How will Maryland use the Neighborhood Indicator of Poverty?