Disproportionate Housing Opportunities: Study of HUD Housing Choice Voucher Program within the City of Amarillo, TX

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ABSTRACT

This study examined the alignment between neighborhood opportunity conditions, localized rental market pricing, and Housing Choice Voucher Program (HCVP) payment standards in Amarillo, Texas. Using the Neighborhood Opportunity Attribution Framework (NOAF) developed for this study to establish tract–Multiple Listing Service (MLS) spatial units, the research assessed whether metropolitan Fair Market Rents (FMRs) supported the availability of rental housing within voucher limits in a high-opportunity neighborhood and evaluated Small Area Fair Market Rent (SAFMR) exception payment standard scenarios to determine whether alternative payment thresholds could expand that availability. Three research questions guided the analysis: identification of tract-MLS areas using the NOAF to verify residential containment; comparison of metropolitan FMR payment standards with prevailing two-bedroom rents in the verified high-opportunity tract; and modeling SAFMR exception payment standard scenarios to determine the thresholds at which rental units became financially reachable within voucher limits. Among four fully contained tract-MLS areas with HCVP households, only one, Puckett in Randall County, met all high-opportunity criteria. Multifamily rents aligned with FMR payment standards, whereas single-family rents exceeded metropolitan FMR thresholds. Scenario modeling indicated that single-family rental availability within voucher limits emerged near 130% of SAFMR, with broader alignment near 140%. These findings demonstrate how payment standard misalignment can produce disproportionate housing opportunities within the same metropolitan voucher program when rents for certain structure types exceed voucher limits, limiting the availability of those units in high-opportunity neighborhoods.

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LIST OF ACRONYMS

AAR	Amarillo Association of REALTORS
ACS	American Community Survey
AEDC	Amarillo Economic Development Corporation
AHA	Amarillo Housing Authority
AISD	Amarillo Independent School District
APD	Amarillo Police Department
API	Academic Performance Index
CACDD	City of Amarillo Community Development Department
CCMR	College, Career, and Military Readiness
CDE	Crime Data Explorer
CDS	Community Development Strategies
CISD	Canyon Independent School District
CIT	Crime in Texas
COI	Child Opportunity Index
DiD	Difference-in-Differences
DPS	Department of Public Safety
EOC	End-of-Course
ESC	Education Service Center
FBI	Federal Bureau of Investigation
FMR	Fair Market Rent
GATE	Gateway Assessment of Tract-level Environments
GEOID	Geographic Identifier
GIS	Geographic Information System
HAP	Housing Assistance Payment
HCV	Housing Choice Voucher
HCVP	Housing Choice Voucher Program
IRB	Institutional Review Board
HMFA	HUD Metropolitan Fair Market Rent Area
HOLC	Home Owners' Loan Corporation
HUD	U.S. Department of Housing and Urban Development
ISD	Independent School District
JCHS	Joint Center for Housing Studies, Harvard University
LPVG	Low Poverty Voucher Group
MAUP	Modifiable Areal Unit Problem
MLS	Multiple Listing Service
MAFMR	Metropolitan Area Fair Market Rent
MTO	Moving to Opportunity
NAHRO	National Association of Housing and Redevelopment Officials
NIBRS	National Incident-Based Reporting System
NLIHC	National Low Income Housing Coalition
NOAF	Neighborhood Opportunity Attribution Framework
NPG	New Public Governance
NPM	New Public Management

NPS	New Public Service
OMB	Office of Management and Budget
PBV	Project-Based Voucher
PD&R	Office of Policy Development and Research
PHA	Public Housing Authority
PRRAC	Poverty and Race Research Action Council
PSUA	Payment Standard plus Utility Allowance
QCT	Qualified Census Tract
QHWRA	Quality Housing and Work Responsibility Act
RQ	Research Question
RUE	Residential-Use Exclusion
SAFMR	Small Area Fair Market Rent
SAIPE	Small Area Income and Poverty Estimates
STAAR	State of Texas Assessments of Academic Readiness
TAPR	Texas Academic Performance Report
TEA	Texas Education Agency
UCR	Uniform Crime Reporting
UGCoP	Uncertain Geographic Context Problem
USPS	U.S. Postal Service
ZIP	Zone Improvement Plan

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I express sincere appreciation to my Dissertation Committee Chair, Dr. Bonnie Peterson, whose guidance and mentorship provided the foundation for this research. Her sound recommendations and encouragement strengthened this study. Her insight that clients and bureaucrats together have the information needed to effectively distribute public services as policy intends was particularly meaningful. It emphasized the importance of considering both policy implementation and local housing market conditions when examining how housing policy operates.

I am grateful to Dr. James Peterson for his encouragement and guidance. As Department Head and my initial advisor in the Doctor of Public Administration program, he provided early academic direction that supported my progress throughout the program. His perspective on the complexity involved in integrating theoretical elements and prior studies across chapters informed the presentation of this study and contributed to how the relationships among theory, prior research, and the study's findings were articulated.

I want to thank Dr. Robert Yehl, whose experience in local government provided valuable perspective throughout this study. His perspective that the politics of policies may experience paradigmatic change while the execution of policies often remains incremental informed my interpretation of how housing policy outcomes vary across local markets and neighborhood opportunity conditions.

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Finally, I would like to express my sincere appreciation to my friends and family for their patience, encouragement, and understanding throughout the doctoral process.

DEDICATION

This dissertation is dedicated to the residents of Amarillo and to communities navigating the complexities of housing opportunity.

Chapter I

Introduction to the Study

This study examines housing market disparities by analyzing the availability of rental housing under the U.S. Department of Housing and Urban Development (HUD) Housing Choice Voucher Program (HCVP) across the two counties that comprise the City of Amarillo, Texas. The research also explores whether a more targeted approach could increase the availability of rental units priced within voucher limits in higher-opportunity neighborhoods for HCVP households.

Amarillo spans Potter County and Randall County. Potter County appears to have a greater concentration of private rental stock available to HCVP households than Randall County. Both counties are part of a metropolitan statistical area connected to an urban core with a population of at least 50,000 residents. This metropolitan classification has implications for HCVP, influencing how the program is implemented and managed. It can affect factors such as payment standards, landlord participation, and the ability of voucher holders to access a broader range of housing options within the urban area.

Potter County exhibits substantially higher poverty rates than Randall County, both overall and among school-aged children (ages 5–17). In 2019, Potter County's all-ages poverty rate was 20.3% compared to Randall County's 9.0% (U.S. Census Bureau, 2020a); specifically for ages 5–17 in families in poverty, Potter County contained about 5,200 children versus roughly 2,600 in Randall (U.S. Census Bureau, 2020b). While areas of high poverty rates do not always include schools of low proficiency levels and/or

high crime rates, higher-rent areas may also provide access to amenities and neighborhood conditions associated with stronger opportunity indicators. According to Finkel et al. (2017), within the demonstration sites examined, higher-rent ZIP Codes were more likely to be associated with stronger opportunity indicators, providing a basis for examining whether a similar alignment exists in Randall. The lack of private rentals located in Randall available for HCVP voucher holders may contribute to continued concentration of HCVP households in Potter County, where higher poverty rates, lower school performance measures, and higher crime rates suggest comparatively fewer opportunities to improve living conditions through access to safer neighborhoods and higher-performing schools.

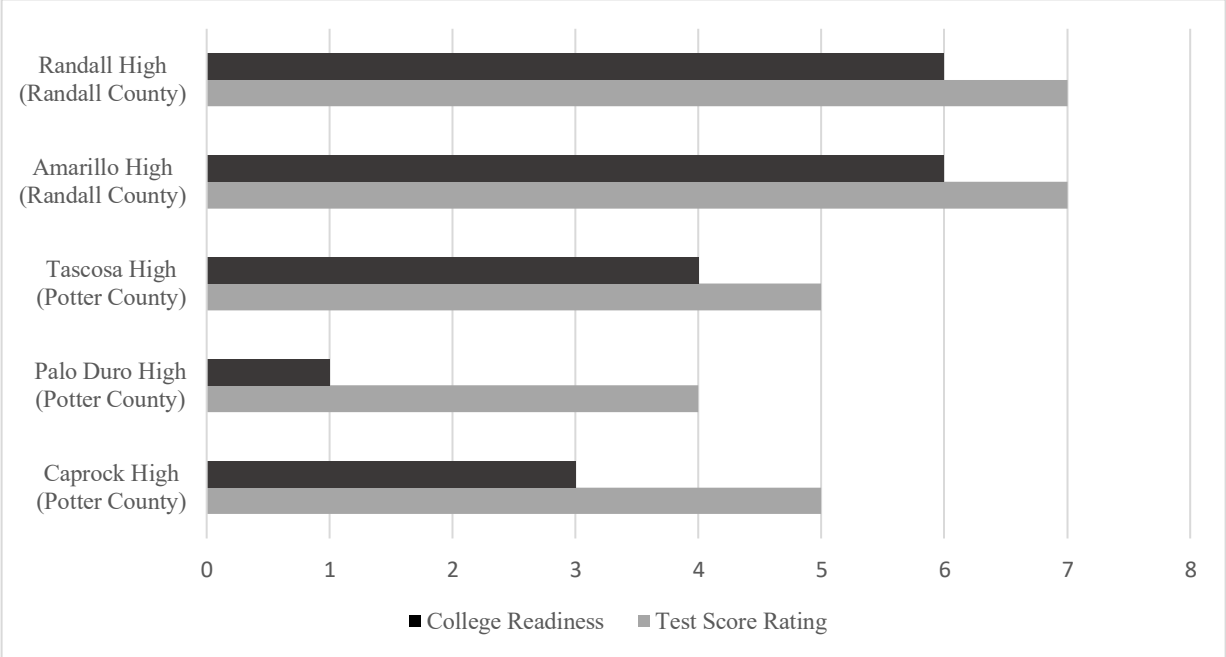
The Amarillo Independent School District (AISD) operates schools in both Potter and Randall Counties, while the Canyon Independent School District (CISD) operates schools in Randall County. Most schools located in Randall are ranked higher than those in Potter County as indicated by a review of school ratings from information provided by the nonprofit organization GreatSchools that analyzes educational data obtained from federal, state, and district-level sources. For instance, Figure 1 illustrates that high schools located in Potter County (Caprock, Palo Duro, and Tascosa) score lower in College Readiness and Test Score Rating metrics than high schools located in Randall (Randall and Amarillo).

Caprock and Tascosa high schools have test scores close to the state average, while Palo Duro's test scores are below the state average. High schools in Potter County fall below the state average in College Readiness, with Palo Duro High significantly

lower than the state average. In contrast, high schools in Randall have test scores above the state average and are on par with the state average in College Readiness.

Figure 1

College Readiness and Test Score Ratings: Potter and Randall High Schools



Note. College Readiness (1-10 scale) depicts how well students are prepared for college; Test Score Rating (1-10 scale) shows annual test results compared to other Texas schools (GreatSchools, n.d.).

SchoolDigger maintains an updated high school rankings list based on the annually published State of Texas Assessments of Academic Readiness (STAAR) End-of-Course (EOC) assessments by the Texas Education Agency (TEA). STAAR EOC assessments measure academic performance within core high school courses. SchoolDigger analyzes the STAAR EOC assessment scores and then ranks schools by each school's average standard score. For 2023, Randall high schools are ranked higher, with Amarillo at 252nd and Randall at 674th. Potter County high schools trailed, with

Tascosa ranking at 871st, Caprock at 992nd, and Palo Duro at 1,187th. Ratings from sources such as GreatSchools and SchoolDigger are acknowledged as background context; however, this study relies on the TEA accountability data to maintain methodological consistency with other indicators and ensure use of an official statewide source.

Randall County has a lower crime rate compared to Potter County. The City of Amarillo spans both Potter and Randall Counties. For 2021, the *Crime in Texas* (CIT) report, part of the Texas Department of Public Safety (DPS) Uniform Crime Reporting (UCR) Program, shows the crime rate (per 100,000 population) to be 3,976.2 for Potter County and 1,231.0 for Randall County (DPS, 2022). These county-level data provide context for the City of Amarillo's crime-reduction priorities. The City's *Future Vision: Blue Print For Amarillo* notes that Amarillo's Uniform Crime Report (Part I Index Crimes) rate was 70% higher than the statewide average at the time of publication (City of Amarillo, 2018). Together, these data illustrate variation in crime exposure across the jurisdictions in which Amarillo operates.

Unsafe neighborhoods can negatively affect the school performance of children (Sard & Rice, 2016). Crime can be prevalent in high-poverty areas, and children's cognitive development can be adversely affected by stress associated with prolonged residence in these neighborhoods (Sard & Rice, 2016).

This dissertation examines differences in neighborhood opportunity conditions between the counties, including poverty levels, school performance, and crime, alongside supply-side constraints affecting rental housing availability and a potential policy approach for increasing rental opportunities in higher-opportunity neighborhoods. The

study evaluates whether expanded rental housing availability within voucher payment limits may provide low-income residents with greater opportunity to reside in safer neighborhoods with higher-performing schools rather than remaining concentrated in areas of high poverty.

Background

The HCVP originated from the Section 8 Existing Housing Program, which was established under the Housing and Community Development Act of 1974 and funded by Congress through HUD. The Housing and Urban-Rural Recovery Act of 1983 introduced modifications to the Section 8 program, including the authorization of the Voucher Demonstration, a pilot initiative to test a more flexible, tenant-based rental assistance model (HUD, 2000). This addition to the Section 8 program allowed for greater flexibility, enabling housing agencies to set payment standards different from the Fair Market Rents (FMRs) and permitting families to rent units above the payment standard if they could afford the additional cost (HUD, 2000). The Quality Housing and Work Responsibility Act (QHWRA) of 1998 merged the Section 8 certificate and voucher programs, creating the modern HCVP (Hunt et al., 1998). This consolidation aimed to streamline the program, improve its efficiency, and provide more housing options for low-income families.

HCVP is the largest federal rental assistance program designed to help low-income households lease housing in the private market. HCVP allows families to select rental units in the private market as long as the units comply with applicable rent reasonableness, safety, and quality requirements.

While deconcentrating poverty has not been an explicit objective of the HCVP (McClure, 2013), the HCVP has the potential to deconcentrate poverty by promoting mobility to low-income households (DeLuca et al., 2013) and thereby enabling them to live in high-opportunity neighborhoods. However, there have been challenges in moving families to low-poverty areas due to low vacancies and voucher subsidy caps that are too low for high-opportunity neighborhoods (Sard & Rice, 2016).

FMRs are used to determine payment standard amounts for the HCVP and are produced by HUD's Office of Policy Development and Research (PD&R). The subsidy available to HCV holders is based on the FMR for each rental unit size, which is determined by the number of bedrooms within each FMR area (HUD, 2018, p. 9). FMR areas are defined by HUD as metropolitan areas and nonmetropolitan counties (24 C.F.R. § 888.113, 2019). Metropolitan areas are core areas with a population of at least 50,000 people, along with adjacent communities that share social and economic integration with the core, while nonmetropolitan counties have a lower number in population (Office of Management and Budget [OMB], 2000).

Since FMRs are established for entire metropolitan areas, they may not always align with neighborhood-level rental costs. If they are set too low for specific neighborhoods, this could reduce the likelihood of HCV holders securing rental housing in high-opportunity areas, potentially contributing to the continued concentration of voucher holders in low-income neighborhoods.

Present Context

In 2016, HUD adopted a new method for defining FMRs through a rule (HUD, 2016) using Small Area Fair Market Rents (SAFMRs) in the administration of the HCVP

for selected metropolitan area public housing authorities (PHAs). SAFMRs differ from FMRs in that instead of being set for entire large geographical areas that do not align well with local rental markets, Zone Improvement Plan (ZIP) Codes are used to calculate annual estimates of rent to better account for rental market differences across diverse neighborhoods.

Statement of the Problem

HCVP families are concentrated in high-poverty neighborhoods in Potter County, with limited geographic reach to higher-opportunity areas in Randall. This study examines the limited supply of rental units in Randall that are affordable within HUD voucher payment standards through an analysis of the rental housing market and FMRs. Rental housing market rents in higher-opportunity areas of Randall may exceed metropolitan FMR-based payment ceilings. When market rents exceed HUD payment standard limits, participation in the HCVP may become less financially competitive relative to the private rental market.

HCV households generally contribute approximately 30% of adjusted monthly income toward housing costs, with the remaining subsidy paid through the Housing Assistance Payment (HAP) to the landlord. The payment standard is established by PHAs based on HUD-published FMRs, generally between 90% and 110% of the applicable FMR, to reflect local market conditions. FMRs establish benchmark rent levels that PHAs use to set HCV payment standards, which in turn determine the maximum subsidy that can be paid on behalf of participating households.

While the HCVP is designed to expand access to areas of opportunity such as neighborhoods with high-performing schools, a shortage of affordable units in Randall

may limit mobility and housing choice. Because the Amarillo, TX HUD Metro FMR Area applies a single metropolitan FMR to both Potter and Randall Counties, differences between the two rental markets may not be adequately reflected in the area-wide standard.

Limited rental housing availability in higher-cost areas can create conditions in which households face greater difficulty securing units priced within voucher payment limits, increasing the likelihood of housing cost burdens. There is evidence suggesting that the scarcity of affordable rental housing in higher-cost areas is associated with increased housing cost burdens (Treat, 2018), reinforcing the importance of examining whether voucher payment ceilings align with prevailing market rents. The City of Amarillo addresses this issue through its Consolidated Plan. The Consolidated Plan is a five-year planning document that identifies the strategy for providing affordable decent housing for people within the low- to moderate-income range. The City of Amarillo 2020–2024 Consolidated Plan identifies housing cost burden as the most common housing problem affecting all household types in the lower income categories (City of Amarillo Community Development Department [CACDD], n.d.).

Congress passes laws governing the HCVP, while HUD formulates regulations that PHAs must adhere to. However, PHAs have the flexibility to set local policies, including those relating to payment standards (Cooper & Sloane, 2016). Cost burdens in the HCVP arise in several ways. When PHAs set payment standards near the lower limit of HUD's range, tenants in high-rent neighborhoods may pay over 30% of their income toward rent. Raising payment standards reduces this burden and improves access to higher-opportunity neighborhoods but increases program costs, since PHAs must cover

higher subsidies. Additionally, prior research has raised concerns that higher payment standards may influence rent-setting behavior in certain market conditions, which can recreate affordability challenges for HCVP households. Therefore, PHAs must carefully balance tenant affordability with fiscal constraints. Payment standards set by PHAs based on FMRs establish the maximum subsidy available to voucher households and, when set at higher levels in costly areas, are intended to help families lease units in higher-opportunity neighborhoods (Bibler et al., 2019). However, affordability challenges may persist if landlords increase asking rents in response to higher payment standards, potentially offsetting gains in access and affordability.

Another avenue of cost burden can arise when landlords raise rental prices. In some cases, landlords may set rents above voucher payment standard limits when limited housing stock produces demand that exceeds supply. HCVP families are allowed to rent reasonably priced units that are above FMR-based payment standard limits, although these families are responsible for paying the extra rent on top of the 30% of their income they would otherwise pay (Poverty and Race Research Action Council [PRRAC], 2018).

Housing shortages can place City of Amarillo HCVP families in circumstances where rents exceed 30% of household income and, in some cases, surpass 50% of income, thresholds commonly associated with cost burden and severe cost burden (CACDD, n.d.). These conditions reinforce the importance of examining whether voucher payment ceilings align with prevailing rental market conditions in higher-opportunity areas.

Purpose of the Study

The purpose of this study is to examine whether SAFMR-based exception payment standards may better align voucher payment ceilings with prevailing rental market conditions in higher-opportunity areas of Randall County than the existing metropolitan FMR structure, and whether that alignment could make a greater number of rental units available within HUD payment standard limits for HCVP families. In recent years, HUD has made available an alternate means for HCVP families to move into higher-opportunity neighborhoods through SAFMR-based payment standards. Unlike FMRs that are a product of a formula that includes rent prices across an entire metropolitan area, SAFMRs are better able to represent neighborhood differences as they are determined based on the smaller areas represented by ZIP Codes (HUD, 2016, p. 80568) by allowing PHAs to select payment standards that could potentially increase the availability of rental housing within voucher payment limits in higher-cost areas.

The literature review discusses the different implementations of the SAFMRs, including from HUD-mandated PHA areas, PHAs voluntarily adopting, and PHAs using payment standards based on SAFMRs as exception payment standards. Although some studies have focused on metropolitan areas designated to implement SAFMRs (Dastrup et al., 2018; Palm, 2018) and another examined the potential impacts of SAFMRs in non-designated areas (Palm, 2018), peer-reviewed empirical research specifically evaluating PHAs' use of SAFMR-based exception payment standards as a localized payment strategy is not evident in the current academic literature. This study will examine whether SAFMR-based exception payment standards could function as an effective localized

payment strategy for increasing rental housing availability within existing market conditions in higher-opportunity areas.

Research Questions

FMRs can be either too low or too high in various neighborhoods for satisfactory coverage of rents (PRRAC, 2018). This can occur because FMRs are set annually, whereas market rents adjust more rapidly in response to local supply and demand conditions. Surveyed landlords have expressed issues experienced with the FMRs not keeping pace with housing markets (National Association of Housing and Redevelopment Officials [NAHRO], 2020). To assess whether FMRs are sufficiently competitive with the private rental housing market in the higher-opportunity areas of Randall within the Amarillo metropolitan FMR area, a quantitative approach will compare FMRs with prevailing private rental market conditions in the identified high-opportunity areas. When FMR benchmarks do not adequately reflect prevailing market rents, vouchers may be less competitive in higher-cost neighborhoods, which can affect the ability of HCV tenants to access high-opportunity neighborhoods characterized by low poverty rates, strong educational outcomes, and lower crime rates.

There has been an issue with limited rental housing availability within voucher payment limits for the HCVP under the administration of FMRs within the City of Amarillo, as CACDD (n.d.) notes there is not enough rental unit stock to meet the needs of the low-income families qualified for HCVP. High-opportunity neighborhoods may have a limited supply of rental units, which could further restrict housing options for HCV tenants if FMRs are set below prevailing market rents in these areas. A comparison between SAFMR-based payment thresholds and prevailing rental market conditions will

be conducted to assess whether SAFMR-based exception payment standards could increase the availability of rental units for the HCVP in Randall. Evaluating these conditions also provides insight into whether SAFMR-based exception payment standards could enhance the availability of rental units for HCV tenants in high-opportunity neighborhoods and address limitations associated with metropolitan FMR payment structures.

The following research questions will guide this study:

1. To what extent have metropolitan FMRs enabled HCV tenants to reside in high-opportunity neighborhoods within Potter and Randall Counties, specifically within the city limits of Amarillo, TX?
2. If Research Question 1 indicates limited HCV presence in high-opportunity neighborhoods, how do metropolitan FMRs compare with prevailing rental market rents in identified high-opportunity census tracts?
3. If metropolitan FMRs are found to be insufficiently competitive with the private rental market in high-opportunity neighborhoods, would SAFMR-based exception payment standards increase the availability of rental units for HCV tenants in these areas?

Theory Base for Research

While one goal of the HCVP is to provide voucher holders with a choice in moving to rental housing across various neighborhoods, these families seem to concentrate more frequently in high poverty areas, which are often linked to fewer opportunities. Their housing choices may be constrained when a single metropolitan payment ceiling spans neighborhoods with substantially different rent levels (Dastrup et

al., 2018). For example, if rents for Randall County single-family units are outgrowing FMRs, rental units may become financially unreachable within voucher limits.

This study will be based on New Public Governance (NPG) theory, as it provides a framework for examining the implementation of SAFMR-based exception payment standards within localized governance contexts. Under New Public Management (NPM), payment standards are administered through centralized, uniform benchmarks designed for cost control and administrative efficiency, which may limit responsiveness to neighborhood-level rent differences. This misalignment can make it difficult for voucher holders to find affordable housing in competitive markets (PRRAC, 2018). While New Public Service (NPS) theory values community engagement and a participatory approach that ensures policies are more equitable and reflective of public interest, it may also introduce delays that limit timely responsiveness for the dynamic policy adjustments required for effective SAFMR implementation. In contrast, NPG emphasizes networked governance, interorganizational coordination, and context-sensitive policy calibration, positioning SAFMR-based exception payment standards as adaptive instruments intended to align voucher ceilings with localized market conditions. NPG's collaborative and flexible approach enables tailored solutions that respond to specific local conditions, making it particularly adaptable to diverse implementation contexts compared to NPM and NPS. Additionally, NPG's multi-stakeholder model leverages local knowledge and partnerships to ensure policies promote equity and effectiveness, both essential for the dynamic nature of housing markets.

Significance of the Study

In response to the *Small Area Fair Market Rent Demonstration Evaluation: Interim Report* by Finkel et al. (2017), Gurjal (2017) emphasizes that fully understanding the benefits of SAFMRs requires further research across diverse areas, including those where SAFMR implementation remains voluntary, as is the case in Amarillo during the study period.

This study examines the differences in the housing markets between Randall and Potter Counties to understand why there is less availability of rental housing within voucher limits in Randall County for the HCVP compared to Potter County. Additionally, this study evaluates whether SAFMR-based exception payment standard scenarios could be more effective than FMRs in expanding the availability of rental units within voucher limits.

A literature search did not produce any studies specifically examining the use of SAFMR exception payment standards in areas where PHAs have adopted them. While there are resources discussing the implementation of SAFMRs and related payment standards in general, there do not appear to be dedicated studies focusing on how PHAs utilize exception payment standards in practice. Therefore, it is expected that the dataset for this study will provide new insights into the potential application and policy relevance of SAFMR exception payment standards.

On a larger scale, this study provides information on the geographic distribution of HCVP households in Potter County and offers policy-relevant insights into approaches for reducing the concentration of poverty. This may be operationalized through expanded access to higher-opportunity neighborhoods, thereby reducing neighborhood poverty

concentration. Tailoring SAFMRs for neighborhood-specific results can assist HCVP families in accessing higher opportunity areas (Gurjal, 2017), a relationship this study evaluates through neighborhood-level analysis of opportunity conditions and rental market alignment. Tailoring SAFMRs to more accurately reflect neighborhood rents has the potential to expand the availability of rental housing within voucher limits for HCVP households seeking to enter higher-opportunity areas of Randall and thereby reduce barriers that contribute to the concentration of poverty within Potter County.

Scope, Data, and Methodology

This study employs a descriptive quantitative approach using secondary data from 2018–2022 to evaluate the effectiveness of FMRs in competing with the private rental market. Data used to evaluate FMR effectiveness are derived primarily from HUD, the Amarillo Association of REALTORS (AAR) Multiple Listing Service (MLS) database, and verified rental data obtained directly from local property managers. Data from these sources assist in determining whether FMRs are set at levels that allow effective competition within the private rental housing market. If FMRs are not sufficiently competitive within the private rental housing market in Randall County, a comparison is conducted to assess the potential effectiveness of SAFMRs in increasing the availability of HUD-supported rental units in the high-opportunity areas of Randall County. All high-opportunity indicators in this study, including poverty, school performance, violent crime, and property crime, are assessed using a consistent 2018–2022 timeframe, aligned with ACS 5-year estimates to ensure methodological consistency and comparability across measures.

HUD (2016, p. 80569) states that the primary benefit of its SAFMR final rule is to assist voucher holders with affording homes in high-opportunity areas, which encompass access to better schools and safer neighborhoods. Data collected to determine high-opportunity indicators related to school performance are obtained from TEA. Data used to determine neighborhood safety are obtained from the Amarillo Police Department (APD) for calendar years 2018–2022. Poverty measures are drawn from the U.S. Census Bureau using the American Community Survey (ACS) 2018–2022 five-year estimates at the census tract level. HCV household distribution data are obtained from HUD's Housing Choice Vouchers by Census Tract dataset to identify the spatial distribution of assisted households within the study area.

Study Delimitations

This study is delimited to defined geographic, demographic, programmatic, and housing boundaries in order to maintain analytic focus. The specific delimitations that guide the scope of the study are outlined in the sections that follow.

Area Definition/Boundary (Potter and Randall Counties Within City Limits)

The Amarillo metropolitan area, as defined by the OMB, covers five counties: Armstrong, Carson, Oldham, Potter, and Randall. The portion of the OMB-defined metropolitan area where FMRs apply is within four counties that make up the Amarillo, TX HUD metropolitan FMR Area (HMFA): Randall, Potter, Carson, and Armstrong Counties. Armstrong and Carson counties do not extend into the City of Amarillo and therefore are not a part of this study. Although Oldham County, Texas is part of the Amarillo metropolitan area, it is not part of the Amarillo, Texas HMFA. Instead, Oldham

County is within the Oldham County, Texas HMFA, which consists of only Oldham County. Therefore, Oldham County is not a part of this assessment.

Potter and Randall Counties extend beyond the city limits of Amarillo and include two key entities that assist low-income families with housing: Panhandle Community Services (PCS) and the City of Amarillo PHA. PCS is a nonprofit community action agency that administers the HCVP in surrounding areas while also assisting families within the city limits. In contrast, the Amarillo PHA primarily administers the HCVP for families residing within the city and operates under the umbrella of the CACDD, which oversees housing assistance programs. These organizations collectively address the housing needs of low-income families in the city and nearby counties. This study focuses on portions of Potter and Randall Counties within Amarillo city limits, where the City of Amarillo PHA administers most HCVP vouchers.

Demographics (Low-Income)

HCVP was established to help low-income families, the elderly, and people with disabilities afford rental housing in the private sector. This research concentrates solely on rental housing for low-income families and the implications of school-aged children. Focusing on low-income families allows for a more targeted examination of how housing choice affects not only the adults in these households but also the educational opportunities available to school-aged children. Given that children's academic performance, college readiness, and overall development are significantly influenced by their living conditions, understanding their context within HCVP households may provide valuable insights into potential outcomes.

Project-Based Vouchers Within the Housing Choice Voucher Program

Project-Based Vouchers (PBVs) are a component of the HCVP, but participation by PHAs is voluntary. Unlike tenant-based vouchers, PBVs are tied to specific housing units rather than individual tenants. Landlords contract with the PHA to rent units to low-income families and individuals; however, the local PHAs in Amarillo do not participate in the PBV program.

Housing (Single-family and Multifamily Residential)

This study will examine both single-family and multifamily rental housing. More than 70% of housing units in Amarillo are single-family (CACDD, n.d.), and single-family rental homes make up approximately 38% of market rate rental units in Amarillo (Community Development Strategies [CDS], 2022). Multifamily units are included to permit structured comparison across the primary rental housing types represented in the Amarillo market.

ZIP Code Alignment

Using ZIP Codes for analysis can present challenges because ZIP Code areas vary significantly in size and shape, as they were designed and adjusted by the U.S. Postal Service (USPS) primarily for mail delivery purposes rather than analytical use (Wilson & Din, 2018). As a result, relying solely on ZIP Code data poses a higher risk of statistical issues in housing research, since a single ZIP Code may encompass multiple distinct housing markets, potentially leading to inaccuracies in market analysis. The HUD USPS ZIP Code Crosswalk Files will be used to align USPS ZIP Codes with Census Bureau geographies for data collection at the ZIP Code level. These files, derived from USPS data, are updated quarterly to accurately reflect current address-based mapping

information. ZIP Code data will then support policy relevance through U.S. Department of Housing and Urban Development–United States Postal Service (HUD–USPS) Crosswalk alignment after Census Tracts and MLS areas are verified through spatial procedures.

Limitations

This study may be limited by the influence of the COVID-19 pandemic. COVID-19 produced economic hardship, disrupted educational performance, and altered crime patterns (Chetty et al., 2024; Kuhfeld et al., 2022; Mohler et al., 2020). These disruptions may be reflected in key inputs such as poverty, school performance, and crime, even though the analytic focus is on neighborhood opportunity conditions within a defined analytic window rather than on long-term change. To address these potential distortions, indicators will be averaged across 2018–2022 where possible to reduce temporary effects and ensure consistency across measures.

Brief Overview of the Chapters

This study is structured into four additional chapters. Chapter II provides a comprehensive literature review, critiquing prior research on the topic and incorporating indirectly related studies to inform the analysis, given the topic's relative newness. Chapter III details the research design and methodology, explaining how data are collected and analyzed to address the research questions. Chapter IV presents the results of the data analysis conducted according to the procedures described in Chapter III. Finally, Chapter V interprets the significant findings from Chapter IV by connecting them to the research questions, relevant literature, and theoretical framework. This

chapter also offers key insights and practical recommendations for future research in the field.

Wang (2018) found that HCV recipients experience substantial barriers to accessing high-opportunity areas because of housing stock shortages within rent limits. The literature review in Chapter II examines research related to rental housing availability, voucher payment standards, and SAFMR policy development to contextualize these challenges and inform the study's analysis.

Chapter II

Literature Review

This literature review examines strategies for increasing rental stock in high-opportunity neighborhoods for HCVP families. It analyzes studies on various programs and initiatives aimed at improving housing opportunities and outcomes for low-income families by facilitating their relocation to neighborhoods with lower poverty rates and better access to resources. The review includes analyses of programs implemented prior to the introduction of SAFMRs, as well as an in-depth examination of the SAFMR demonstration. Given the relatively recent introduction of SAFMRs, the available literature on their implementation and outcomes remains limited but continues to expand. This body of work includes studies conducted on behalf of HUD, the City of Amarillo, and relevant academic sources.

This review evaluates the objectives, implementation, and outcomes of these initiatives, focusing on their potential to increase rental housing availability in high-opportunity areas for families. It also justifies the selection of high-opportunity indicators for neighborhoods by demonstrating their applicability at the national, state, regional, county, and school district levels. In addition, the review addresses potential limitations of data sources and explains how this broader perspective will inform the selection of data sources for high-opportunity indicators to be utilized at the neighborhood level in Chapter III and to support the study's focus on rental availability within voucher payment limits. Because these indicators draw on multiple national, state, regional, and

local administrative sources, the time frames used in this chapter reflect the most recent and reliable data that are publicly available at the time the literature review was prepared.

Key Approaches Prior to the SAFMRs

U.S. Housing Act of 1937: Addressing housing shortages with public housing

The U.S. Housing Act of 1937 established the public housing program to address housing shortages and poor living conditions faced by low-income families during the Great Depression by providing federal subsidies to local PHAs for the provisioning of public housing units. The act sought to create safe and sanitary dwellings, marking the first substantial federal initiative for large-scale public housing (McCarty, 2014, p. 2). It established a comprehensive framework for developing and funding public housing projects managed by local housing authorities, which included mechanisms for federal funding allocation, regulatory guidelines for construction and management, and provisions for tenant participation in decision-making processes. PHAs were created to oversee these projects and distribute federal funds, with residents typically contributing a percentage of their income toward rent (McCarty, 2014, p. 2). Despite its well-intentioned goals, the public housing program has faced criticism for concentrating low-income families in isolated, high-poverty areas, thereby limiting their access to essential resources and opportunities (Massey & Kanaiaupuni, 1993).

Section 8: Expanding Housing Opportunities to the Private Market

The Housing and Community Development Act of 1974 amended the U.S. Housing Act of 1937 to create the Section 8 program to address the critical need for affordable housing for low-income families. Section 8 began as a project-based program that marked a major shift in federal housing policy, moving away from the construction

and management of public housing toward greater reliance on private market solutions through the existing housing certificate program (Schill, 1993), with a rental subsidy linked to specific units of privately owned housing (McCarty, 2005). Section 8 increased the availability of affordable housing by engaging the private sector to contract with PHAs, helping low-income families access safer and more decent living conditions. However, the program has faced criticism for concentrating low-income families in high-poverty neighborhoods, which limited their access to essential resources and educational opportunities, thereby perpetuating socioeconomic challenges (Goetz, 2013). Because the subsidies were tied to specific units rather than to tenants, families could not transfer their assistance when moving to other areas, limiting their housing options and mobility. This design flaw reduced the flexibility of families seeking to relocate to neighborhoods with better resources (Goetz, 2013). Overall, while the program represented a shift toward private sector involvement in affordable housing, it replicated some of the same issues associated with traditional public housing, particularly regarding segregation and access to opportunity.

Insights from the U.S. Housing Act and Section 8 project-based programs

The U.S. Housing Act of 1937 addressed housing shortages by providing government-funded public housing but inadvertently led to the concentration of low-income families in isolated, high-poverty areas. This highlighted the importance of considering neighborhood context, as simply providing shelter does not equate to improving access to opportunities. In response, the Section 8 Project-Based Rental Assistance program was introduced to expand affordable housing options within the private market. However, it reinforced patterns of residential segregation and

concentrated poverty, revealing the need for strategies that actively promote mobility to diverse neighborhoods with better resources.

Gautreaux Assisted Housing Program

Utilizing Section 8 certificates under FMRs. The Gautreaux program, initiated by a 1976 Supreme Court ruling, was a groundbreaking housing desegregation initiative in Chicago aimed at assisting low-income families in relocating from high-poverty areas to lower-poverty neighborhoods (Keels et al., 2005). Although tenant-based housing vouchers were not yet formally established, the program utilized Section 8 certificates, enabling participants to rent homes in the private market. Families paid 25% of their income toward rent, with the certificate covering the difference between market rent and their contribution, up to a specified ceiling (DeLuca et al., 2013). The Gautreaux program was designed to expand opportunities for residents of Chicago's public housing by facilitating moves to racially integrated, high-opportunity areas (Duncan & Zuberi, 2006; Thompson, 2006). While participants could express a locational preference, their position on the waiting list and availability of housing units ultimately determined their placement. Participants' preferences for location were often overshadowed by the risk of losing a housing opportunity if they declined a placement suggested by the counselors of the Gautreaux program (Rosenbaum, 1995). The Gautreaux program relocated families from high-poverty, high-crime inner-city housing projects to safer, lower-poverty suburban areas where many found improved living conditions and opportunities (DeLuca et al., 2010). However, the program faced challenges in securing rental housing in the low-poverty neighborhoods for all participants. As a result, some families were placed in less advantaged, more segregated areas (Duncan & Zuberi, 2006).

To better understand the outcomes of the Gautreaux program, studies conducted during the 1980s analyzed its impact on school-aged children by comparing city and suburban movers. These studies identified initial adaptation challenges faced by suburban movers, including a lack of preparedness for the higher expectations regarding academic achievement in suburban schools, which resulted in lower grades during their first years (Rosenbaum, 1995). However, a later study found that students who moved to the suburbs experienced stronger educational outcomes than those who relocated within the city, likely due to their exposure to these higher expectations (Kaufman & Rosenbaum, 1992; Rosenbaum, 1995). Additionally, suburban movers were found to have higher rates of college attendance compared to their peers who remained in high-poverty city neighborhoods (Kaufman & Rosenbaum, 1992; Rosenbaum, 1995).

The Gautreaux program housing desegregation initiative provided an opportunity for many families to relocate from public housing in high-poverty, segregated urban areas to lower-poverty, less segregated suburban neighborhoods. In particular, these suburban areas offered access to neighborhoods characterized by lower poverty rates, reduced income inequality, and superior schools (Rosenbaum, 1995). Research by Chetty and Hendren (2018) indicates that the positive outcomes observed in children from families who participated in this program stem from living in neighborhoods characterized by lower poverty, reduced income inequality, superior schools, and decreased crime rates. This aligns with findings from Chetty et al. (2014), which reveal that children raised in high-opportunity neighborhoods tend to achieve better economic outcomes as adults.

Project-based Section 8 Shift to Tenant-Based Vouchers

In 1983, a tenant-based voucher program was established as a new form of rental assistance through the Housing and Urban-Rural Recovery Act. At the time, the program was commonly referred to as the Section 8 voucher program rather than the HCVP. Similar to the Section 8 existing housing certificate program, the voucher program is managed by PHAs and is tenant-based, with a project-based component. However, the voucher program allows tenants to allocate a larger portion of their incomes toward rent and to lease units exceeding the FMRs (McCarty, 2005). The complete transition from Section 8 certificates to tenant-based vouchers was not finalized until the QHWRA of 1998, which integrated the existing housing certificate program into the voucher program (McCarty, 2005).

Moving to Opportunity Demonstration

Utilizing Section 8 tenant-based vouchers under FMRs. Authorized in 1990 and launched in 1994, the Moving to Opportunity (MTO) program was a demonstration initiative aimed at testing methods for assisting families living in high-poverty public housing projects to relocate to neighborhoods with lower poverty rates. Designed specifically for very low-income families with children, the program provided housing vouchers along with counseling services to facilitate their move from impoverished areas to more affluent neighborhoods. Building on lessons learned from the Gautreaux program, MTO was implemented in several cities, including Baltimore, Boston, Chicago, Los Angeles, and New York City (Thompson, 2006, p. 271).

While the MTO program focused on vouchers, it is important to note that many families in public housing were transitioning from Section 8 certificates to vouchers as

part of broader changes in housing policy during the 1990s. At the time of the MTO demonstration, the Section 8 program issued both certificates and vouchers; for this section, the term voucher is used to refer collectively to all tenant-based assistance issued through MTO. Unlike the Gautreaux program, which emphasized racial integration, MTO centered on poverty alleviation. Its goal was to help low-income families move from distressed public housing to lower-poverty neighborhoods, thereby examining the long-term effects of such relocations on family well-being (Orr et al., 2003). This initiative aimed to build upon the insights gained from Gautreaux and explore the potential benefits of neighborhood change for low-income families. The research design for this demonstration included three groups: The MTO group, which was the experimental group and known as the Low Poverty Voucher Group (LPVG), the Traditional Voucher Group, which operated under the Section 8 program, and the Control Group.

Vouchers for the LPVG were restricted to low-poverty neighborhoods, defined as areas with poverty rates under 10% according to the Census. Families in this group were required to reside in these neighborhoods for at least one year before the location constraint was lifted. Additionally, the LPVG received guidance to assist them in finding and renting housing units within these low-poverty neighborhoods (Orr et al., 2003). In contrast, the Traditional Voucher Group received vouchers that allowed for greater locational choice without the same restrictions, although they faced leasing constraints if they were already residing in public housing. This group did not receive assistance with finding or renting units. The Control Group did not receive any vouchers but continued to

receive other forms of housing assistance, such as project-based housing (Orr et al., 2003).

The effectiveness of these different approaches was evaluated through an interim impact assessment. An interim impact evaluation during the fourth to seventh year of the demonstration showed success with mobility of MTO by relocating families to less economically distressed neighborhoods (Feins & Shroder, 2005; Orr et al., 2003). However, out of the 3,169 families eligible for vouchers, only 53% (1,676) were able to find a housing unit within the qualified locations and successfully move within the required limited amount of time (Orr et al., 2003).

The MTO demonstration produced mixed results regarding educational outcomes. While initial assessments indicated that children's reading and mathematics achievement were not significantly impacted by the program (Orr et al., 2003), long-term evidence from a subsequent study revealed that children who relocated to lower-poverty areas before the age of 13 experienced considerable increases in college attendance and employment wages (Chetty et al., 2016). The MTO demonstration substantially improved neighborhood safety for the experimental group that received housing vouchers to relocate to lower-poverty areas (Orr et al., 2003). This finding aligns with the motivations of most participating families, who cited concerns for their children's safety as a primary reason for relocating through the program (Ludwig et al., 2013). Evaluation results indicate that families were able to successfully maintain residence in integrated neighborhoods characterized by lower crime rates and reduced poverty levels compared to their previous high-poverty areas (Duncan & Zuberi, 2006). In addition to the improvements in neighborhood safety and educational outcomes, there was a significant

reduction in poverty rates within the controlled locational choice areas for the MTO families compared to the Section 8 and control group (Orr et al., 2003). These findings suggest that the MTO demonstration was largely successful in achieving its goals of providing mobility in relocating low-income families to higher-opportunity neighborhoods. While not all moves by the MTO voucher families adhered to the location constraints due to HUD's allowance of waivers in exceptional circumstances, most moves (89%) were compliant with the MTO program, as these moves were made into areas with a poverty rate of less than 10% (Orr et al., 2003).

Housing Choice Voucher Program

The merging of the Section 8 certificate and voucher programs through the QHWRA of 1998 created the HCVP. Vouchers are tenant-based, meaning that the subsidy is tied to the family, rather than to a unit of housing (McCarty, 2005). The two previous components of the tenant-based Section 8 program that were formally combined under the HCVP in 1998 were Section 8 Rental Certificates and Section 8 Rental Vouchers. Section 8 Rental Certificates allowed low-income families to receive rental assistance tied to specific units, where the PHA paid the difference between what the tenant could afford and the rent charged by the landlord, up to a certain limit. In contrast, Section 8 Rental Vouchers provided more flexibility, allowing families to take their rental assistance with them when moving to different rental units, as long as those units met specific criteria. The consolidation of these two components aimed to streamline the administration of rental assistance and enhance housing mobility for low-income families by creating a unified program under HCVP.

The Section 8 program evolved from earlier forms of rental assistance, with major changes implemented over the years, including a rebranding in 1999 when it was officially renamed the HCVP. With the introduction of the HCVP in 1999, which replaced the Section 8 certificate program, there were considerable shifts in how FMRs were applied. While FMRs continued to set limits on rental assistance, they now also defined the maximum subsidy amount provided to households rather than strictly capping rental prices. This change allowed for more flexibility in how families could utilize their vouchers in the private market. Under the HCV program, families still receive assistance based on their income but can choose any rental unit that meets HUD's quality standards and falls within the FMR limits. This transition aimed to enhance housing choice and mobility for low-income families by allowing them greater freedom to select housing in diverse neighborhoods. While both programs utilized FMRs as a critical component of determining rental assistance limits, the shift from Section 8 certificates to Housing Choice Vouchers represented a move towards increased flexibility and tenant choice in accessing affordable housing.

Insights from Gautreaux Program and MTO Initiatives

The Gautreaux Assisted Housing Program specifically intended to combat racial segregation in Chicago by relocating families from high-poverty public housing to lower-poverty neighborhoods. This initiative demonstrated the effectiveness of targeted relocation strategies in improving family outcomes, showing that access to better housing environments can lead to enhanced educational and safety outcomes. Finally, the MTO demonstration program highlighted the considerable benefits of combining housing vouchers with counseling and support services for families moving from high-poverty

areas. MTO illustrated that structured assistance in relocating to low-poverty neighborhoods can result in long-term improvements in economic stability, educational attainment, and overall well-being for children, particularly when these moves occur at a younger age.

HUD's SAFMR Demonstration

In 2012, HUD initiated a policy demonstration involving various PHAs operating under different economic conditions to evaluate the effect of SAFMRs on access to high-opportunity areas. This demonstration sought to evaluate the application of rent subsidies based on ZIP Codes (Dastrup et al., 2018; Finkel et al., 2017). The policy intended to enhance the effectiveness of the voucher program by adjusting rent limits based on the private market rents in each ZIP Code. In areas with higher market rents, the limits would be raised, while in locations with lower rents, the limits would be decreased. This approach was designed to assist families in accessing high-opportunity neighborhoods, which could potentially lead to better access to jobs, transportation, and improved schools (Finkel et al., 2017, p. 10).

The demonstration included a diverse range of PHAs that met HUD's selection criteria, which highlights the program's adaptability across various economic contexts. Participating authorities included the Chattanooga Housing Authority in Tennessee, the Housing Authority of Cook County in Illinois, the Housing Authority of the City of Laredo in Texas, the Housing Authority of the City of Long Beach in California, and the Town of Mamaroneck Housing Authority in New York (Finkel et al., 2017, p. 2). Additionally, two PHAs from the Dallas, Texas HMFA that had already been using

SAFMRs since 2011 due to a legal settlement were the Housing Authority of the City of Dallas and the Housing Authority of Plano (Finkel et al., 2017, pp. 2-3).

Study #1 – HUD's SAFMR Demonstration Evaluation (Interim Report)

In 2017, Finkel et al. released an empirical interim report assessing the initial implementation of SAFMRs in demonstration areas. The study examined the impact of SAFMRs on the residential location choices of HCV holders, particularly their ability to access rental units in high-opportunity neighborhoods compared to areas governed by traditional metropolitan-wide FMRs (Finkel et al., 2017, p. 9). The key independent variable was the implementation of SAFMRs, with additional factors such as PHA characteristics, local rental market conditions, and tenant demographics influencing outcomes. The dependent variables included measures of changes in the residential distribution of voucher holders, specifically the percentage of HCV households living in high-rent ZIP codes and high-opportunity areas. High-opportunity areas were defined using quantitative indicators of neighborhood quality, including poverty rates, school proficiency, employment proximity, environmental conditions, and crime where consistent data were available, although the interim analysis noted limitations in crime data coverage (Finkel et al., 2017, p. 23). The study employed a difference-in-differences (DiD) approach to evaluate how these measures changed following SAFMR implementation, comparing outcomes before and after implementation as well as against non-SAFMR PHAs. Additionally, the study examined changes in the affordability and availability of rental units for voucher holders as secondary outcome measures.

Neighborhood opportunity was operationalized using a set of quantitative indicators that capture key socioeconomic and environmental characteristics of ZIP

codes. These indicators were used to classify areas as high-opportunity neighborhoods, particularly in assessing the impact of SAFMRs on the residential choices of HCV holders. Finkel et al. defined high-opportunity areas based on percent nonpoor, school quality, access to employment, environmental conditions, and crime rates (Finkel et al., 2017, pp. 19-23). The method of classification involved ranking ZIP codes based on these high-opportunity indicators and grouping them into different opportunity levels and analyzing the before and after SAFMR implementation of voucher holder distribution across the opportunity levels to assess whether SAFMRs increased access to high-opportunity neighborhoods (Finkel et al., 2017). This operationalization allowed the researchers to quantitatively assess changes in voucher holder residence patterns and determine whether SAFMRs contributed to greater mobility into high-opportunity areas.

The study found that by allowing payment standards based on smaller geographic areas, SAFMRs strived to align rental assistance more closely with local market conditions. This ability to set payment standards reflecting local rental markets allows for higher payment standards in high-rent areas while potentially lowering them in low-rent areas. Overall, the study indicated a net loss of 3.4% in the number of rental homes potentially available to HCV holders across the seven PHAs examined. While SAFMRs reduced the unit pool in low-rent ZIP Codes, they increased the number of units potentially available to HCV holders renting below the applicable FMR in high-rent ZIP Codes. Another finding revealed that the high-rent ZIP Codes made available to tenants through SAFMRs offered better economic and educational outcomes.

A crucial limitation of the study was the lack of consistent crime data, which prevented a comprehensive analysis of crime trends in neighborhoods where HCV

holders relocated after SAFMR implementation. This data gap led to the exclusion of crime analysis from the interim report. However, recognizing its importance, the researchers planned to reassess the availability and inclusion of crime data for the final report's analysis (Finkel et al., 2017, p. 6).

Study #2 – HUD's SAFMR Demonstration Evaluation (Final Report)

In 2018, Dastrup et al. published the final empirical report on the SAFMR demonstration, expanding on the findings of the interim study. The research was conducted by Abt Associates, a third-party social science research firm, on behalf of HUD, evaluating the SAFMR demonstration across seven PHAs that met the selection criteria. While Finkel et al. (2017) primarily examined the implementation and initial effects of SAFMRs, particularly their impact on rental unit availability in higher-opportunity areas, Dastrup et al. (2018) adopted a broader approach. This final report not only assessed changes in unit availability but also explicitly measured the extent to which SAFMRs improved access to opportunity for HCV holders. By incorporating metrics related to housing mobility and neighborhood quality, the study provided a more comprehensive evaluation of the policy's effectiveness in facilitating moves to higher-opportunity areas (Dastrup et al., 2018). The key independent variable in Dastrup et al. (2018) was the implementation of SAFMRs. The study assessed the impact of SAFMRs on HCV holders' access to high-opportunity neighborhoods, using a composite opportunity index as the primary dependent variable. Key measures included whether households moved to ZIP codes with substantially higher opportunity scores and the resulting change in neighborhood opportunity. The study analyzed census tract poverty rates, examining whether households moved to or remained in lower-poverty areas, and

evaluated the availability and geographic distribution of rental units, particularly families with children.

Neighborhood opportunity was operationalized using a composite opportunity index incorporating multiple quantitative indicators reflecting ZIP Code-level socioeconomic and environmental characteristics, including percent nonpoor, public school quality, employment access, and environmental hazards (Dastrup et al., 2018, p. 34). The study classified neighborhoods into opportunity levels by ranking ZIP codes based on these scores and analyzed whether SAFMR implementation influenced the relocation patterns of HCV holders. A DiD approach was employed to compare pre- and post-SAFMR implementation outcomes (specifically 2010, 2015, and 2017) and to assess differences between SAFMR and non-SAFMR PHAs.

The evaluation found that the application of SAFMRs led to a decrease in the pool of rental units potentially available in low-rent, low-opportunity ZIP Codes while increasing the number of units potentially available in high-rent, high-opportunity ZIP Codes. However, the increase in affordable units in high-rent areas did not offset the decline in low- and moderate-rent ZIP Codes, resulting in an overall net loss of units potentially available to HCV holders (Dastrup et al., 2018). Consistent with findings from the interim study, Dastrup et al. (2018) confirmed that higher-rent ZIP Codes within the demonstration areas were associated with stronger opportunity indicators, including lower poverty rates and higher school proficiency.

An important limitation of Dastrup et al. (2018) was the lack of consistent crime data, which hindered a comprehensive analysis of crime trends in neighborhoods where HCV holders relocated after SAFMR implementation. While the interim study

acknowledged this gap and indicated plans to reassess the availability of crime data for the final report, the limitation persisted. Crime data remained inconsistent across SAFMR PHAs and PHA service areas (Dastrup et al., 2018, p. 8), ultimately preventing a reliable analysis of neighborhood safety impacts.

Methodological Evaluation of SAFMRs and Neighborhood Opportunity

Finkel et al. (2017) and Dastrup et al. (2018) used similar methodologies to evaluate the impact of SAFMRs on HCV holders' access to high-opportunity neighborhoods, both employing a DiD approach to compare outcomes before and after SAFMR implementation. The primary independent variable in both studies was SAFMR implementation, while dependent variables measured changes in voucher holders' residential locations using composite opportunity indices.

Both studies operationalized neighborhood opportunity using four core indicators: percent nonpoor, public school quality, employment access, and environmental hazards. They analyzed shifts in neighborhood poverty rates, moves to lower-poverty areas, and changes in the availability and distribution of affordable rental units, particularly for families with children.

Scale in Housing Policy Study

By 2018, the use of SAFMRs became mandatory in 24 metropolitan areas as part of HUD's efforts to improve housing mobility for voucher holders. Palm (2018) conducted an empirical study on five HMFAs in California to investigate whether SAFMRs increased the number of rental listings priced below FMRs in high-opportunity neighborhoods. The study included two areas mandated to implement SAFMRs (Sacramento–Roseville-Arden-Arcade and San Diego-Carlsbad) and three non-mandated

areas (Oakland-Fremont, San Francisco, and San Jose-Sunnyvale-Santa Clara). The research tested the hypothesis that SAFMRs would increase the percentage of affordable listings in high-opportunity neighborhoods, assessing whether this policy improved access to desirable areas for voucher holders (Palm, 2018, p. 153).

The independent variables were geographic location (the five HMFAs) and SAFMR implementation status (mandated vs. non-mandated). The dependent variables included the percentage of rental listings priced below FMRs in high-opportunity neighborhoods and neighborhood quality indicators, specifically poverty rates and school quality. Palm (2018) operationalized neighborhood opportunity using tract-level poverty rates from the ACS 2010–2014 and school quality, measured by averaging the California Academic Performance Index (API) scores of the three nearest elementary schools to each tract (Palm, 2018, p. 155).

Palm (2018, p. 151) highlighted concerns about the limitations of ACS data due to lag, which becomes increasingly problematic in rapidly changing rental markets. To address this issue, the study supplemented ACS data with secondary data from Rent Jungle, a proprietary apartment and rental housing database (Palm, 2018, pp. 153-154). Incorporating Rent Jungle data allowed for better control of market conditions by capturing more up-to-date rental listings that reflected the dynamic nature of the housing market. This was particularly crucial for analyzing the impact of SAFMRs, as rental markets in high-cost areas like San Francisco and San Jose experience rapid shifts. By integrating real-time data from Rent Jungle with ACS data, the study accounted for market trends that could otherwise distort findings.

Another control variable was the data source itself, as Rent Jungle posed challenges in verifying the accuracy and uniqueness of its listings. A key limitation was the absence of unique identifiers for rental units, requiring alternative methods to prevent duplication. To address this, unique listings were identified based on address, number of bedrooms, and listing year, which helped refine the sample size. If a unit appeared twice within a six-month period, it was treated as two separate listings, one for the initial period and another six months later, to accurately reflect extended availability without inflating the count of distinct listings (Palm, 2018, p. 155). Each listing was then cross-referenced with FMRs and categorized as either above or below the threshold, and the same classification process was applied using SAFMRs.

The study revealed that transitioning to SAFMRs would increase the proportion of rental listings priced below FMR in high-opportunity areas across four of the five HMFAs examined, with San Francisco being the exception. In San Francisco, rents in high-cost ZIP Codes increased more rapidly than SAFMR adjustments, which prevents an increase in below-FMR listings in those neighborhoods (Palm, 2018, p. 148). As a result, SAFMRs did not sufficiently capture the pace of rent increases in high-cost areas, limiting their effectiveness in expanding affordable housing opportunities for HCV holders. The study also identified a distinctive pattern in Oakland, where SAFMR implementation would accelerate the reduction of below-FMR units in lower-rent ZIP Codes, potentially decreasing affordability in those areas.

A key limitation of the study was the potential mismatch between listed rents and actual lease prices, which could affect the accuracy of rental market assessments. The data sources utilized in the study did not consistently identify gross rent, which is

problematic because FMRs are based on gross rents, which include both the rent amount and the cost of utilities (Palm, 2018). This lack of clarity regarding gross rent may have been compounded by another limitation, as the study may have been limited by a shortage of available data sources that identify actual rented prices. While various avenues exist for gathering rental information, including online listings, print media, and property management companies, many of these sources typically provide rental list prices rather than the actual prices at which units are rented. Consequently, this limitation may have affected the study's ability to accurately assess rental market trends.

Summary of the Studies

The literature review highlights both the successes and challenges of various initiatives aimed at expanding opportunities for low-income families. Two prominent precursors to the implementation of SAFMRs are the Gautreaux program and the MTO demonstration. Both programs shared commonalities in family placement strategies, difficulties related to rental unit availability, educational outcomes, and safety considerations. While these programs successfully relocated families to lower-poverty areas, challenges remained in securing sufficient rental units in these neighborhoods.

Children who moved before age 13 initially faced some adjustment difficulties, but later research indicated considerable long-term benefits, including improved academic performance, higher college attendance rates, and increased earnings in adulthood. Evidence suggests that relocating to lower-poverty areas increases the likelihood of attending college and securing higher wages (Chetty et al., 2016). Additionally, moving to safer neighborhoods has been linked to improved overall well-being and greater long-term residential stability.

The interim and final evaluation reports by Finkel et al. (2017) and Dastrup et al. (2018) on the SAFMR demonstration suggest that SAFMRs can expand the number of rental units affordable to HCV holders in high-opportunity neighborhoods, potentially improving access for low-income families. However, this advantage may come at the expense of a net reduction in affordable units overall, as the supply of units in lower-rent areas diminishes. Palm (2018) supports these findings, emphasizing that while SAFMRs can enhance access to high-opportunity neighborhoods, their effects vary based on local market conditions. Some areas saw an increase in available rental units, while others experienced declines.

SAFMR Final Rule

During 2016, HUD published the final rule on SAFMRs which included revisions to the selection criteria and the designation of 24 metropolitan FMR areas (HUD, 2018, p. 15) for implementation by April 1, 2018 (PRRAC, 2018). The PHAs in these designated areas were mandated by HUD to utilize SAFMRs in their respective metropolitan regions. Similar to traditional FMRs, PHAs have the flexibility to set payment standards within a range that is no lower than 90% and no higher than 110% of the SAFMRs. Additionally, PHAs serving other metropolitan areas may voluntarily adopt SAFMRs by opting in with HUD approval to encourage voucher holders to move into low poverty areas, reduce voucher use in high-poverty areas, and increase access to better opportunities for HCVP families.

In order to obtain HUD approval for adopting SAFMRs, a PHA must conduct a comparative assessment of the relevant SAFMRs and metropolitan area Fair Market Rents (MAFMRs). This assessment should evaluate whether the adoption of SAFMRs

would negatively impact the availability of affordable and accessible rental housing for program participants and applicants (HUD, 2018, pp. 7-8). Additionally, the PHA must estimate the impact of SAFMR implementation on families to mitigate potential adverse effects and ensure families are informed about the changes in their payment standards as outlined in the HUD Notice PIH 2018-01. Furthermore, the assessment must identify any regions where the difference between the MAFMRs and the lower SAFMRs is exactly 10%, which would trigger the requirement for rent reasonableness assessments if SAFMRs are utilized (HUD, 2018, pp. 7-8). These requirements ensure that PHAs thoroughly evaluate the potential impacts of adopting SAFMRs before proceeding, prioritizing the needs of program participants and the availability of affordable housing.

PHAs may evaluate whether to apply SAFMRs within their PBV programs, particularly for PBV-assisted projects that may require rent reasonableness determinations. PBVs provide place-based subsidies that are tied to specific housing units rather than to individual tenants. However, PHAs are not required to apply SAFMRs within their PBV programs (HUD, 2018, p. 8).

Designated and opt-in SAFMR PHAs must apply SAFMRs to all HUD tenant-based vouchers, including HCVs, special purpose vouchers, and special housing types. This requirement includes special purpose vouchers such as HUD–Veterans Affairs Supportive Housing and Family Unification Program vouchers. Additionally, SAFMRs apply to special housing types, such as Cooperative Housing and Manufactured Homes (HUD, 2024b). Unlike PBVs, tenant-based vouchers, also known as HCVs, are tied to the tenant rather than a specific property. This enables recipients to use their vouchers to

rent qualifying private housing units, offering substantial flexibility, and promoting greater mobility and access to housing in diverse neighborhoods.

Exception Payment Standards

A basic range payment standard is any amount between 90% and 110% of the published FMR for a specific bedroom size unit. The exception payment standards are those established by a PHA that exceed 110% of the published FMR. A PHA that is not in a designated SAFMR area or has not voluntarily chosen to implement SAFMRs may set exception payment standards for a ZIP Code area that surpass the basic range for the MAFMR, provided these amounts do not exceed 110% of the SAFMR published by HUD for that specific ZIP Code (HUD, 2024c). This provision offers considerable flexibility, especially in high-cost ZIP Codes where 110% of the SAFMR may exceed 110% of the MAFMR by a significant difference (PRRAC, 2018). Once a PHA sets an exception payment standard, it is required to implement this standard consistently across the entire ZIP Code area.

Unlike full SAFMR implementation, which adjusts payment standards across all ZIP Codes in a metropolitan area based on localized rent variations, exception payment standards allow PHAs to selectively increase payment standards in specific ZIP Codes while maintaining broader MAFMR-based policies elsewhere. This targeted approach provides PHAs with more control over housing affordability in high-cost areas without requiring a system-wide shift to ZIP Code-based FMR calculations. A PHA does not need to already be implementing full SAFMRs to request SAFMR exception payment standards; this flexibility allows PHAs to request HUD approval to apply exception payment standards based on SAFMRs even if they currently use MAFMRs or ZIP Code–

level SAFMRs elsewhere. This flexibility could improve housing access for families, enabling them to find appropriate rental options that align with local market conditions.

Additionally, SAFMR exception payment standards can be tailored to individual census tracts within a ZIP Code with HUD approval, allowing PHAs to set payment amounts based on localized rent conditions within the ZIP Code (HUD, 2024c). Once HUD signs off on the exception payment standard for that defined area, multiple PHAs operating there do not have to individually seek separate HUD approval to apply that same payment standard. This tract-level approach enables more precise targeting of higher-opportunity areas while only requiring implementation within the approved census tracts rather than the full ZIP Code. By applying SAFMR exception payment standards at the tract level, exception payment standards become more responsive to localized rent conditions, which could expand housing opportunities within higher-opportunity neighborhoods.

Study Variables

Prior research on SAFMRs has influenced the selection of variables for this study, yet no study to date has exclusively examined exception payment standards as a mechanism for improving housing access. This study builds on existing literature by analyzing how exception payment standards, rather than full SAFMR implementation, could expand rental availability in high-opportunity neighborhoods for HCV families.

This study will be conducted in two interconnected phases. Phase 1 addresses Research Question 1 (RQ1) by examining the census tracts where HCVP tenants reside and their associated MLS areas to assess their neighborhood opportunity status. The analysis will utilize three independent variables: poverty rate, school performance, and

crime rate, which serve as the study's high-opportunity indicators. Census tracts containing HCVP tenants serve as the unit of analysis for the spatial assessment. The dependent variable will be neighborhood opportunity classification, which indicates whether a neighborhood inhabited by HCVP tenants meets the study's high-opportunity criteria. The results from this initial phase will provide a crucial foundation for the subsequent Phase 2 of the study. Phase 2 will address Research Question 2 (RQ2) by comparing FMRs to actual market rents, laying the groundwork for Research Question (RQ3). RQ3 will explore whether SAFMR-based exception payment standards, under modeled payment standard scenarios, would expand rental availability in high-opportunity neighborhoods. The independent variables for this phase will include FMRs, prevailing market rents, and SAFMR-based exception payment standards. The dependent variables will be (1) the rent gap between FMRs and prevailing market rents, measuring the extent to which FMRs align with actual rental prices, and (2) the number of rental units with gross rents at or below the modeled SAFMR-based exception payment standard ceiling.

The literature review has demonstrated that moving to lower-poverty neighborhoods can lead to improved educational and economic outcomes (Chetty et al., 2016), while SAFMR evaluations have highlighted both the potential for greater access to high-opportunity neighborhoods and the challenge of rental unit shortages (Dastrup et al., 2018; Finkel et al., 2017; Palm, 2018). These studies have influenced the selection of high-opportunity indicators by highlighting the importance of poverty rates, school performance, and crime rates in assessing high-opportunity neighborhoods.

Figure 2 illustrates the alignment of the literature review with the high-opportunity indicators of poverty rate, school performance, and crime rate that were selected for this study, while highlighting the similarities in rental housing stock shortages identified in the Gautreaux program, MTO, and SAFMR demonstration studies. By integrating insights from prior studies, this research will build on existing knowledge to evaluate how exception payment standards might serve as a more flexible alternative for expanding housing access without requiring full SAFMR implementation.

Figure 2

Mapping High-Opportunity Indicators to Relevant Literature

		High Opportunity Indicators		
	Rental Housing Stock	**Poverty (Poverty Rate)**	**Education (School Performance)**	**Safety (Crime Rate)**
Gautreaux Assisted Housing Program	Changing the geography of opportunity by expanding residential choice: Lessons from the Gautreaux program. (Rosenbaum, 1995).	Mobility lessons from Gautreaux and Moving to Opportunity (Duncan & Zuberi, 2006).	The education and employment of low-income black youth in white suburbs (Kaufman and Rosenbaum, 1992).	Gautreaux mothers and their children: An update (DeLuca et al., 2010).
Moving to Opportunity Demonstration	Moving to Opportunity for Fair Housing Demonstration Program: Interim impacts evaluation. (Orr et al., 2003).	The effects of exposure to better neighborhoods on children: New evidence from the Moving to Opportunity experiment (Chetty et al., 2016).		Long-term neighborhood effects on low-income families: Evidence from moving to opportunity (Ludwig et al., 2013).
SAFMR Studies	Small Area Fair Market Rent demonstration evaluation: Interim report. (Finkel et al., 2017) Small Area Fair Market Rent demonstration evaluation: Final report. (Dastrup et al., 2018)			

Note. Selected high-opportunity indicators aligned with literature.

Poverty rate was selected as a key high-opportunity indicator because of its central role in SAFMR-related research and its alignment with the objectives of the SAFMR program to improve access to low-poverty neighborhoods. The inclusion of school performance and crime rate as indicators is also justified by the findings from the Gautreaux program and the MTO studies. Gautreaux and long-term follow-up studies of

MTO suggest that relocation to lower-poverty neighborhoods can improve educational attainment and adult economic outcomes, particularly for children who move at younger ages (Chetty et al., 2016; Kaufman & Rosenbaum, 1992; Rosenbaum, 1995). Furthermore, studies conducted by Carlson et al. (2012) and Lens et al. (2011) indicate that families participating in the HCVP are more likely to move to neighborhoods with high-performing schools and low crime rates, supporting the assertion that SAFMRs can enhance the quality of neighborhoods for voucher holders. These findings emphasize the relevance of using exception payment standards to facilitate moves to high-opportunity neighborhoods, potentially offering a targeted policy tool to achieve similar benefits without the full transition to SAFMRs.

Overview of High-Opportunity Indicators

A comprehensive analysis of high-opportunity indicators is essential for understanding the conditions that shape housing access for HCV holders. This section provides an overview of socioeconomic and educational disparities between Randall and Potter Counties, as well as between CISD and AISD using recent data series from approximately 2018 through 2024, depending on the indicator and source. Exploring poverty rates, rent burden, school performance, and crime rates across various geographic levels provides insights into broader trends that influence neighborhood opportunity.

The analysis reveals significant differences in these metrics, with Randall and CISD generally outperforming Potter County and AISD. These disparities are evident in poverty rates, educational performance, graduation rates, and crime rates. However, the data also show areas of improvement for both Potter County and AISD, particularly in

reducing poverty rates and increasing graduation rates, indicating measurable progress in narrowing some gaps over time.

This examination of national, state, and county patterns for poverty and crime, as well as state, regional, and district patterns for school performance, sets the foundation for a more refined analysis. The methodology section will further explore these indicators at the city neighborhood level, focusing on the potential impact of exception payment standards on increasing housing stock for HCV holders' access to high-opportunity areas.

The COVID-19 pandemic may have shaped the context reflected in the tables that follow. Economic dislocation, school interruptions, and neighborhood-level stressors **(**Chetty et al., 2024; Kuhfeld et al., 2022; Mohler et al., 2020) could potentially be reflected in the table information on poverty, school performance, and crime.

Poverty Rate Review

Poverty profoundly impacts educational outcomes, as children from low-income families often experience heightened stress and instability, which hinders their academic focus and achievement. Factors such as housing instability, parental job insecurity, and food scarcity contribute to this stress, resulting in a challenging learning environment (Evans & Kim, 2013). To contextualize broader socioeconomic conditions, it is essential to examine poverty trends across all age groups. Table 1 presents a comparison of poverty rates at the national, state, and county levels, offering insights into regional disparities and changes over time.

Table 1

Poverty Rate Trends Across All Ages (2020–2023)

Geographic Area	2020 (%)	2021 (%)	2022 (%)	2023 (%)
United States	11.9	12.8	12.6	12.5
Texas	13.4	14.2	14.0	13.7

Randall County	9.6	9.1	8.5	8.7
Potter County	20.8	20.7	19.5	17.8

Note. Data from the U.S. Census Bureau (2023a).

National poverty rates increased slightly from 11.9% to 12.5%, while Texas saw a similar rise from 13.4% to 13.7%. Randall maintained a consistently lower rate, ranging from 9.6% to 8.7%, while Potter County's rate declined from 20.8% to 17.8%. Although this improvement is evident, Potter County's poverty rate remains considerably higher than national, state, and Randall rates.

Child poverty rates also vary across different geographic levels, from national to local. To illustrate these differences and their changes over time, Table 2 provides some understanding of the variations in child poverty, highlighting the disparities between national, state, and county levels. The data reveal interesting trends and stark contrasts, particularly between Randall and Potter Counties.

Table 2

Child Poverty Rate Trends (2020–2023)

Geographic Area	2020 (%)	2021 (%)	2022 (%)	2023 (%)
United States	15.7	16.9	16.3	16.0
Texas	18.8	19.5	19.2	18.4
Randall County	11.6	10.8	8.4	10.7
Potter County	29.2	28.3	27.6	22.8

Note. Data from the U.S. Census Bureau (2023b).

The data show that child poverty rates in the U.S. increased from 2020 to 2023, while Texas saw a reduction in its child poverty rate. Randall consistently had a much lower rate than both the national and state averages. In contrast, while Potter County made progress in reducing its higher child poverty rate, it remains much higher than the national and state averages, with a gap of over 11% compared to Randall.

To delve deeper into the impact of poverty on school-aged children, Table 3 focuses on a specific demographic group. It depicts poverty rates for children aged 5-17, a crucial age range that encompasses most of a child's primary and secondary education years. These data are particularly relevant when considering the potential effects of economic hardship on educational outcomes and future opportunities.

Table 3

Poverty Rates for Children Aged 5–17 (2020–2023)

Geographic Area	2020 (%)	2021 (%)	2022 (%)	2023 (%)
United States	14.9	16.1	15.5	15.3
Texas	17.9	18.6	18.3	17.6
Randall County	10.2	9.9	7.8	10.0
Potter County	27.7	26.9	24.7	21.3

Note. Data from the U.S. Census Bureau (2023c).

Poverty rates for children aged 5–17 from 2020 to 2023 show that while Texas consistently had higher rates than the national average, both saw slight declines over time. Randall maintained relatively low and stable poverty rates, while Potter County saw a marked decrease, though its rates remained far higher than those of Randall, Texas, and the national average. Research indicates that childhood poverty has long-term consequences, including lower educational attainment and reduced economic mobility (Murnane, 2007; Rodgers, 1995). Furthermore, as poverty is closely tied to housing affordability, rising poverty rates suggest a potential increase in rent burden, further exacerbating economic challenges for low-income households (Desmond & Gershenson, 2016; Nobari & Whaley, 2021).

Rent Burden Review

Housing constitutes one of the most critical expenses for families, particularly impacting low-income households that often struggle to find affordable options. While

rent burden is not part of the poverty rate, it is often analyzed alongside poverty statistics to provide a more comprehensive picture of economic hardship (Meyer & Sullivan, 2012). Rent burden refers to households spending a disproportionate share of income on housing costs, predominantly rent. This situation exacerbates poverty by threatening financial stability, increasing the likelihood of housing instability and risk of homelessness, and limiting access to educational and economic opportunities (Joint Center for Housing Studies of Harvard University [JCHS], 2020).

When supply does not keep pace with demand, prices rise, compelling renters to allocate a greater share of their income on housing expenses. Causes for shortages can stem from the supply side with construction expenses, rising land costs, zoning regulations, and aging housing stock that has not been maintained (JCHS, 2020). Causes can also stem from the demand side with rapid population growth, delayed homeownership among younger generations, and with a mismatch between rising rents and stagnant incomes (National Low Income Housing Coalition [NLIHC], 2024). Income stagnation can cause renters to spend a disproportionate share of their income on rent, making it difficult to meet other basic needs, save, or invest in future financial security.

Households are classified as housing cost-burdened if they spend more than 30% of their income on rent and utilities, while those spending over 50% are considered severely cost-burdened. This financial strain dramatically reduces the resources available for other critical needs, including nutrition, childcare services, transportation, and medical care. To mitigate the impact of rent burdens, particularly those that may force families to divert funds from essential needs or face eviction due to unexpected expenses or income loss (PRRAC, 2018), regulations stipulate that the family share of rent should

not exceed 40% of their adjusted monthly income for gross rent (which includes rent and utilities) at the start of their lease agreement with a voucher (HUD, 2019). Even with existing regulations and assistance programs, a sizable portion of renters continue to face housing cost burdens. In 2019, many of these families allocated over 30% of their pretax income to housing costs, whether renting or owning (JCHS, 2020). Table 4 compares rent burden trends across two consecutive periods, providing a breakdown of overall rent burden and severe rent burden (spending more than 50% of income on rent).

Table 4

Rent Burden Trends (2017–2021 vs. 2018–2022)

Rent Burden Category	2017–2021 (%)	2018–2022 (%)
	United States	
Overall Rent Burden	51.87	48.72
30-50% of Income	27.24	24.29
> 50% of Income	24.62	24.43
	Texas	
Overall Rent Burden	48.70	49.72
30-50% of Income	25.42	25.79
> 50% of Income	22.43	23.92
	Randall County	
Overall Rent Burden	41.46	41.97
30-50% of Income	20.99	21.57
> 50% of Income	20.46	20.71
	Potter County	
Overall Rent Burden	48.97	49.32
30-50% of Income	23.15	22.59
> 50% of Income	25.82	26.73

Note. Severe rent burden is defined as spending more than 50% of household income on rent. Data from the U.S. Census Bureau (2021a, 2022).

Nationally, the overall rent burden decreased between the two periods, with fewer households spending more than 30% of their income on rent. Texas, however, saw a slight increase in the overall rent burden, driven by a rise in the share of households spending more than 50% of their income on rent. In Randall, the overall rent burden

remained relatively stable, with minimal changes across categories. Potter County experienced a slight increase in severe rent burden, with a greater share of renters allocating more than half of their income to housing costs. Compared to Randall County, Potter County had a consistently higher share of renters facing severe cost burdens, indicating greater housing affordability challenges.

School Performance Review

Educational testing standards establish clear expectations for student learning as they play a vital role in ensuring accountability within educational systems and enhance school performance. These well-defined standards serve as benchmarks for assessing student performance, guiding instructional practices, and shaping assessment methods. Weiss et al. (2002) argue that aligning educational practices with established standards is essential for enhancing overall educational effectiveness. Educational effectiveness is fundamentally linked to school performance, as it encompasses the strategies and methods that drive student success and overall school advancement.

The SAFMR Interim and Final Reports indicated that their analyses utilized data from the HUD School Proficiency Index to estimate school quality. This index focuses on school-level performance data, specifically the proficiency rates of 4th-grade students in reading and mathematics as measured by state exams. In addition, the Scale in Housing Policy study employed data from the California API to define school quality. However, the California API has been criticized for its limitations in accurately reflecting school performance, as it primarily relied on standardized test scores without incorporating broader indicators of academic growth or readiness. Collectively, these studies highlight a common reliance on standardized assessments to gauge educational quality. While such

metrics provide valuable insights, they may not be comprehensive enough for understanding the full scope of school performance.

In evaluating school performance for high-opportunity consideration, this study will analyze standardized test scores for grades 3 through 12, utilizing the most current data from the STAAR program covering the years 2019–2024. In addition to standardized test scores, the analysis will incorporate a broader range of measures to assess school performance, including graduation rates, college readiness indicators, and student progress metrics.

The STAAR program is a series of standardized tests administered by the TEA to assess students' knowledge and skills at each grade level to determine their preparedness for advancing to the next grade. The performance levels in the Texas STAAR assessment (At Masters Grade Level, At Meets Grade Level or Above, At Approaches Grade Level or Above, and Did Not Meet Grade Level) are categories that indicate how well students perform relative to established educational standards. These assessments are essential for gauging how well students understand the curriculum and meet state academic standards, which are vital for graduation and college, career, and military readiness. Students at the At Masters Grade Level demonstrate a high understanding and readiness for future challenges, while those at the At Meets Grade Level or Above are on track for success but may need additional support. At Approaches Grade Level or Above indicates the minimum passing standard, suggesting that intervention may be necessary, and Did Not Meet Grade Level signifies a need for significant assistance.

The Texas public school accountability system heavily relies on the percentage of students who meet the At Meets Grade Level or Above group, a key metric used to

determine overall school ratings and identify schools requiring targeted interventions (TEA, 2024). These comprehensive measures provide an important overview of educational outcomes for Texas, Region 16, AISD, and CISD, offering valuable context before analyzing individual schools. Region 16 is the Education Service Center (ESC) for the Texas Panhandle, serving local school districts including Amarillo ISD and Canyon ISD. The Region 16 ESC collects and manages student performance data, including STAAR results; this data supports district-level analysis and regional educational planning by providing a comprehensive dataset for the region.

The STAAR performance data for At Meets Grade Level or Above across all applicable grades and subjects reveal important trends for these entities, reflecting the percentage of students achieving this level in the STAAR assessment (see Table 5).

Table 5

STAAR Performance At Meets Grade Level or Above (2019-2024)

Year	Texas	Region 16	AISD	CISD
2019	50%	48%	48%	58%
2020	-	-	-	-
2021	41%	46%	43%	58%
2022	48%	50%	48%	63%
2023	49%	51%	50%	61%
2024	48%	49%	48%	58%

Note. Data from the TEA (n.d.). STAAR testing was canceled in 2020 due to the COVID-19 pandemic.

From 2019 to 2024, CISD consistently outperformed Texas, Region 16, and AISD in STAAR performance at the Meets Grade Level or Above category. While Texas, Region 16, and AISD remained in the 48-50% range, CISD maintained a clear lead, peaking at 63% in 2022 before settling at 58% in 2024.

Academic Growth Score

The Academic Growth Score is a key metric used to evaluate how effectively schools support student learning over time. Rather than focusing solely on achievement levels, it measures student progress, offering a more comprehensive assessment of instructional impact. By emphasizing growth, this measure provides insight into the effectiveness of instructional practices and a school's ability to support diverse learners. Table 6 presents academic growth rates for Texas, Region 16, AISD, and CISD from 2019 through 2024.

Table 6

Academic Growth Rates (2019–2024)

Year	Texas	Region 16	AISD	CISD
2019	69%	68%	68%	70%
2020	-	-	-	-
2021	-	-	-	-
2022	74%	72%	71%	74%
2023	64%	63%	63%	62%
2024	64%	63%	62%	67%

Note. Data from the TEA (n.d.). STAAR testing was canceled in 2020 due to the COVID-19 pandemic.

Academic growth rates in Texas and Region 16 remained closely aligned throughout the years presented. AISD consistently tracked just below the state and regional averages, while CISD demonstrated stronger performance, particularly in 2022. However, by 2023 and 2024, all reported rates had declined compared to earlier years.

Graduation Rates

Timely graduation reflects the effectiveness of educational institutions in supporting student success as students who graduate on time are more likely to benefit from the economic advantages associated with higher education, such as increased earning potential and better

employment opportunities (Heckman & LaFontaine, 2010; Murnane, 2013). Table 7 presents the four-year longitudinal graduation rates, which measure the percentage of students graduating within four years of starting high school.

Table 7

Four-Year Longitudinal Graduation Rates (2019–2023)

Year	Texas (%)	Region 16 (%)	AISD (%)	CISD (%)
2019	90.0	92.5	91.2	97.7
2020	90.3	93.1	91.3	96.6
2021	90.0	93.6	92.2	96.2
2022	89.7	93.6	92.9	95.9
2023	90.3	94.3	93.3	95.6

Note. Data from the TEA (n.d.).

Texas four-year longitudinal graduation rate remained relatively stable from 2019 to 2023, with only slight changes over the years. Region 16 consistently maintained a higher graduation rate than the state, with a gradual increase by 2023. At the district level, AISD's graduation rate improved over time, aligning more closely with Region 16. CISD maintained the highest graduation rates among all levels but experienced a slight decline over the period, though it remained well above state and regional averages.

College, Career, and Military Readiness Rates

A diversified education system that includes career and technical pathways alongside traditional college pathways is essential for preparing students for the workforce and addressing income inequality (Symonds, 2012). Furthermore, education encourages lifelong learning and adaptability, supports social mobility for disadvantaged individuals (Chetty et al., 2014), and is crucial for personal and professional advancement, ultimately aiding in poverty reduction. The College, Career, and Military Readiness (CCMR) classification prepares students for diverse post-secondary paths,

preparing them with skills and qualifications for the workforce, military service, or further education. The percentage of graduates in this classification reflects their readiness for diverse post-secondary opportunities. Table 8 exhibits the CCMR rates, which reflect the percentage of high school graduates meeting college, career, or military readiness standards.

Table 8

CCMR Rates (2019–2023)

Year	Texas (%)	Region 16 (%)	AISD (%)	CISD (%)
2019	72.9	75.5	79.6	71.5
2020	63.0	67.2	72.4	73.5
2021	65.2	67.2	68.7	78.8
2022	70.0	68.7	62.5	83.7
2023	76.3	80.1	86.5	89.1

Note. Data from the TEA (n.d.).

Texas and Region 16 saw a decline in CCMR rates in 2020, followed by a gradual recovery, with both reaching their highest levels in 2023. AISD experienced a similar decline but rebounded sharply, surpassing both the state and regional averages by 2023. CISD, which started below AISD in 2019, showed steady improvement over the years, achieving the highest CCMR rate among all levels by 2023.

College Ready Graduates Rates

College Ready Graduate rates measure high school graduates' preparedness for postsecondary education, emphasizing essential academic skills such as literacy, mathematics, and critical thinking. Research indicates that academic readiness enhances college enrollment, persistence, and degree completion. Students who meet college readiness benchmarks are more likely to persist in college and complete a degree (ACT, Inc., 2013). Similarly, Wyatt et al. (2011) found that students who met established readiness benchmarks were more likely to

enroll in a four-year college, progress beyond their first year, and graduate within four years, reinforcing the importance of foundational academic skills in postsecondary success.

Table 9 presents the College Ready Graduates rates, illustrating the proportion of graduates meeting key academic benchmarks for postsecondary education.

Table 9

College Ready Graduates Rates (2019–2023)

Year	Texas (%)	Region 16 (%)	AISD (%)	CISD (%)
2019	53.0	58.2	67.4	56.2
2020	53.4	58.8	68.2	65.8
2021	52.7	56.8	60.6	70.5
2022	52.9	55.2	48.8	74.6
2023	61.9	72.0	80.6	85.2

Note. Data from the TEA (n.d.).

Texas and Region 16 saw a decline in college-ready graduate rates from 2019 to 2022, followed by a sharp increase in 2023. AISD followed a similar pattern but experienced a more pronounced drop in 2022 before rebounding to its highest rate in 2023. CISD showed steady improvement throughout the period, surpassing all other levels by 2023.

Crime Rate Review

Families often find greater stability and support in lower-crime neighborhoods, which can further reduce crime involvement among residents (Carlson et al., 2012). Research utilizing data from the MTO experiment by Ludwig et al. (2001) illustrates that neighborhoods with higher poverty rates typically experience elevated crime rates. Their findings indicate that moving families from areas of high poverty to neighborhoods with low poverty profoundly reduces juvenile crime.

While poverty is not the sole cause of violent crime, it is a major contributing factor, especially when coupled with other elements such as income inequality and economic stressors (Gaitán-Rossi & Velázquez Guadarrama, 2021). Numerous studies provide compelling evidence that experiencing or witnessing neighborhood violence adversely affects students' scholastic achievement. For instance, researchers have found that increased exposure to violent crime correlates with lower scores on standardized tests, particularly in subjects like English Language Arts (Laurito et al., 2019; O'Brien et al., 2021; Schwartz et al., 2022). Additionally, a study by Sharkey et al. (2014) revealed that children exposed to violent crime scored much lower on exams just one-week later after the incident.

Analyzing crime data across multiple geographic levels offers valuable insights into whether neighborhood crime rates align with or diverge from broader trends (Kubrin & Weitzer, 2003). Understanding neighborhoods that consistently diverge from these trends can guide targeted policy responses, including housing reforms and educational interventions, to address specific challenges. The Federal Bureau of Investigation (FBI) compiles crime data through the Crime Data Explorer (CDE), which shifted to the National Incident-Based Reporting System (NIBRS) standard in 2021, improving data detail but limiting year-to-year comparisons due to varying levels of agency participation during the transition (FBI, 2022). Although the reporting structure has shifted to NIBRS, national research and policy analyses continue to rely on the established UCR categories to maintain consistency and comparability across time and geographic areas. The FBI's UCR Program continues to summarize crime statistics using these categories, with violent crime including homicide (murder and non-negligent manslaughter), rape, robbery, and aggravated assault, while property crime includes burglary, larceny-theft, motor vehicle theft, and arson. These categories provide consistent

comparability across geographic areas and time periods. Table 10 displays violent crime rates at the national, state, and county levels from 2019 to 2022.

Table 10

Violent Crime Rates per 100,000 Population (2019–2022)

Year	United States	Texas	Potter County	Randall County
2019	380.8	421.8	629.97	191.1
2020	398.5	446.5	793.2	176.6
2021	-	-	-	-
2022	380.7	431.9	733.05	192.9

Note. Data from the FBI CDE. The 2021 data are unreliable for trends due to the NIBRS transition, covering only about 65% of the U.S. population (FBI, n.d.).

National and Texas violent crime rates remained relatively stable from 2019 to 2022, with Texas consistently exceeding the national rate. Potter County had the highest violent crime rates across all years, peaking in 2020 before declining in 2022, though it remained well above state and national levels. Randall consistently had much lower violent crime rates, showing minimal variation.

The 2022 *Amarillo Gun Violence Report* by Herman and Hernandez (2022) identified a rise in shooting incidents from July 2021 through June 2022, averaging approximately 1.2 shootings per day and concentrated primarily in the north-central portion of Amarillo. High-incident areas identified in the report include neighborhoods in Potter County such as San Jacinto, North Heights, Hamlet, and Eastridge. These findings illustrate localized concentrations of gun violence within the city, which occur in neighborhoods characterized by socioeconomic disadvantage and are consistent with broader research showing that crime exposure is spatially concentrated in disadvantaged neighborhood environments (Herman & Hernandez, 2022; Kubrin & Weitzer, 2003).

Summary of High-Opportunity Indicators

Between 2020 and 2023, Randall consistently maintained lower poverty rates compared to Potter County. While both counties showed improvements, Potter County's poverty rate remained far higher than national and state averages. Similar disparities were evident in child poverty rates, with Randall consistently performing better, though Potter County demonstrated progress despite continuing to face higher rates.

The educational landscape from 2019 to 2024 reflected similar disparities between CISD and AISD as CISD consistently outperformed AISD in STAAR performance at the Meets Grade Level or Above category. Amid declines in academic growth rates for both districts by 2023 and 2024, CISD maintained stronger overall performance.

Graduation rates further highlighted differences between the two districts. CISD consistently achieved some of the highest graduation rates in the region, maintaining rates well above state and regional averages. AISD, however, demonstrated notable progress, with its graduation rate reaching 92.2% in 2022, surpassing the statewide average of 90% and aligning more closely with Region 16. This indicates that while CISD sustained its historically strong outcomes, AISD made strides in closing the gap.

In terms of CCMR, both districts experienced setbacks in 2020. AISD rebounded significantly by 2023, surpassing state and regional averages, while CISD showed steady improvement throughout the period, ultimately achieving the highest CCMR rate. Meanwhile, violent crime rates from 2019 to 2022 revealed a stark contrast between Potter and Randall Counties. Potter County consistently recorded the highest rates, peaking in 2020 before declining, whereas Randall County maintained noticeably lower

and more stable rates. Potter County's crime rates remained well above national and state averages, while Randall's were substantially lower.

Legacy of Redlining Practices

The U.S. housing system has a complex history shaped by redlining practices, which have led to present-day disparities in housing and economic opportunities. In response to the rising wave of foreclosures during the Great Depression, the Federal Home Loan Bank Board (FHLBB) initiated the establishment of the Home Owners' Loan Corporation (HOLC) in 1933. The primary mission of the HOLC was to refinance mortgages for homeowners facing foreclosure risks (Aalbers, 2008). The HOLC created residential security maps between 1935 and 1940 to assess the risks tied to mortgage investments (Hillier, 2003). These maps, which used color-coding to grade neighborhoods, assigned ratings based on factors like racial composition and economic conditions (Massey, 1990). Neighborhoods marked in red were labeled as hazardous and considered the highest risk for lenders. Consequently, these historically redlined areas continue to struggle with issues such as elevated poverty rates and limited access to quality education (Massey, 1990). Both Potter and Randall Counties contain neighborhoods that experienced the HOLC maps and methodology (Lavery, 2020).

Redlining practices have lasting effects, leaving many neighborhoods economically disadvantaged and trapped in persistent poverty. This results in a self-reinforcing cycle of economic decline, where deteriorating conditions make it increasingly difficult for residents to escape poverty. Each stage of decline exacerbates the next, resulting in a continuous downward spiral (Massey, 1990). Consequently, the

effects of redlining persist across generations, perpetuating cycles of poverty and hindering residents' economic mobility and stability (Chetty et al., 2014).

HOLC critically contributed to the disinvestment of certain neighborhoods. Residents in redlined areas found it nearly impossible to obtain loans for home purchases, improvements, or repairs, leading to the deterioration of the housing stock (Hillier, 2003). As homes and infrastructure in redlined areas were neglected, property values fell, decreasing the wealth accumulation potential for residents and further deterring investment (Massey, 1990; Rothstein, 2024). Businesses were less likely to invest in redlined neighborhoods due to the perception of considerable risk, leading to a lack of commercial development, employment opportunities, and essential services like grocery stores and banks (Hillier, 2005). The lack of investment created a feedback loop, where declining conditions made the area less desirable, which further depressed property values and economic activity, trapping residents in a cycle of poverty (Galster & Sharkey, 2017). As investment declines, infrastructure deteriorates, making areas less attractive to businesses and residents. This leads to declining economic opportunities, lower property values, and decreased homeowner wealth, which leads to reduced local tax revenues and negatively impacts funding for essential services.

Rothstein's (2024) research demonstrates how formerly redlined areas continue to face the lasting impacts of these practices, resulting in persistent economic and social challenges. For example, blighted and inefficient single-family or multifamily properties in Amarillo may be priced higher than their actual worth due to a shortage of new or recently available market-rate rental units (CDS, 2022).

Potter County has old housing stock in that it is estimated 70% of housing was built before 1970 (Potter, 2022). The Amarillo community has voiced major concerns about the condition of dilapidated and abandoned buildings. Residents often cited problems like negligent upkeep by property owners akin to "slumlords" (City of Amarillo, 2017; City of Amarillo, 2020) and the rapid deterioration of vacant properties due to transient occupancy (City of Amarillo, 2017). Addressing the issue of advancing blight has been part of Amarillo's agenda for many years, primarily focusing on neighborhoods in North and East Amarillo (City of Amarillo, 2010). Vacant properties have deteriorated to the point that the city has turned to demolition. In 2017, the city formed the Condemnation Appeals Commission to handle condemnation matters more effectively. One of the City's main goals has been to encourage the demolition and removal of deteriorating or unsafe structures to maintain housing standards, reduce blight, and create a more favorable living environment (CACDD, n.d.). Although a condemnation process exists, there is a growing call for earlier intervention to avert the emergence of blight (City of Amarillo, 2020).

Enduring socioeconomic challenges have led to concentrated poverty, property abandonment, and blight, all of which contribute to increased levels of violent crime, particularly firearm violence (Branas et al., 2012). Research stresses a strong correlation between these neighborhoods and heightened violent crime. For instance, Lyons et al. (2023) found that areas with lower HOLC grades, once labeled "hazardous" for lending, now report much higher rates of violence. Similarly, Poulson et al. (2021) established a clear link between historical lending practices and contemporary firearm violence,

showing that neighborhoods previously categorized as “Red” or “Yellow” by HOLC continue to experience elevated incidents of gun-related crime.

Anticipated Challenges

Post-Pandemic Affordable Housing Crisis

The challenges governments faced in maintaining stability and delivering public services during the COVID-19 pandemic emphasize the critical need for effective public management capabilities to navigate complex situations (Peterson & Peterson, 2024). As the U.S. strives to recover from the COVID-19 crisis and its economic repercussions, the critical shortage of affordable housing continues to pose significant risks to the economic, physical, and social well-being of low-income renters. The impacts of the pandemic on employment and income, combined with substantial rent hikes from 2020 to 2022, have worsened the ongoing affordable housing crisis. While there have been some positive developments in rent inflation and job rates in 2023 and early 2024, extremely low-income renters will still struggle to find affordable housing (NLIHC, 2024, p. 3).

Navigating Voucher Portability

A potential challenge with voucher portability arises when families move outside of SAFMR areas. If families relocate to areas where the receiving PHA utilizes SAFMRs, their voucher will be administered under those guidelines. Conversely, if the receiving PHA does not use SAFMRs, the voucher will adhere to the local MAFMRs. Furthermore, if a PHA operates within a SAFMR area but manages vouchers outside that area, those vouchers will be subject to MAFMRs. Therefore, effective coordination and consistent strategy between PHAs are crucial to ensure proper application of SAFMRs for voucher portability (HUD, 2018).

Theoretical Foundation

The study's focus on the housing market suggests a basis in NPM theory, emphasizing efficient business processes. However, NPM's market-driven approach and emphasis on performance measurement through market mechanisms can reduce social participation and citizen engagement if applied too narrowly, neglecting broader democratic and social considerations (Frederickson, 1996; Moore, 1994). While NPM's strengths in efficiency and performance management could streamline SAFMR implementation, its focus on cost-cutting and performance metrics may overlook equity considerations (Diefenbach, 2009). This focus can lead to self-interest and government steering to unleash market forces, potentially exacerbating housing stock imbalances between counties. For example, if few HCVP homes are on the market in Randall and the higher population of low-income residents is concentrated in Potter County, then the low-income population will continue to remain in Potter County. SAFMRs are designed to address disparities in rent affordability across different areas, and a purely efficiency-driven approach might not fully capture the social dimensions of housing policies.

In contrast to NPM's customer-focused approach, NPS theory emphasizes democratic citizenship, community engagement, and public participation, aiming to serve the broader public interest (Denhardt & Denhardt, 2000). The participatory nature of NPS ensures that diverse community voices are considered, resulting in policies that are more responsive to local needs. Additionally, NPS principles encourage collaboration between non-governmental groups with shared interests and government agencies, facilitating effective dialogue to achieve common goals (Denhardt & Denhardt, 2000).

Amarillo is an incorporated city and is the seat of Potter County, with portions extending into Randall County. During 1913, Amarillo became the first city in Texas to operate under the hierarchical council-manager model of government (Blodgett, 1976). In this model, the elected city council embodies democratic values by representing citizen interests and setting policy, while the city manager focuses on implementing these policies in a professional and non-partisan manner. While the council-manager system is traditionally associated with promoting efficient governance, it can also align with some principles of NPS, particularly in emphasizing responsiveness to community needs and serving the public rather than steering it (Denhardt & Denhardt, 2000).

NPS emphasizes professional management and ethical leadership, evident in the city manager's role in ensuring efficient administration aligned with policies set by elected representatives. This theory is reflected in the customer service strategy framework established by the City of Amarillo Council to support the city's future vision (City of Amarillo, 2018). These pillars facilitate community outreach and citizen engagement in decision-making processes, such as the neighborhood planning initiative. However, responsiveness is crucial for SAFMRs as they must respond to dynamic local housing markets. While NPS emphasizes citizen input and focuses on serving the public interest, its processes can potentially slow down decision-making due to extensive deliberation and consultation (Organisation for Economic Co-operation and Development, 2020).

While NPS strongly advocates for citizen engagement and democratic governance, its primary focus on government-citizen relationships may limit the effective use of diverse partnerships and resources necessary for complex policy implementations

like SAFMRs. Goodman et al. (2017) assert that engaging diverse stakeholders in community projects, while valuable, can complicate coordination and implementation. They emphasize the importance of evaluating engagement processes and outcomes, noting that achieving a balance between democratic participation and efficient management of complex partnerships can be challenging. Furthermore, the NPS framework prioritizes public interest and democratic engagement, which can sometimes overlook market-based aspects of policies such as SAFMRs. SAFMRs require a nuanced approach that balances public policy goals with the realities of the housing market. Implementing SAFMRs requires a nuanced approach that reconciles public policy goals with housing market realities, navigating complex dynamics such as affordable housing availability and regional economic factors to ensure the policy's effectiveness and sustainability. This balance is essential for enhancing access to high-opportunity neighborhoods while preserving affordable housing options.

NPG emphasizes collaboration, focusing on cross-sector partnerships and networks (Krogh & Triantafillou, 2024) to address complex problems and enhance public value creation (Ansell & Gash, 2008). A greater focus on cross-sector partnerships could profoundly enhance the implementation of SAFMRs by leveraging resources and expertise from public, private, and non-profit sectors. These partnerships could facilitate better data sharing and analysis for decision-making and improve implementation strategies by incorporating insights from various stakeholders, including landlords, tenants, and community organizations.

The CACDD exemplifies elements of NPG through its management of the CDBG program, including the HCVP. By soliciting proposals from city departments and

nonprofit organizations, the CACDD promotes collaborative networks across multiple sectors, engaging diverse stakeholders to address complex social issues in alignment with NPG principles. Its commitment to stakeholder engagement is evident through years of transparent public meetings, including focus groups, surveys, and advisory committees, (Avalanche Consulting & CDS, 2017), and extensive resident-driven processes for long-range planning (City of Amarillo, 2024). This approach reflects NPG's emphasis on involving stakeholders in governance to ensure diverse perspectives are considered in decision-making. Additionally, CACDD's outreach programs provide specialized services to underserved individuals, illustrating its innovative approach to service delivery. This aligns with NPG's emphasis on flexibility and adaptability in meeting complex community needs through creative solutions (Teisman & Klijn, 2008).

Implementing and administering SAFMRs effectively requires the public and private sectors working together. The Amarillo Economic Development Corporation (AEDC) the City of Amarillo's exemplifies this collaborative model, partnering with private businesses and stakeholders to promote economic growth and create a balanced economy. To address complex challenges, it is essential to achieve and maintain an optimal balance between complying with government regulations and implementing governance mechanisms that promote cross-sector collaboration and engage diverse stakeholders, tailored to the needs of local contexts (Thurmond & Yehl, 2017).

This study will focus on NPG due to its emphasis on collaboration and cross-sector partnerships, which are essential for examining localized payment flexibility through SAFMR-based exception payment standards in complex housing market contexts. While NPM prioritizes efficiency, it can privilege metropolitan-wide

administrative uniformity that may not fully account for variation across submarkets. NPS promotes community responsiveness but may limit the diverse partnerships required to navigate market-based policy instruments effectively. In contrast to NPM's metropolitan-wide administrative logic, NPG provides a governance framework suited to coordinating multi-actor relationships across public, private, and nonprofit sectors in environments where localized rent variation affects program reach.

NPG and SAFMRs have the potential to work together effectively, along with support from a balanced government and governance model (Thurmond & Yehl, 2017, p. 302), to create a more comprehensive housing framework that promotes rental stock. Within such a balanced government and governance structure, NPG encourages partnerships among various stakeholders to support the examination and coordination of SAFMRs, particularly in complex local housing markets. Rather than positioning SAFMRs as a purely administrative adjustment, this collaborative orientation allows localized rent variation to be addressed through coordinated engagement among public agencies, private landlords, and community stakeholders. Therefore, NPG is the preferred theoretical basis for this study. NPG will be reexamined in Chapter V of this study, analyzing how the data and results clarify its relevance within the context of localized governance.

Chapter III

Methodology

This chapter outlines the methodological framework used to evaluate whether the current FMR structure enabled HCV tenants to reside within high-opportunity neighborhoods. The analysis assesses tenant presence within areas characterized by lower poverty, stronger academic performance, and reduced crime, as established in the conceptual framework of Chapter II. While Chapter I introduced structural limitations related to rental availability and constrained payment standards, Chapter III operationalizes those concerns through a multi-scalar, spatially grounded quantitative approach. Where availability remains limited, the methodology also examines the potential for SAFMR-based exception payment standards to enhance availability within high-opportunity areas.

This study integrated spatial, socioeconomic, and housing market data for neighborhoods within the city limits of Amarillo spanning both Potter and Randall Counties to examine whether adjusted payment standards could improve rental housing availability within high-opportunity neighborhoods. The analysis drew on geocoded HCVP data, ACS poverty estimates, standardized school performance indicators, and crime rates to evaluate the spatial distribution of HCVP households and the alignment between voucher placement and neighborhood opportunity characteristics. It also examined how local rental market conditions and HUD payment standards influence the geographic availability of rental housing for voucher holders.

Research Foundation

This section defines the conceptual framework for examining HCV tenant access to high-opportunity neighborhoods. It presents the core research questions and outlines the structured analytical sequence. Drawing on established policy assumptions and theoretical constructs, the study applies deductive reasoning to test whether existing FMR structures and SAFMR-based exception payment standards correspond with measurable differences in the availability of rental housing and the spatial distribution of HCV tenants across high-opportunity neighborhoods. Grounded in positivist epistemology, deductive reasoning, and NPG principles, the study employs a cross-sectional, multi-scalar design capturing tenant distribution, neighborhood opportunity, and rental market dynamics in Amarillo, with a focus on how policy interventions can expand rental housing availability in these areas.

Research Questions and Analytical Phases

This research is guided by three central questions:

1. To what extent have metropolitan FMRs enabled HCV tenants to reside in high-opportunity neighborhoods within Potter and Randall Counties, specifically within the city limits of Amarillo, TX?
2. If Research Question 1 indicates limited HCV presence in high-opportunity neighborhoods, how do metropolitan FMRs compare with prevailing rental market rents in identified high-opportunity census tracts?
3. If metropolitan FMRs are found to be insufficiently competitive with the private rental market in high-opportunity neighborhoods, would SAFMR-based exception

payment standards increase the availability of rental units for HCV tenants in these areas?

Research Question Sequencing and Analytical Plan

While RQ2 and RQ3 are conceptually dependent on the outcome of RQ1, the analytical plan proceeds in full regardless of RQ1's findings. Because this is a cross-sectional, point-in-time analysis rather than a longitudinal study, RQ1 assesses whether FMRs have effectively supported tenant residence in high-opportunity neighborhoods at the time of analysis. If RQ1 reveals limited tenant access to such areas, RQ2 examines whether FMRs are set below prevailing market rents, potentially constraining access. Conversely, if RQ1 indicates effective placement, RQ2 serves to validate the alignment between FMRs and market rents, reinforcing the interpretation that payment standards are not impeding access. This dual approach ensures a comprehensive evaluation of rental market dynamics and payment standard adequacy, providing the necessary foundation for evaluating the potential impact of SAFMR-based exception payment standards in RQ3. The study proceeds in two primary analytical phases, executed sequentially and designed to align directly with the research questions:

1. Phase One: Distribution of HCVP tenants and alignment with high-opportunity areas (addresses RQ1). This phase evaluates the geographic distribution of HCVP tenants by identifying the census tracts they occupy and whether those tracts qualify as high-opportunity. Opportunity classification is based specifically on poverty rates, school performance, and crime rates.
2. Phase Two: Comparisons of FMRs with market rents and assessment of SAFMR-based alternatives (addresses RQ2 and RQ3). This phase compares HUD-

designated FMRs to private rental market rents in areas identified as high-opportunity. It further evaluates whether SAFMR-based exception payment standards, derived from ZIP Code–level SAFMR benchmarks and evaluated in relation to census tract–level opportunity conditions, have the potential to offer improved alignment with actual market conditions in neighborhoods where HCV tenants are underrepresented.

This structure facilitates a stepwise evaluation of whether current HUD payment standards adequately support access to high-opportunity neighborhoods and whether SAFMR-based alternatives may improve alignment with local market conditions to expand locational options for voucher holders and maximize the potential policy impact of exception payment standards within Amarillo's rental market.

Research Design and Theoretical Framework

This section outlines the philosophical orientation, research design, and methodological strategies that guide the study. These theoretical foundations inform the interpretation of results and establish the basis for evaluating whether current FMR payment standards have enabled HCVP tenants to access high-opportunity neighborhoods. If not, the analysis also considers whether SAFMR-based exception payment standards offer a viable mechanism to improve such access. Anchored in a positivist orientation and implemented through a cross-sectional quantitative design, the study systematically examines the spatial distribution of HCVP tenants and assesses the extent to which current FMR structures align with opportunity conditions in Amarillo.

The analysis proceeds in phased, sequential steps that align directly with the research questions. First, the geographic distribution of HCV households is mapped to

identify tenant concentrations at the census tract level. These household distributions are analyzed within fully contained census tract-MLS areas to ensure precise alignment of opportunity indicators and to inform potential tract-level SAFMR exception payment standard applications. These patterns are then translated to ZIP Code and neighborhood boundaries to support policy-relevant SAFMR scenario modeling and facilitate a direct comparison between tract-level opportunity conditions and ZIP Code-level policy designations. Neighborhood interpretation remains anchored at the fully contained tract-MLS level. Importantly, the initial spatial mapping does not assume a direct association between HCV tenants and specific housing unit types, such as single-family homes. Rather, opportunity conditions are assessed across areas where tenants reside, independent of housing structure type. This is followed by a targeted review of single-family housing availability within those same areas. This phased approach supports the policy objective of identifying whether and where SAFMR exception payment standards may improve access to desirable housing stock, particularly in high-opportunity neighborhoods, even when such units are not currently leased by voucher holders, thereby connecting tract- and ZIP-level spatial analysis with potential policy impact.

Positivist Approach and Deductive Reasoning

This study adopts a positivist epistemology by emphasizing observable, measurable conditions associated with the geographic distribution of HCVP tenants within Potter and Randall Counties that fall inside Amarillo's city limits. Grounded in a cross-sectional quantitative framework, the analysis relies on tract-level and ZIP Code-level data to examine demographic patterns, rental market characteristics, and neighborhood opportunity conditions across a range of residential environments,

including urban, suburban, and transitional areas. This empirical orientation aligns with the positivist premise that knowledge is most reliably produced through systematic observation and verifiable data. The study employs deductive reasoning to evaluate the relationship between HUD-designated FMRs, prevailing rental market conditions, and the geographic accessibility of high-opportunity neighborhoods to HCVP tenants.

Theoretical perspectives on geographic variation in neighborhood conditions and rental market alignment inform the interpretation of tenant distribution patterns and support the evaluation of whether current HUD payment standards enable access to areas characterized by greater opportunity within Amarillo's rental market.

Application of NPG Principles to Spatial Analysis

Although the study employs quantitative and spatial methods, it is conceptually grounded in NPG, which emphasizes collaborative governance among public agencies, private landlords, and community stakeholders. NPG highlights the importance of interorganizational coordination in shaping both policy design and implementation. This perspective informs the study's evaluation of how FMR structures, particularly the application of SAFMR-based exception payment standards, may affect HCV tenant access to neighborhoods with greater opportunity through a spatially informed, governance-focused lens. In this context, NPG offers a framework for interpreting how governance arrangements influence the spatial targeting and practical execution of housing policy interventions.

Cross-Sectional Study Design

To assess the current spatial distribution of HCV tenants in relation to high-opportunity neighborhoods, this study employs a cross-sectional design. This approach

captures data at a single point in time, offering a snapshot of tenant locations relative to contextual indicators specifically defined as poverty rates, school performance, and crime rates. Contemporary administrative datasets, including HUD's HCV counts by census tract and the HUD-USPS ZIP Code crosswalk, support a systematic examination of spatial alignment under existing FMR structures. The design provides a comprehensive basis for evaluating whether targeted SAFMR-based exception payment standards are warranted in ZIP Codes where standard FMRs diverge from prevailing rents in high-opportunity areas.

Although certain data inputs (e.g., ACS poverty estimates, school performance scores, and crime statistics) are derived from multi-year collection periods, they are treated as representative of neighborhood conditions during the analytic window. The analytic window is centered on 2023–2024, the period during which the selected datasets, each released or updated within a proximate timeframe, collectively provide a coherent, time-specific profile of tenant geography, opportunity conditions, and rental market alignment in Amarillo.

To ensure internal consistency across datasets with different release years, the analysis aligns all spatial data inputs to 2020 Census tract geography. This standardization facilitates accurate overlay of tenant counts, opportunity indicators, and rental housing boundaries. The integration strategy balances temporal representativeness with geographic stability, permitting cross-sectional interpretation despite data vintage variability.

Data Infrastructure

This section describes the key datasets and spatial boundaries supporting the analysis of HCV tenant distribution. By integrating geocoded tenant data with publicly available administrative and demographic sources, the study constructs a coherent geographic framework linking tenant concentrations to neighborhood opportunity indicators at the census tract and MLS neighborhood scales, with later translation to ZIP Codes for SAFMR scenario modeling in RQ3. All data are aligned to the 2020 Census tract geography to ensure spatial consistency. Primary sources supporting voucher saturation measurement, socioeconomic assessment, and the translation of tract-level estimates to ZIP Code and MLS neighborhood scales are detailed.

Data Sources and Study Area

Building on the defined spatial framework of MLS areas, this study evaluates the geographic distribution of HCV tenants in relation to neighborhood opportunity by integrating geocoded tenant data with spatially referenced administrative datasets, and it details the data sources and geographic scope that support this analysis. The study area comprises Potter and Randall Counties, encompassing the city limits of Amarillo, Texas. This section details the datasets used to identify HCV tenant locations, quantify neighborhood opportunity conditions, and characterize local rental market dynamics relevant for SAFMR modeling.

To ensure methodological rigor and temporal-spatial consistency, each dataset is evaluated for compatibility in both geographic resolution and time coverage. The core dataset identifying HCV tenant distribution is the HUD Housing Choice Vouchers by Census Tract dataset (early 2024 release), aggregated to 2020 Census tract geography.

This boundary framework is applied consistently across key sources, including the U.S. Census Geocoder and the ACS, thereby supporting integrated spatial referencing for demographic and socioeconomic indicators.

ZIP Code boundaries, essential for SAFMR-related modeling, are derived from the HUD-USPS ZIP Code Crosswalk (Q1 2024). This version aligns spatially with the 2024 HUD HCV dataset, enabling accurate translation of tract-level tenant data into ZIP Code-level policy units.

Opportunity indicators include poverty rates (ACS), school performance (TEA TAPR), and crime rates (APD), all using consistent 2018–2022 data from their respective administrative sources. These indicators are consistently mapped to 2020 Census tract boundaries to ensure geographic congruity.

This deliberate alignment of spatial units and temporal windows across datasets minimizes the risk of geographic misalignment or temporal inconsistencies. It strengthens the study's capacity to evaluate HCV tenant distribution relative to neighborhood opportunity structures and supports analyses of subsidy adequacy, including the potential application of SAFMR-based exception payment standards to enhance access to high-opportunity areas.

Geographic Scope and Primary Dataset

The study focuses on Potter and Randall Counties, encompassing the jurisdictional boundaries of Amarillo, Texas. Voucher utilization data are not directly available at the neighborhood level; therefore, the analysis leverages the HUD Housing Choice Vouchers by Census Tract dataset, aggregated to the 2020 U.S. Census tract geography. Released in early 2024 and updated as of May 7, 2024, this dataset is publicly

accessible via the ArcGIS Hub as part of the National Geospatial Data Asset initiative. Provided as a feature layer optimized for geospatial analysis, it facilitates the identification of census tracts with concentrated voucher usage, supporting the approximation of neighborhood-level tenant distribution critical for spatial analyses. This dataset serves as the empirical foundation for establishing baseline HCV household counts by tract within Potter and Randall Counties. These tract-level estimates inform all subsequent spatial translations, including allocations to MLS-defined areas and ZIP Codes.

Unit of Analysis: Census Tracts, MLS Areas, and ZIP Codes

This study begins with census tracts as the foundational spatial unit, providing geographically verified estimates of HCV household distributions suitable for the scope of this analysis. Census tracts provide the primary unit for SAFMR exception payment standard scenarios, while fully contained MLS areas within those tracts serve as reliable proxies for neighborhood-level opportunity conditions, supporting accurate opportunity classification without introducing allocation ambiguity.

Tract-level exception payment standard requests must be benchmarked against the SAFMR for the parent ZIP Code, although the analysis may use tract-specific rent estimates consistent with HUD guidance. Accordingly, ZIP Codes are incorporated only after fully contained MLS–tract areas are identified, ensuring that each household is unambiguously assigned to a single tract and MLS area. This step allows the study to maintain alignment with HUD's ZIP Code–based benchmarking requirements without relying on proportional allocations for partially overlapping areas.

Fully contained MLS–tract areas serve as neighborhood proxies, allowing the study to operationalize SAFMR exception payment standard scenarios while maintaining consistent neighborhood-level analysis. The study's multi-scalar approach follows a clear hierarchy:

Census Tracts → Fully Contained MLS Areas → ZIP Codes (for HUD reporting and SAFMR compliance)

This sequence ensures that baseline HCV household distributions are captured accurately at the tract level, neighborhood opportunity is assessed within MLS-defined boundaries, and ZIP Codes are incorporated when required for HUD reporting and SAFMR scenario application.

Temporal Alignment and Data Consistency

The ACS data reflect socioeconomic conditions averaged over the five-year period from 2018 to 2022, preceding the early 2024 reference period for the HCV dataset. Although this introduces a temporal offset, aligning all datasets to the 2020 Census tract geography reduces spatial inconsistencies and supports coherent integration. This approach uses ACS five-year estimates to smooth random variation, but it may also mask short-term neighborhood changes. Accordingly, this study recognizes potential lag effects and temporal misalignment as inherent limitations, warranting cautious interpretation of findings, especially in contexts where neighborhood conditions are rapidly evolving. Nevertheless, this integration provides a stable framework for cross-sectional analysis of HCV tenant distribution relative to neighborhood opportunity indicators, supporting high-concentration voucher identification and consistent opportunity-level classification. For school performance, the study uses STAAR "At Meets Grade Level or Above" (overall

and economically disadvantaged) for 2018–2019, 2020–2021, and 2021–2022; 2019–2020 is excluded due to the statewide cancellation of testing (TEA, 2020). Academic Growth is included for 2018–2019 and 2021–2022. It was not calculated for 2021 due to the unavailable 2020 baseline (TEA, 2021). Graduation Rate (4-year longitudinal) uses Classes of 2018–2022, and CCMR/College Ready (Annual Graduates) use 2017–2018 through 2021–2022 TAPR years corresponding to 2018–2022 annual graduates, keeping all school indicators within the ACS 2018–2022 window.

Data Preparation and Software

Spatial verification and tract-to-MLS allocation of HCV households are performed in Quantum Geographic Information System (QGIS) (version 3.40.9). Verification draws on multiple data sources, including 2020 census tract boundaries, PRAD parcel data, and the City of Amarillo Planning Map zoning layer, to assign HCV households to fully contained MLS areas. Manual review ensures alignment between MLS areas and census tract boundaries due to differences in definitions and spatial precision.

Statistical preparation and indicator calculations are conducted in IBM Statistical Package for the Social Sciences (SPSS) (version 30.0.0). SPSS is used to calculate tract-level rates, organize opportunity indicator variables, and generate descriptive summaries.

Ethical and Privacy Considerations

This study analyzes HCV tenant data aggregated at the census tract level to ensure privacy and confidentiality. No personally identifiable information or address-level data are utilized, consistent with HUD data release protocols designed to safeguard tenant privacy (HUD, 2020). This study received exemption from the Institutional Review Board (IRB) oversight, as it involves the use of publicly available, de-identified

administrative data and does not include direct interaction with human subjects. The IRB exemption documentation is provided in Appendix A. All procedures adhere to ethical standards for confidentiality and the appropriate use of publicly available administrative data.

County- and Tract-Level Context for Voucher Distribution Analysis

Organizing the analysis at both county and census tract levels situates HCV tenant distributions within the Amarillo metropolitan FMR framework, which applies uniformly across both counties. County-level structuring provides a recognizable geographic context for presenting tract-level household data, enabling comparison across administrative boundaries and facilitating interpretation of local housing patterns. This framework establishes the baseline for assessing whether HCV households, including those with school-aged children, reside in high-opportunity neighborhoods, supporting RQ1.

Census tracts serve as the primary spatial unit for localized assessment of household distribution and neighborhood opportunity. Structuring the methodology around these units ensures spatial precision when translating households to MLS-defined neighborhood proxies. Although HUD SAFMRs are administered at the ZIP Code level, modeling exception payment standards at the tract scale captures neighborhood-level variation while maintaining alignment with ZIP Code–based reporting requirements.

By situating the methodology within both county and tract boundaries, the study preserves spatial granularity, maintains analytic rigor, and ensures that later results, including tract-to-ZIP allocations and neighborhood-level opportunity assessments, are interpretable within both local and regional contexts.

Tract-Level Identification of HCV Households

This section outlines the methodological steps to determine the geographic distribution of HCV households as a foundation for assessing neighborhood opportunity and subsidy adequacy. The process begins with HUD's Housing Choice Vouchers by Census Tract dataset, released in March 2024 and updated May 7, 2024. This dataset provides tract-level counts of HCV-assisted households based on 2020 census tract definitions. For this study, records are extracted for all census tracts located in Potter and Randall Counties that fall within the Amarillo city limits. These tract-level counts form the foundation for MLS-area neighborhood translation and ZIP Code allocation necessary for SAFMR exception payment standard scenarios (addressing RQ1).

Tract-level saturation metrics are then calculated to gauge voucher intensity within local rental markets. This evaluation validates HCV tenant locations, tract-level household distributions, saturation analyses, and MLS-area containment. Fully contained tract-MLS areas are identified for assessment of high-opportunity indicators (poverty rates, school performance, crime rates), ensuring spatial precision in evaluating access to high-opportunity neighborhoods.

Tract-Level Saturation Calculation

Following identification, tract-level HCV household counts (numerator) are obtained from the Housing Choice Vouchers by Census Tract dataset (March 2024 release, updated May 7, 2024). Saturation is reported as the share of renter-occupied units in each tract (denominator), derived from the 2022 ACS 5-Year Estimates, which are consistent with the temporal alignment of other datasets used in this study. Saturation is expressed as:

$$HCV\ Saturation\ (\%)\ =\ \frac{Tract\ HCV\ Households}{Tract\ Renter-Occupied\ Units}\ x\ 100$$

This tract-level saturation measure functions as an interpretive bridge between the identification of HCV households at the tract scale and their allocation to ZIP Codes, contextualizing voucher counts within local rental market conditions before broader geographic translation. While reported exclusively at the census tract level, it provides essential context for interpreting rental market conditions and implications for SAFMR policy.

For descriptive interpretation, a 15% saturation threshold is applied to distinguish tracts with sustained voucher concentration from those with incidental or dispersed voucher presence. A tract in which at least 15% of renter-occupied units are supported by HCV assistance reflects a meaningful program footprint within the local rental market, indicating that voucher participation represents a substantial share of renter households rather than marginal distribution. This threshold functions as an interpretive concentration marker rather than an eligibility determinant and does not exclude any tract from subsequent containment verification or opportunity assessment.

The tract-level saturation values also inform ZIP Code–level comparisons required for exception payment standards justification and support neighborhood-level analyses using MLS area boundaries. Since neighborhood attribution is restricted to MLS areas fully contained within single tracts, the saturation rate offers indirect but meaningful support for neighborhood- and ZIP Code–level analyses by reflecting the intensity of voucher usage within localized housing markets. It is emphasized that while the HCV saturation rate provides insight into tract-level program reach, it does not represent direct voucher prevalence at the ZIP Code or neighborhood level. The metric's

geographic resolution remains at the tract scale, and its interpretive use is limited to supporting subsequent spatial analyses at coarser or translated levels of geography.

Tract-level HCV saturation results are reported separately by county (Potter and Randall) to reflect potential variations in local rental markets, housing stock, and voucher distribution patterns. This differentiation allows systematic allocation, ensures consistency in subsequent MLS and ZIP Code translations, and provides an administrative framework for evaluating program effectiveness relative to local housing markets.

This methodological approach supports RQ1 by establishing a validated spatial distribution of HCV households and contextualizing their presence relative to neighborhood opportunity indicators. Tract-level identification and saturation reporting form the foundation for evaluating whether FMRs enable HCV households to access high-opportunity areas.

Allocation of HCV Households to MLS Neighborhoods and ZIP Codes

Building on the tract-level saturation analysis, the study proceeds along two complementary but distinct allocation pathways: MLS areas and ZIP Codes. The tract-MLS pathway identifies fully contained MLS–tract areas, which serve as neighborhood proxies for assessing local opportunity indicators. This containment-based alignment preserves spatial precision, ensuring that each HCV household is assigned unambiguously to a single tract and MLS area. These fully contained areas form the foundation for evaluating neighborhood-level opportunity metrics, including poverty rates, educational outcomes, and crime levels, directly supporting RQ1 and forming the eligibility basis for RQ2 rent comparisons.

The second pathway derives ZIP Code–level reporting from the fully contained MLS–tract areas. ZIP Code reporting is conducted only after MLS–tract containment is established, aligning tract-level HCV data with ZIP Code–level SAFMRs for HUD reporting purposes. Because this study restricts analysis to fully contained tract-MLS areas that align with a single ZIP Code, it does not rely on proportional allocation methods such as Residential Ratio (RES_RATIO) weights, ensuring that ZIP Code reporting directly reflects tract-level data. ZIP Code reporting provides policy-relevant context and serves as the foundation for RQ3, which evaluates potential access to high-opportunity areas under SAFMR-based exception payment standards.

Together, these dual allocation pathways maintain analytic rigor and policy applicability. The MLS–tract pathway ensures precise neighborhood-level alignment for opportunity indicator analysis, while the ZIP Code pathway ensures compliance with HUD reporting requirements and integrates localized household data into policy-relevant spatial units suitable for SAFMR scenario modeling.

Defining MLS Areas as Neighborhood Proxies

To contextualize HCV tenant distributions within locally meaningful neighborhood geographies, verified tenant parcel locations are systematically translated from census tract boundaries to MLS-defined areas. While census tracts offer standardized spatial units for analysis, MLS areas more closely represent neighborhood structures recognized in local housing markets. This translation involves a manual perimeter review comparing tract boundaries with MLS-defined neighborhoods to assess alignment tenant parcels. Given that many MLS areas span multiple tracts, and in some cases cross county boundaries between Potter and Randall Counties, the analyses for each

county are presented separately to maintain jurisdictional clarity and ensure analytical rigor. A classification scheme is developed to evaluate the degree of spatial containment, facilitating consistent alignment of tract-level estimates with verified neighborhood proxies and supporting precise opportunity analyses.

This study uses MLS areas as proxies for "neighborhoods" to promote spatial consistency and analytic clarity. Because neighborhood boundaries are often informally defined and lack universal standardization, researchers frequently rely on administrative or market-based units, such as census tracts, ZIP Codes, or MLS areas, when more precise delineations are unavailable or impractical. For SAFMR exception payment standard scenarios, only fully contained census tract-MLS areas are used to model neighborhood-level opportunity conditions, ensuring that exception payment standards analyses are based on coherent spatial units.

In Amarillo, MLS areas are geographically defined by the AAR and are used by local housing professionals to organize listings and interpret market activity. Their consistent application in real estate practice enables structured aggregation and comparison of housing and demographic data across the study area. Consequently, they represent a methodologically appropriate and policy-relevant spatial unit for approximating neighborhood boundaries.

This strategy acknowledges the trade-off between geographic scale and spatial precision. Although census tracts and MLS areas are not nested within one another and serve different analytical functions, this study systematically translates tract-level indicators, such as poverty and crime rates, to the MLS area scale to enable consistent spatial comparison. Some degree of spatial incongruity is expected given the mismatch

between units; however, standardized translation protocols are consistently applied to maintain analytic integrity.

Although MLS areas are not formal governmental designations and may not correspond exactly to tracts, ZIP Codes, or municipal planning zones, they serve as de facto neighborhood units within Amarillo's real estate market, each identified by a unique name or code. Accordingly, all references to "neighborhoods" in this study refer to MLS areas unless explicitly noted otherwise.

Verification of Tract-Level HCV Household Attribution

The verification of HCV household placement at the census tract level follows a structured three-step process to ensure geographic accuracy. First, tract-level household distributions from the HUD Housing Choice Vouchers by Census Tract dataset are cross-checked using the U.S. Census Bureau's Geocoder (2020 benchmark) to confirm correct tract boundaries. Second, the 2021 Amarillo MLS Area Map is reviewed to determine the spatial relationship between census tracts and MLS-defined area boundaries. Third, selected residential addresses located near tract perimeters are entered into the Geocoder to confirm boundary precision and verify that tract-level classifications reflect actual residential placement. These addresses are cross-validated through PRAD parcel-level land use data to ensure that only residentially zoned properties inform the boundary assessment.

Containment-Based Alignment of MLS Areas and Tract-Level Indicators

This section establishes a rigorous spatial framework to ensure that tract-based poverty and crime indicators, along with school performance indicators assigned through campus service areas, are accurately aligned with MLS-defined neighborhood areas. The

primary purpose of this procedure is to preserve geographic precision in assigning indicators such as poverty, campus-based school performance, and violent and property crime, while simultaneously enabling the later translation of tract-level results into ZIP Codes for SAFMR-based analyses. By implementing a containment-based classification, the study systematically identifies MLS areas that are fully, partially, or not at all contained within individual census tracts, ensuring that only spatially coherent units are included in subsequent analyses.

To establish the spatial framework for containment-based classification, spatial verification and containment assessment are first conducted in QGIS using the 2021 MLS Map of Areas (PDF raster, georeferenced) and 2020 U.S. Census Bureau Topologically Integrated Geographic Encoding and Referencing (TIGER) Line tract shapefiles. The primary alignment occurs between rasterized MLS areas and census tract shapefiles, ensuring spatial consistency in translating tract boundaries into MLS-defined neighborhood areas, and builds on the procedures described in the Data Preparation and Software section.

Neighborhood Opportunity Attribution Framework (NOAF)

This study introduces the Neighborhood Opportunity Attribution Framework (NOAF) as the methodological system for classifying tract-MLS spatial relationships in Amarillo, Texas. The framework was developed to ensure that opportunity indicators are attributed at the tract scale and interpreted at the neighborhood scale, using MLS areas as proxies for neighborhoods, while also providing a structured path for alignment with ZIP Codes at the SAFMR policy level. Two verification protocols, Pre–Residential-Use Exclusion (Pre-RUE) and Residential-Use Exclusion (RUE), are incorporated to ensure

that tract-level attribution occurs only when household transfer and residential-use geometry meet the containment rules required for spatial precision.

Unlike prior studies that rely solely on census geographies or ZIP Codes, the NOAF formalizes the tract-to-neighborhood attribution process through standardized decision rules and verification procedures. Pre-RUE identifies whether HCV households are imported or exported across tract boundaries, which carry policy implications for adjacency and mobility, while RUE verifies whether residential-use space remains geographically confined to a single tract, carrying tract-level data implications. Through these tests, the NOAF advances neighborhood containment analysis from a descriptive procedure to a structured and replicable methodological framework. The system accounts for multiple scenarios, including full alignment of tract and MLS areas, partial overlaps involving multiple MLS areas or cross-tract extensions, and out-of-scope conditions involving city boundary limits.

The framework is designed not only to capture neighborhood opportunity more precisely but also to facilitate transparency and replicability. Each classification decision is documented through codified language rules, verification using PRAD parcel and HUD HCV data, and assignment of analytic codes. The NOAF therefore serves as both a neighborhood-level analytical foundation and a methodological bridge to the ZIP Code level where SAFMR policy is administered, though ZIP attribution in this study remains restricted to tract-MLS areas fully contained within a single ZIP Code. Table 11 presents the operational core of the NOAF, summarizing the containment categories and resolution approaches that structure tract-MLS classification. These categories are

assigned after the sequential application of Pre–RUE and RUE, which verified both HCV adjacency and residential-use geometry before indicator attribution proceeded.

Table 11

Tract-to-MLS Area Containment Matrix

Containment Type	Criteria	Resolution Approach
Full	The census tract and MLS area boundaries align so that tracts containing estimated HCV households are associated with one or more MLS areas. Extensions beyond these boundaries consisting solely of non-residential parcels, or of residential parcels located in tracts without verified HCV households, are excluded from attribution and do not influence the spatial allocation.	Tract-level opportunity indicators attributed to the tract containing verified HCV households; no cross-tract adjustment is required under Full Containment.
Partial	The census tract and MLS area boundaries do not fully align, such that tracts with estimated HCV households are associated with MLS areas whose residential extent also crosses into adjacent tracts that contain verified estimated HCV households, thereby influencing the spatial allocation.	Excluded from opportunity indicator assignment due to ambiguous spatial attribution.
Out of Scope	Out of Scope occurs when any portion of an MLS area's residential-use geography extends beyond the study's jurisdictional boundaries (e.g., beyond city limits).	Excluded from opportunity indicator assignment due to jurisdictional boundaries limiting the study scope.

Building on the verified tract-to-MLS area alignment, each census tract is classified into one of three categories, Full Containment, Partial Containment, or Out of Scope, based on the spatial distribution of residential parcels. MLS areas that extend into adjacent tracts are still classified as Full Containment if these extensions contain no residential parcels. Only MLS areas exhibiting Full Containment are included in the aggregation of opportunity indicators, including poverty, school performance, and violent

crime, ensuring that indicators are not misapplied across geographic boundaries. This containment strategy prioritizes spatial coherence by excluding tracts whose neighborhood assignment could compromise geographic precision. It aligns with best practices in spatial analysis that warn against the use of heterogeneous or inconsistent spatial units, which may introduce classification errors or boundary-related bias (Kwan, 2012; Spielman & Logan, 2013).

Full Containment in this study is applied with an HCV household focus. The classification operates at two analytic scales. At the tract scale, HCV households are identified and opportunity indicators are attributed to the tract containing them. At the MLS area scale, an area's residential extent may cross tract boundaries, producing outward or inward extensions into adjoining tracts. For RQ1, indicator attribution remains with the census tract containing verified HCV households, the anchor tract, and extensions with residential use may reach only adjoining tracts without such households. When an MLS area extends outward with residential use into an adjoining tract that contains no HCV households or extends inward with residential use from an adjoining tract into the tract containing HCV households, these extensions are recorded for containment classification and do not affect indicator attribution under RQ1. If HCV households are verified in more than one tract connected to the same MLS area, the case is classified as Partial Containment rather than Full Containment, because under this containment rule, extensions with residential use may reach only adjoining tracts without HCV households; verified households in multiple tracts linked to the MLS area breach that rule. This also means that when an MLS area spans two tracts with residential use

and HCV households are present in both, tract-level indicators from one tract cannot represent the MLS area as a whole.

Whereas RQ1 is HCV household-focused, RQ2 shifts to a market-centered analysis. For RQ2, the rent analysis builds directly on the results of RQ1. High-opportunity census tracts are first identified through the Full Containment tract-MLS framework in RQ1. Because tract-level rental data are not available, the corresponding MLS areas encompassing these tracts are used as proxies for neighborhood rental markets. MLS rental listings within these areas provide the measure of prevailing market rents. When an MLS area spans multiple tracts, the containment classifications established in RQ1 frame the handling of these cases, maintaining the anchor-tract perspective for interpretation while the MLS area supplies the rental data. This procedure enables RQ2 to test whether FMRs are sufficient in comparison to prevailing market rents in the high-opportunity tracts identified through RQ1, while MLS neighborhoods function as the operational unit for rent evaluation.

Unlike Full Containment, Partial Containment does not allow tract-level attribution of opportunity indicators, since MLS areas extend into adjoining tracts that also contain HCV households, creating ambiguity in spatial assignment. Partial Containment reflects geographic complexity; MLS areas lacking full tract-level alignment are excluded from scoring. Drawing on Wu et al. (2020), indicator assignment is restricted to tracts with verified spatial congruence to uphold the integrity of opportunity classification and minimize misattribution.

Finally, unlike Full Containment, Out of Scope cases cannot be used for opportunity analysis because their residential parcels extend beyond the city limits,

placing them beyond the study's jurisdiction. The Out of Scope category identifies census tracts or portions thereof that contain residential parcels located outside Amarillo's jurisdictional boundaries and excludes them from spatial attribution and opportunity indicator assignment.

This classification process supports rigorous geographic alignment and allows tract-level conditions to be accurately extended to ZIP-level assessments preserving spatial fidelity and mitigating risks associated with the Modifiable Areal Unit Problem (MAUP), in which statistical results can vary depending on the scale or zoning of spatial units (Spielman & Logan, 2013), and the Uncertain Geographic Context Problem (UGCoP), which highlights potential misclassification of neighborhood-level conditions when geographic boundaries do not align with the areas relevant to the population being studied (Kwan, 2012).

The tract-MLS containment framework establishes the spatial foundation for all three research questions by defining the verified neighborhood units used throughout the analysis. Containment is required to maintain geographic integrity, ensuring that tract-level poverty and crime indicators correspond to the same tract in which HCV households are located, and enabling school performance indicators to be assigned based on the campuses that serve each contained tract-MLS area. This structure provides the consistency needed for RQ2, where MLS areas serve as neighborhood rental markets for evaluating alignment between metropolitan FMRs and prevailing rents. For RQ3, only tract-MLS areas that satisfy the Full Containment criteria and are also fully aligned with a single ZIP Code are eligible for SAFMR-based scenario modeling. This additional requirement reflects HUD's policy geography, as SAFMRs and exception payment

standards are administered at the ZIP Code scale. This alignment ensures that tract-based opportunity assessments can be evaluated within the ZIP Code framework required for SAFMR-related payment adjustments. For RQ2, only tract-MLS areas that satisfy the Full Containment criteria advance into the rent comparison analysis, and for RQ3, only tract-MLS areas that satisfy both the Full Containment criteria and complete alignment with a single ZIP Code advance into SAFMR-based scenario modeling.

Construction and Operationalization of High-Opportunity Indicators

This section details how tract-based indicators, including poverty rate, violent and property crime, and school performance assigned through campus service areas, were translated into measurable variables to assess HCV tenant distribution and inform SAFMR policy evaluation. Each indicator was retained as a separate measure rather than combined into a composite score, ensuring that results remain transparent and directly traceable to source reporting.

High-Opportunity Indicator Development and Use

To support the selection and simulation of ZIP Code scenarios, tract-level high-opportunity indicators were applied to MLS areas meeting the Full Containment criterion, focusing exclusively on those verified to contain HCV tenants. By aligning MLS area boundaries with census tracts, the analysis ensures precise attribution of socioeconomic variables, including poverty rates, educational performance, and violent and property crime prevalence. This spatially rigorous approach minimizes the risk of misclassification and aggregation bias, providing a valid representation of the opportunity contexts experienced by HCV households. These tract-level indicators serve as the empirical

foundation for evaluating FMR effectiveness and assessing whether SAFMR-based exception payment standards can improve availability to high-opportunity rental housing.

Building on the spatially verified MLS area framework, this study adapts the domain-based structure of the COI only as a conceptual guide for indicator selection and measurement procedures. The COI's emphasis on tract-level, objective metrics in poverty, education, and safety aligns with the study's positivist epistemology and commitment to methodological rigor. Its relevance to collaborative, outcome-focused governance models also reflects the NPG framework underpinning this research. The subsections below present the conceptual rationale, theoretical alignment, and measurement procedures for each high-opportunity indicator included in the analysis.

Conceptual Framework: Adaptation of the Child Opportunity Index

This study adapted the Child Opportunity Index (COI) framework as described in the COI Technical Documentation (Noelke et al., 2024). Developed by Diversitydatakids.org in collaboration with the Institute for Child, Youth and Family Policy at Brandeis University, the COI offers a multidimensional lens for understanding spatial disparities in neighborhood resources and child well-being.

Guided by positivist principles of empirical validation and replicability, this study applies COI domains to three locally relevant opportunity domains, economic opportunity (poverty rates), educational opportunity (school performance), and neighborhood safety (crime rates), to assess conditions in MLS-defined areas where HCV households reside. These indicators are derived from publicly available administrative datasets (ACS, AISD TAPR, and APD records) and are operationalized as separate tract-

level variables to enable cross-neighborhood comparison consistent with the study's methodological framework.

The framework also aligns with NPG, which emphasizes collaborative, evidence-based policymaking and the creation of public value through intersectoral coordination. In housing policy, this orientation is reflected in HUD's use of SAFMRs and exception payment standards to expand access to opportunity. The COI's multidomain structure provides a conceptual bridge, supporting the study's goal of evaluating whether voucher households are concentrated in disadvantaged areas and whether targeted policy adjustments could promote greater geographic equity. By integrating COI principles as a guiding framework, rather than replicating its full index, this approach reinforces both the study's theoretical foundation and its methodological focus on place-based equity.

Variable Selection: Focused Indicators for Opportunity Assessment

Variable selection is grounded in established research on SAFMRs and the broader empirical foundation on housing access and neighborhood opportunity. While this study draws conceptually from the COI, it limits its scope to three domains: poverty rate, school performance, and crime rate. These variables are selected for their policy relevance and their availability across the study area, supporting the evaluation of how well existing FMRs correspond to conditions in neighborhoods classified as high-opportunity. Other COI domains, such as health and environmental quality, are excluded to preserve analytical focus and reflect the study's specific objective of assessing exception payment standards rather than full SAFMR implementation. This targeted selection strategy maintains comparability with prior SAFMR evaluations while supporting the specific objective of evaluating whether payment standard flexibility

enhances access to high-opportunity neighborhoods for HCV tenants. Having established these key opportunity indicators, defining appropriate geographic units for their application is essential to ensure spatial validity and policy relevance in subsequent analyses.

Poverty Rate

As discussed in Chapter II, including detailed analyses of poverty and rent burden (see Tables 1–4), economic hardship is a fundamental determinant of neighborhood opportunity, educational outcomes, and housing stability. Poverty rates reflect income-based deprivation, while housing cost burden further restricts household resources and limits access to opportunity, especially for low-income renters. Given their interconnected roles in shaping residential outcomes, this section operationalizes tract-level poverty rates as a core indicator of neighborhood economic conditions for spatial analysis, with housing cost burden addressed separately in a subsequent section of the study.

Tract-level poverty rates are calculated using the ACS 5-Year Estimates (2018–2022), representing the proportion of individuals living below the federal poverty threshold in each census tract. This measure serves as a proxy for economic opportunity and forms a key component of the SAFMR policy assessment.

To maintain alignment with theoretical frameworks, federal policy, and Amarillo's local context, this study employs a three-tiered poverty classification: low poverty (less than 15.0%), moderate poverty (15.0% to 24.9%), and high poverty (25.0% or greater). These thresholds are informed by Amarillo's citywide poverty rate of approximately 15.8%, which justifies setting the low-poverty cutoff near this local

median to distinguish below-average-poverty neighborhoods from others, and established federal standards, notably the Qualified Census Tract (QCT) criteria defined under the Low-Income Housing Tax Credit program, which designate tracts with poverty rates of at least 25% as meeting the federal QCT threshold for targeted housing investment eligibility (26 U.S.C. § 42(d)(5)(B)(ii)). In this study, thresholds are applied to unrounded ACS proportions and rounded only for presentation. Moderate poverty (15.0% - 24.9%) identifies a midpoint zone representing transitional neighborhoods, which is a logical buffer range for policy focus and intervention.

The low-poverty cutoff also serves as a practical benchmark for opportunity classification within Amarillo's policy environment. While HUD's guidance for SAFMR exception payment standards does not mandate a specific poverty rate threshold, the policy's intent is to support higher payment standards in neighborhoods with greater access to opportunity, which frequently includes areas with poverty rates below local or regional medians. This cutoff aligns with research conventions and supports the local implementation of HUD's broader goals for expanding housing choice. The moderate-poverty range identifies transitional neighborhoods where policy interventions may have the greatest impact. By anchoring these thresholds in both federal criteria and local conditions, the analysis ensures contextual relevance while remaining responsive to the evaluative objective of SAFMR implementation.

Spatial Assignment of Poverty Rates to MLS Areas

Poverty rates are attributed at the tract scale to the anchor tract and, under Full Containment, reported for each MLS area fully contained within that tract; extensions

into tracts without HCV households retain the anchor tract's rate, while Partial and Out-of-Scope cases are excluded.

Operationalization of Poverty Rate in SPSS

Each census tract is treated as an individual case in SPSS. Two poverty variables derived from ACS Table B17001, using 2020 Census Tract boundaries, include: (1) total population poverty rate, and (2) poverty rate for school-aged children (ages 5–17). These variables are calculated as percentages using the formulas in Table 12 and stored in SPSS as proportions to four decimal places for internal analysis. For presentation in Chapter IV, values are presented as percentages to four decimal places to maintain consistency across indicators. The indicators are analyzed separately to capture distinct dimensions of neighborhood economic deprivation, and no composite poverty score is constructed at this stage, ensuring analytic consistency with the separate treatment of school performance and crime indicators.

Table 12

Poverty Rate Definitions and Formulas by Census Tract

Metric	Definition	Formula
Total population poverty rate	% of individuals below the poverty level in the census tract	(Individuals below poverty level ÷ Total tract population) × 100
Poverty rate for school-aged children (5–17)	% of children ages 5–17 who are below the poverty level	(Children ages 5–17 in poverty ÷ Total children ages 5–17) × 100

All rates are expressed as percentages, validated to two decimal places, and reported in Chapter IV to four decimal places for integration with other indicators. Classification uses unrounded proportions for cutpoint tests, with rounding applied only for presentation. Initial SPSS preparation includes manual data entry, accuracy

verification, and standardization of measurement scales. Missing values and outliers are addressed to ensure internal consistency.

If warranted, a composite poverty score may be calculated at a later stage by averaging the tract-level poverty indicators with equal weighting across metrics. This approach, consistent with multidimensional frameworks such as the COI, reflects the complex nature of deprivation and facilitates robust comparisons across neighborhoods with HCV tenant presence. Equal weighting supports transparency and methodological clarity, particularly when no theoretical justification exists for differential weighting.

Finally, census tracts are classified into low, moderate, or high poverty categories based on fixed thresholds (< 15%, 15–24.9%, ≥ 25%), applied to unrounded proportions and derived from HUD guidance and local policy benchmarks. These classifications align with federal standards while accommodating localized interpretation of spatial inequality and HCV tenant distribution.

School Performance

School performance is one of three key indicators used to assess neighborhood opportunity. School performance data are drawn from TEA's Texas Academic Performance Reports (TAPR) for 2018–2019, 2020–2021, and 2021–2022 school years; 2019–2020 is excluded because statewide STAAR testing was canceled in spring 2020 due to COVID-19 disruptions, and campus-level performance measures were not reported in a comparable format (TEA, n.d.; TEA, 2020). The 2018–2022 ACS five-year estimates supply tract population denominators for neighborhood-level rate calculations, such as crime; STAAR performance metrics reported in TAPR are campus-level percentages and are not population-based measures tied to census tract denominators.

This indicator reflects school quality at the attendance zone level, incorporating academic achievement, longitudinal growth, graduation rates, and college and career readiness. To maintain consistency and comparability across MLS areas, only public campuses participating in STAAR reporting are included.

Spatial Assignment of School Performance to MLS Areas

This subsection outlines the procedures used to attribute school performance at the tract scale and, under Full Containment, report values to MLS areas within the neighborhood opportunity assessment. Using official public school attendance boundary data, all elementary, middle, and high schools zoned to serve any portion of the fully contained anchor tract are identified. Because school attendance zones and tract boundaries do not align precisely, all public schools serving any segment of the anchor tract are included.

School performance data are aggregated to the census tract (anchor tract) by averaging unrounded proportion values from all public schools zoned to serve any portion of the fully contained tract with HCV tenant presence. This aggregation aligns school-level data with the geographic scale of other opportunity indicators such as poverty and crime. Tract-level school performance is then spatially assigned to MLS areas using a manually verified tract-to-MLS crosswalk, ensuring consistency across indicators.

Performance metrics were collected from each zoned school, with included indicators determined by school level. Elementary and middle schools contribute standardized test scores and academic growth measures, while high schools also include graduation rates and college/career readiness indicators. Although weighted averages

would ideally reflect differential exposure to school quality based on enrollment shares, such data are not available at the census tract level. Therefore, school performance data are averaged equally across all zoned schools to construct a tract-level indicator of educational opportunity. This approach is consistent with practices in spatial inequality research and reflects broader challenges in school assignment modeling at small geographic scales (Kwan, 2012; Spielman & Logan, 2013).

Limiting analysis to tracts with verified HCV tenant presence ensures the data reflect residential conditions. Non-residential tracts, those consisting of industrial or commercial parcels, are excluded. This approach mirrors the procedures used for aggregating poverty and violent crime indicators, promoting consistency across high-opportunity variables. While the aggregation procedure differs from the COI in that it does not apply national standardization or weighting, it follows the COI's principle of deriving tract-level opportunity indicators from objective, school-level data (Noelke et al., 2024).

This transparent and replicable procedure aligns with best practices in spatial analysis and policy research. It reduces the risk of spatial misclassification associated with the MAUP and the UGCoP, enhancing the internal validity of the resulting opportunity profiles (Kwan, 2012; Spielman & Logan, 2013).

For implementation consistency, each MLS area is linked to the public school campuses that serve its anchor tract using 2023–2024 attendance boundary data; tract-level (anchor) values are then reported to MLS areas only where Full Containment holds according to the tract-to-MLS translation process.

Operationalization of School Performance in SPSS

School performance indicators are operationalized in SPSS by aggregating publicly available TAPR metrics - STAAR At Meets Grade Level or Above, Academic Growth, four-year graduation rate, and college, career, or military readiness - for all public schools zoned to serve any portion of the fully contained anchor census tract. Tract-level values are then assigned to MLS areas only where Full Containment holds. For each indicator and subgroup (overall and economically disadvantaged), campus percentages are converted to unrounded proportions and averaged equally across all zoned campuses (no enrollment weighting). Indicators are retained as separate variables rather than collapsed into a composite. MLS values are produced by reporting year and, where applicable for decision tables, as a pooled 2018–2022 mean. MLS values are compared directly to the AISD district-level benchmarks for the same indicators and years, consistent with TEA's accountability framework (TEA, n.d.; TEA, 2024).

Crime Rates

Violent and property crime rates are used as an indicator of neighborhood safety and environmental risk. As established in Chapter II, neighborhood crime rates are a critical determinant of family stability, educational outcomes, and overall opportunity. This study defines violent crime using the FBI's NIBRS offense categories: homicide (murder and non-negligent manslaughter), rape, robbery, and aggravated assault. To provide a fuller picture of neighborhood crime conditions that affect residential stability, the analysis also includes a property-crime indicator defined by NIBRS categories: burglary/breaking and entering, larceny-theft, motor vehicle theft, and arson (FBI, 2023). Crime data are obtained directly from the APD through a special data request for calendar

years 2018–2022. In response to this request, the APD provides offense counts summarized by tract and year after geocoding incidents to the 2020 Census tract Geographic Identifiers (GEOIDs) supplied for this analysis. Annual tract-level offense counts are summed across the 2018–2022 period to produce five-year tract-level totals for analysis. Tract-level population estimates from ACS Table B01003 (2018–2022 5-Year Estimates) are used to calculate violent and property crime rates per 1,000 residents. Combining the five years of offense counts reduces volatility in tracts with small population bases and minimizes the influence of single-year anomalies.

Spatial Assignment of Crime Rates to MLS Areas

Violent and property crime rates are attributed at the tract scale to the anchor tract (the tract containing verified HCV households) and, under Full Containment only, reported for each MLS area fully contained within that tract; Partial and Out-of-Scope cases are excluded. This assignment ensures that each MLS area's crime measures correspond precisely to the tract-level data, maintaining geographic consistency with poverty-rate assignment. By restricting analysis to fully contained tracts, the methodology preserves comparability across MLS areas and mitigates misclassification risks associated with overlapping or adjacent tracts. Census tracts are employed as the operational scale because they provide sufficient granularity to capture neighborhood-level variation and align with available crime and demographic data, establishing them as a standard unit in housing and urban research. This scale choice aligns with neighborhood-effects scholarship that recommends using consistent, policy-relevant spatial units when analyzing localized disadvantage (Sampson et al., 2002).

Operationalization of Crime Rates in SPSS

Violent and property crime rates are entered into SPSS as tract-level variables, with each census tract representing an observation. These rates are calculated using the following formula:

$$Violent\ Crime\ Rate\ (per\ 1{,}000) = \frac{Total\ Violent\ Offenses}{Tract\ Population}\ x\ 1{,}000$$

Violent crimes are defined as the sum of murder and non-negligent manslaughter, rape, robbery, and aggravated assault (FBI, 2023). Property offenses are defined as the sum of burglary/breaking and entering, larceny-theft, motor vehicle theft, and arson. Property-crime rates are calculated with the same structure:

$$Property\ Crime\ Rate\ (per\ 1{,}000)\ = \frac{Total\ Property\ Offenses}{Tract\ Population}\ x\ 1{,}000$$

Five-year pooled counts (2018–2022) are used to reduce volatility in tracts with smaller population bases, particularly in areas where single-year values could distort crime rates. Pooling supports stable comparison of violent and property crime exposure across neighborhoods and provides a consistent foundation for later classification and interpretation.

Housing Cost Burden for Renter Households

Although not classified as a high-opportunity indicator, housing cost burden for renter households is examined to contextualize financial pressures experienced by renters in neighborhoods with verified HCV tenant presence. This measure reflects affordability constraints that may influence neighborhood choice and housing stability under SAFMR policy. Defined by HUD as spending 30% or more of household income on gross rent, renter housing cost burden is calculated using tract-level data from ACS Table B25070

(2018–2022), which reports gross rent as a percentage of household income for renter-occupied units only.

For RQ1 and RQ2, tract-level renter housing cost burden percentages are aggregated to fully contained tract-MLS areas using the same tract-MLS translation procedures applied to other opportunity indicators. This provides a localized affordability context aligned with the neighborhood proxies where HCV households are identified. While neighborhood-level burden provides fine-grained context for HCV tenant areas, ZIP Code–scale renter housing cost burden provides broader affordability context for RQ3, aligning with the scale at which SAFMR payment standard determinations are made.

Operationalization of Housing Cost Burden in SPSS

Renter housing cost burden is entered into SPSS at the tract level, with each tract representing a single observation. Values correspond to the percentage of renter-occupied households spending 30% or more of income on gross rent, consistent with HUD's definition. Tract-level measures are then translated to MLS areas for neighborhood-scale analysis. This single-tier operationalization allows affordability constraints to be examined alongside primary opportunity indicators and applies an equity lens to assess whether conditions classified as higher opportunity are financially attainable for HCV households.

Integration of Opportunity Indicators within the GATE Framework

The Gateway Assessment of Tract-Level Environments (GATE) Framework is designed as an organized classification framework, linking spatially verified tract-MLS areas to a consistent method of opportunity assessment and allowing each domain to be

assessed independently and retained for integration with other indicators. This study assesses neighborhood opportunity by integrating three indicators: tract-level poverty rate, school performance metrics, and violent and property crime rates. Opportunity is operationalized through a gate-based classification framework, which applies domain-specific thresholds or classification rules to each indicator. Each gate represents a minimum condition that a neighborhood must meet or exceed to be considered supportive of opportunity for HCV households. Gate A corresponds to economic context (poverty), Gate B to academic context (school performance), and Gate C to safety context (crime).

Gates serve as independent classification filters, identifying whether neighborhoods pass, partially meet, or do not pass minimum opportunity conditions in each domain. This preserves the multidimensional character of neighborhood opportunity, allowing areas to be evaluated across distinct contexts rather than being collapsed into a single undifferentiated score at this stage.

Each MLS area is assigned a Gate Pass value (0–3) based on the classification rules for each domain, with higher values reflecting stronger opportunity conditions. MLS areas that meet the established gate thresholds across poverty, school performance, and crime indicators are identified as high-opportunity neighborhoods. This gate-based structure allows poverty, school performance, and crime indicators to be evaluated independently before being integrated into a composite opportunity assessment.

To maintain geographic consistency, the Full Containment rule assigns MLS–defined neighborhoods that are fully contained within a single census tract, ensuring tract-level poverty and violent and property crime data and school performance indicators align with the corresponding neighborhood boundaries. Applying Full Containment

uniformly across indicators prevents geographic distortion, ensures consistent measurement, and improves comparability across MLS areas.

Equity Lens within the GATE Framework

The gate structure is read through an equity lens to ensure that opportunity is interpreted in relation to the population served by the voucher program. Gate A incorporates economic constraint directly into its scoring through poverty thresholds, Gate B reviews whether academic opportunity extends to lower-income students, and Gate C contributes to interpretation by identifying safety conditions within the broader context of neighborhood opportunity. Although the lens does not modify Gate B or Gate C outcomes, it remains essential for interpreting opportunity in relation to income constraints experienced by households using HCV assistance while maintaining consistency in how each gate assesses access.

Gate A: Economic Context (Poverty)

Gate A measures economic opportunity conditions through tract-level total poverty and child poverty rates. Classification thresholds align with HUD definitions of low-poverty neighborhoods:

- Low poverty: < 15.0%
- Moderate poverty: 15.0%–24.9%
- High poverty: ≥ 25.0%

To receive a Gate A Pass score of 3, neighborhoods must meet the low-poverty threshold for both total and child poverty rates. A score of 2 indicates mixed low and moderate levels, a score of 1 reflects moderate levels on both measures, and a score of 0 indicates the tract-MLS area does not meet the threshold (i.e., high poverty on at least one

measure). This dual-condition rule mirrors federal guidance that emphasizes both overall poverty exposure and child poverty as determinants of neighborhood opportunity.

Gate B: Academic Context (School Performance)

Gate B operationalizes school performance using TEA accountability indicators for Student Achievement and School Progress. Performance is assessed using All Students as the primary classification basis, with Economically Disadvantaged subgroup results reviewed to provide context for interpreting differences in performance. Neighborhoods receive a Gate B Pass score of:

- 3 (Pass): Both domains meet the threshold (≥ 0.60) for All Students (Student Achievement and School Progress). Economically Disadvantaged subgroup results are reviewed for context.
- 2 (Mixed): One domain meets threshold while the other does not.
- 1 (Moderate): Partial performance across both domains with no domain meeting threshold fully.
- 0 (Not Pass): Neither domain meets threshold for either subgroup.

This dual-domain, dual-subgroup structure ensures that Gate B reflects both absolute performance and educational equity.

Gate C: Safety Context (Violent and Property Crime)

Unlike poverty and academic performance, violent and property crime lack standardized national thresholds for neighborhood-level classification. To maintain methodological rigor and preserve internal consistency with Gate A and Gate B, Gate C applies a relative classification approach using tract-level violent and property crime rates per 1,000 residents (pooled 2018–2022). Each tract's violent and property crime rates are

ordered relative to the tracts included in the study area and then categorized into ordinal tiers (low, moderate, or high). The two crime tiers are then combined using a symmetric scoring structure to determine whether a tract satisfies the safety gate. The full tier-combination and scoring framework is provided in Table G2.

This ordinal classification structure is appropriate given the absence of standardized national crime thresholds for neighborhood-level safety classification. Relative classification within the study area is therefore used to distinguish variation in neighborhood crime exposure. Spatial criminology research similarly affirms the value of locally referenced measures to classify crime exposure and opportunity (Andresen, 2016). Kubrin and Weitzer (2003) emphasize that neighborhood safety and disorder are inherently contextual and are best interpreted through comparison across neighborhood environments rather than through universal benchmarks. Applied studies similarly examine neighborhood crime exposure through spatial comparisons across local environments (Laurito et al., 2019; O'Brien et al., 2021). Comparable frameworks are also found in housing opportunity research, where indicators are categorized into low, moderate, and high tiers to facilitate cross-neighborhood comparison (Finkel et al., 2017; Sard & Rice, 2016).

Summary of Gate Structure

This gate-based framework provides a structured and transparent method for operationalizing neighborhood opportunity across three domains. Each gate is methodologically distinct yet structured consistently, allowing for clear interpretation and cross-domain comparability. Poverty and school performance use policy-based thresholds grounded in federal and state standards, while crime uses relative classification, reflecting

the absence of nationally standardized safety benchmarks. This balanced approach preserves conceptual alignment across gates, maintains analytic rigor, and supports the integrated opportunity assessment applied in Chapter IV.

Opportunity Assessment and Baseline Rent Analysis

This section evaluates neighborhood opportunity by analyzing composite indicators derived from fully contained census tracts and their corresponding MLS areas. Using descriptive statistics and graphical methods in SPSS, the distributions of poverty, school performance, and crime indicators are examined to provide a foundation for understanding spatial opportunity patterns. Building on this opportunity assessment, HUD-designated FMRs are compared with observed market rents for two-bedroom units in fully contained high-opportunity neighborhoods. This comparison establishes the baseline alignment between HUD's standard payment levels and prevailing market conditions. Together, these analyses assess the spatial adequacy of current payment standards and inform the evaluation of whether Exception Payment Standards could serve as a policy tool to address affordability gaps in high-opportunity neighborhoods.

Comparison of FMRs and Market Rents in High-Opportunity Neighborhoods

To address RQ2, this study compares HUD-designated FMRs, which estimate typical rents for standard-quality units, to prevailing market rents across fully contained tract-MLS areas classified as high-opportunity. These areas are identified through the composite opportunity scoring described earlier in this chapter. Descriptive statistics are used to quantify rent gaps, and visualizations illustrate the relationship between FMRs and observed market rents. Because Amarillo does not currently implement SAFMRs, the analysis focuses on HUD's published FMRs as the operative baseline. This approach

provides empirical insight into the sufficiency of current FMRs in supporting HCV tenant access to high-opportunity neighborhoods.

Operationalizing FMR and Market Rent Comparisons for Two-Bedroom Units

To operationalize the comparison of FMRs and market rents in the MLS areas, this study focuses on two-bedroom units, consistent with HUD methodology and the scope outlined in Chapter I. HUD uses two-bedroom units as the baseline for FMR estimation because they are the most common rental unit size, providing a reliable benchmark for comparison across geographic areas. HUD calculates FMRs using the 40th percentile of standard-quality rents, with two-bedroom units serving as the program benchmark for establishing payment standards across unit sizes. Focusing on this unit type also increases the likelihood of obtaining a sufficient number of comparable listings in the Amarillo rental market. Within the structure-type comparisons conducted for RQ2 and RQ3, references to "single-family" units refer to single-family attached housing (townhomes) for purposes of this study, consistent with HUD housing-type treatment but distinct from MLS classification conventions. Detached single-family rentals are not included in the analytic sample because eligible listings within the fully contained tract-MLS areas are insufficient within the defined analytic window to support stable and reliable calculation of descriptive rent statistics. Whereas opportunity indicators used for RQ1 and contextual analysis in RQ2 rely on pooled 2018–2022 administrative data, rental listing observations for the market comparison and policy simulations are collected within a contemporary 90-day window, extendable to one year when necessary to obtain sufficient comparable listings.

For each MLS area, current market rent data for two-bedroom units were collected from the MLS database and verified rental data obtained directly from local property managers. These sources are widely used in local housing market analysis and provide contemporaneous rental listings that reflect prevailing market conditions within the study area. The use of MLS and property manager data allowed direct comparison between observed market rents and HUD-published FMR and SAFMR benchmarks during the defined study period. Although not all rental units are marketed through the MLS, combining MLS listings with verified rental data from local property managers provides a practical and locally validated representation of prevailing market rents within the study area. Listings were screened for comparability based on unit condition, amenities, and building age. Luxury or clearly distressed units were excluded to focus the analysis on typical market-rate rentals. This screening is conducted for analytic comparability and does not constitute a formal Housing Quality Standards (HQS) inspection or official rent reasonableness determination. The study identified as many recent, comparable two-bedroom listings as possible within each MLS area. While a minimum of three to five listings may be acceptable in less active markets, a larger sample size is preferred to enhance reliability and reduce the influence of outliers. If fewer than five eligible listings were identified in the initial collection window, the collection period is extended to one year to maintain a consistent temporal basis for comparison. Extending the observation window ensures that sufficient comparable listings are captured to reduce the influence of individual outliers in smaller neighborhood markets. Any such adjustments were documented.

For each MLS area, both median and mean market rents for two-bedroom units were calculated. Reporting both measures provides a comprehensive understanding of local rental price distributions: the median represents the typical rent, especially when outliers or skewed distributions are present, while the mean reflects the overall average. Rent gaps were then calculated by subtracting the HUD FMR from both the median and mean market rents. Positive values indicate that market rents exceed the FMR, while negative values suggest that the FMR is higher than observed market rents. This comparison provides a transparent and standardized method to assess payment standard adequacy in high-opportunity neighborhoods.

To contextualize these differences, three policy-relevant thresholds are applied: 100% of FMR (baseline), 110% of FMR (the upper bound of the basic payment standard range that a PHA may adopt without HUD approval), and 120% of FMR (an illustrative exception level authorized under 24 C.F.R. § 982.503 when specified criteria and HUD notification or approval requirements are met). Additional payment standard levels above 120% may also be evaluated during the SAFMR simulation stage, consistent with HUD's exception payment standard authority under 24 C.F.R. § 982.503 when supported by market evidence. This structure allows the analysis to estimate the share of observed listings that would qualify under higher payment standard thresholds consistent with HUD's regulatory framework.

This approach, grounded in HUD regulations and housing market research best practices, provides an empirical basis for evaluating whether current FMRs adequately support HCV tenant access to high-opportunity neighborhoods in Amarillo for two-bedroom units. The findings may also inform discussions related to rent reasonableness

considerations, but they do not replace formal determinations conducted by the administering PHA.

MLS Area Classification and Policy Simulation Framework

MLS areas fully contained within census tracts are classified using composite opportunity scores (poverty rates, school performance, and crime rates). For RQ2, these areas support comparisons between market rents and HUD-designated FMRs in effect from 2018 through 2022. For RQ3, ZIP Codes associated with these MLS areas serve as the geographic frame for SAFMR-based exception payment standard simulations. This two-stage approach maintains tract-level analytical rigor while enabling ZIP Code-level policy simulation.

Fully contained tract-MLS units are used for classification and subsequent modeling of exception payment standards, ensuring consistency between tract-level opportunity indicators and the MLS-based neighborhood framework.

The resulting classifications support two related analytic processes. First, for the comparative analysis of FMRs versus prevailing market rents (RQ2), the study identifies tract-MLS areas meeting the high-opportunity criteria to evaluate how accurately existing FMRs reflect market conditions. Second, for the SAFMR policy simulation (RQ3), one high-opportunity and one low-opportunity ZIP Code are identified through the results of the analysis to facilitate side-by-side evaluation of policy outcomes across differing neighborhood contexts. ZIP Codes are introduced for answering RQ3 because HUD publishes SAFMRs and administers exception payment standards at the ZIP Code level. Analyses for RQ1 and RQ2 are conducted at the fully contained tract-MLS area level to preserve spatial precision and alignment with verified neighborhood boundaries.

Regarding RQ3, tract-level opportunity indicators and HCV household estimates are translated to ZIP Codes to enable policy-relevant scenario modeling, ensuring that the analysis reflects HUD's operational and regulatory framework while maintaining the rigor of tract-level measurements.

This two-stage selection strategy allows the study to assess both the structural alignment between rents and FMRs and the potential for SAFMRs to improve geographic access for HCV tenants. By incorporating both tract-level classifications and ZIP Code–level policy mechanisms, the analysis remains methodologically coherent and policy-relevant, linking granular opportunity assessments with the scale at which HUD payment standards are operationalized.

Analytic Approach for RQ2: FMR vs. Market Rent Comparisons

To evaluate RQ2, fully contained tract-MLS areas serve as the analytic unit, ensuring spatial precision and alignment with verified neighborhood boundaries. Market rents for two-bedroom units within these areas are collected from MLS and property managers, screened for standard-quality criteria, and summarized as median and mean values. These MLS-level market rents are then compared to the HUD-published FMRs for the corresponding jurisdictions, and differences are calculated to quantify alignment. Opportunity classifications based on composite indicators (poverty rates, school performance, and crime rates) allow for assessment of whether FMR adequacy varies across high- and low-opportunity neighborhoods. This procedure preserves tract-level analytical rigor while directly informing the evaluation of rent standard adequacy before SAFMR policy simulations are introduced in RQ3. Having assessed whether FMRs align with prevailing market rents in high-opportunity neighborhoods, the analysis now shifts

to scenario selection and policy modeling, where fully contained tract-MLS areas are extended to ZIP Codes to operationalize SAFMR-based exception payment standards.

ZIP-Level Saturation Estimation

To complement tract-level saturation, ZIP Code–level estimates are derived to provide policy-relevant context for SAFMR scenario modeling (RQ3). Because HUD does not report voucher counts at the ZIP Code level, this study estimates saturation using renter-occupied unit counts from the ACS 5-Year Estimates (2018–2022, Table B25003) as denominators. Tract-level HCV counts from HUD's Housing Choice Vouchers by Census Tract dataset (updated May 2024) are translated to ZIP Codes via fully contained tract-MLS areas that are entirely contained within a single ZIP Code. Accordingly, proportional allocation methods such as RES_RATIO weighting are not used in the RQ3 design, as only tract-MLS areas demonstrating complete ZIP Code alignment advance to scenario modeling. This dual-source approach ensures that saturation metrics are accurate at the tract level while providing coherent ZIP-level approximations for subsequent analysis of access to high-opportunity neighborhoods.

Scenario Selection for SAFMR Simulation (Conceptual Framework for RQ3)

While the tract-MLS containment procedure provided the foundation for assessing neighborhood opportunity and conducting FMR-to-market rent comparisons, a shift to ZIP Code-level analysis is necessary to align the study with HUD's regulatory framework. SAFMRs and exception payment standards are defined at the ZIP Code level, and PHAs administer exceptions at this scale. Consequently, fully contained tract-MLS areas are mapped to corresponding ZIP Codes to ensure policy relevance while preserving tract-level precision for opportunity assessment.

Census tracts serve as the primary scenario units, with fully contained tract-MLS areas acting as proxies for neighborhoods to maintain coherent spatial boundaries. Fully contained tract-MLS areas are verified by overlaying ZIP Code boundaries from the 2020 TIGER ZIP Code Tabulation Area shapefiles on the georeferenced 2021 MLS Area Map, which is itself overlaid with 2020 Census tract shapefiles, ensuring that each spatial unit used in the SAFMR scenario modeling is accurately aligned across neighborhood, tract, and ZIP Code levels.

High- and low-opportunity areas are identified based on composite scores of poverty rates, school performance, and crime rates. These classifications inform both the comparative FMR analysis and the selection of ZIP Codes for SAFMR-based exception payment standard modeling.

For scenario simulation, two ZIP Codes are identified based on their composite opportunity classifications: one high-opportunity and one low-opportunity. These selections ensure that the policy simulations represent contrasting opportunity contexts.

This conceptual stage establishes the rationale for scaling tract-level data to ZIP Codes and highlights how differentiated payment standards may strategically influence access to rental housing across opportunity contexts.

Technical Procedures for SAFMR-Based Exception Payment Standards (RQ3)

Tract-level opportunity indicators, previously assigned to fully contained tract-MLS areas, are paired with HCV household estimates aggregated to the corresponding ZIP Codes identified for RQ3 scenarios. This pairing provides the ZIP Code–level framework necessary for SAFMR-aligned modeling, ensuring that voucher counts and

opportunity indicators reflect the spatially verified distribution of households within fully contained areas.

Within the selected ZIP Codes, ZIP Code-level voucher saturation is calculated as the ratio of HCV households within fully contained tract-MLS areas to renter-occupied units, based on ACS tenure data. In ZIP Codes containing multiple fully contained tracts, an HCV-weighted composite scoring method is applied to ensure that ZIP-level opportunity classifications accurately represent the distribution of voucher holders, preventing misclassification of ZIPs dominated by tracts with minimal HCV representation.

For each ZIP Code, multiple payment standard thresholds are modeled, including 100%, 110%, and 120% of the current FMR and the ZIP Code SAFMR, as well as the AHA's two-bedroom $PSUA_2bd$. Among these thresholds, a 110% SAFMR-based exception payment standard is evaluated as the primary policy-relevant scenario, consistent with 24 C.F.R. § 982.503(d)(2). Two-bedroom rental units are identified from MLS two-bedroom listings. Unit availability was calculated at each threshold, and changes in availability are reported both in absolute counts and as percentages relative to the FMR baseline. This operational approach maintains tract-level empirical rigor while scaling results to ZIP Codes, enabling evaluation of how SAFMR-based exception payment standards could enhance access to high-opportunity neighborhoods and manage saturation in lower-opportunity areas. By linking opportunity conditions, voucher distribution, and rental market data, the framework provides a robust, policy-relevant basis for assessing the impact of SAFMR-based adjustments on HCV tenant mobility.

ZIP Code Selection for SAFMR Exception Payment Standards Application

For exception payment standard scenarios under SAFMRs, for which HUD permits PHAs to designate payment standard areas at neighborhood scales, including census tracts (no smaller than a census-tract block group) as permitted under 24 C.F.R. § 982.503(a)(3)(ii), fully contained tract-MLS areas are used to model opportunity conditions and voucher access. Metropolitan FMR values are retained as the pricing reference, providing the regulatory benchmark against which tract-level rent levels are compared under 24 C.F.R. § 982.503.

Because SAFMRs are officially set at the ZIP Code level and payment standards may be adjusted within those regulatory limits, the simulation requires that all opportunity and saturation metrics be attributable to ZIP Codes rather than tracts. Estimated voucher saturation is then computed for each ZIP Code as the ratio of estimated HCV households to renter-occupied housing units, based on ACS tenure data.

In ZIP Codes that include multiple fully contained tracts, the study applies an HCV-weighted composite scoring method, ensuring that ZIP-level opportunity classifications reflect the distributional impact of where voucher holders are actually located. This prevents the misclassification of ZIP Codes based on tracts with low HCV representation and maintains policy relevance for voucher-targeted interventions. This ZIP Code–level alignment is retained for regulatory comparability, even though the study's evaluative focus remains at the tract-MLS scale, where localized constraints on rental housing availability may be masked when rental markets are assessed using ZIP Code–wide aggregates.

The final ZIP Code selections reflect contrasting opportunity conditions, offering a policy-relevant framework for modeling the impact of SAFMR-based exception payment standards. In low-opportunity ZIP Codes, analytically modeled downward adjustments within permissible ranges to payment standards may help moderate tenant clustering and alleviate pressure on saturated rental markets. In contrast, upward adjustments in high-opportunity ZIP Codes may broaden access to higher-quality neighborhoods and diversify tenant placement. This analytic approach advances the broader objective of optimizing the geographic alignment between housing assistance and neighborhood opportunity.

Scenario Modeling of SAFMR-Based Exception Payment Standards

MLS area-level rent data for standard-quality two-bedroom units are translated to corresponding ZIP Codes. Assessment of available units under the three payment thresholds follows the procedures detailed in the 'Operationalization of SAFMR-Based Exception Payment Standards' section. The number of available units is assessed under each scenario, with results reported in absolute and percentage terms. This framework allows for empirical evaluation of how tract-level opportunity conditions interact with ZIP Code–level payment adjustments in shaping HCV tenant access to high-opportunity areas. For tracts that are fully contained within ZIP Codes, exception payment standards are modeled at the tract level as a simulation exercise, recognizing that HUD permits sub–ZIP Code adjustments only with field office approval and supporting justification (HUD, 2018). As described above, unit availability for the selected ZIP Codes is evaluated using the canonical thresholds and rental sources, with results reported in absolute and percentage terms.

While the FMR-to-market rent comparisons are conducted at the MLS area level to capture neighborhood-level variation, the scenario modeling of SAFMR-based exception payment standards is primarily aligned with ZIP Code geography, as HUD publishes SAFMRs but permits PHAs to implement tract-specific exception payment standards when justified. Accordingly, this analysis translates MLS area findings to their corresponding ZIP Codes and evaluates tract-level exception payment standards within those boundaries to model the potential impacts of payment standard adjustments.

To address RQ3, this study evaluates whether implementing SAFMR-based exception payment standards would enhance the availability of rental units for HCV tenants in high-opportunity neighborhoods. Building on the rent gap findings noted earlier, this analysis models how targeted payment standard adjustments may influence access to rental units in various local market environments. This methodological framework draws directly from the literature reviewed in Chapter II, which emphasizes the inadequacy of metropolitan-wide FMRs in reflecting neighborhood-level rent variation and the potential of SAFMRs to improve voucher holder access to higher-opportunity areas.

The analysis focuses on two ZIP Codes selected from the MLS-based comparative rent analysis: one classified as high-opportunity and one as low-opportunity, based on composite opportunity scores. The high-opportunity ZIP Code corresponds to an MLS area where prevailing market rents exceed current FMRs, thereby constraining voucher tenant access under current payment standards. In this scenario, an SAFMR-based exception payment standard could improve alignment with local rents, increasing the probability of available units for voucher holders.

The low-opportunity ZIP Code is characterized by rental markets in which the median rent falls below the FMR, indicating a higher likelihood of affordability and successful voucher use for tenants compared to higher-opportunity areas. In this context, the analysis assesses whether maintaining current payment standards or making modest upward adjustments can preserve unit availability for voucher holders, ensuring affordability is not compromised even as standards are elevated elsewhere to address rent gaps. By pairing tract-level exception payment standards within these ZIP Codes, the analysis demonstrates how PHAs could strategically redistribute standards to broaden access while minimizing negative impacts in lower-rent markets.

As described above, two-bedroom rental listings for the selected ZIP Codes are assessed across the canonical thresholds using the previously described data sources and screening criteria. For each ZIP Code, the SAFMR applicable to its geography is obtained from HUD's published SAFMR dataset. Exception payment standard levels are evaluated at multiple percentage thresholds consistent with HUD's regulatory framework, including levels above the basic payment standard range where supporting justification and HUD notification or approval requirements may apply under 24 C.F.R. § 982.503.

Rental listings for two-bedroom units are assessed using the same data sources and screening criteria previously described. For each payment standard level, including metropolitan FMR, SAFMR, and higher percentage adjustments, the number of qualifying two-bedroom rental units is identified separately. For each scenario, changes in the number of available units are reported both in absolute terms and as percentage differences relative to the baseline. This approach provides a structured evaluation of

how observed unit availability changes under progressively higher payment standard thresholds.

This framework aligns with the HUD SAFMR demonstration methodology, which evaluates ZIP Code-level changes in unit availability following payment standard adjustments. By incorporating tract-level exception payment standard modeling alongside ZIP Code-level SAFMR benchmarks, this analysis provides a policy-relevant and empirically grounded assessment of SAFMR-based exception payment standards within the existing regulatory structure. Integrating relevant policy guidance and the empirical literature reviewed in Chapter II, this analysis provides a robust basis for evaluating whether SAFMR-based exception payment standards can effectively address current FMR limitations and expand the availability of rental units available to voucher holders in high-opportunity neighborhoods.

SAFMR-Based Exception Payment Standard Scenario Modeling

To operationalize the scenario modeling of SAFMR-based exception payment standards, this study focuses on two-bedroom rental units within the selected ZIP Codes, consistent with the unit size examined in the comparative rent analysis described earlier and HUD's FMR methodology. Two-bedroom units serve as a representative and commonly leased size, providing a consistent basis for comparison across neighborhoods.

As described above, rental listings were gathered from the MLS database and verified rental data obtained directly from local property managers and screened for standard-quality criteria.

Listings were screened to exclude luxury and clearly distressed units in order to focus the analysis on typical market-rate rentals. Luxury units are identified by indicators

such as premium finishes, resort-style amenities, or marketing language indicating high-end positioning, while substandard units are excluded based on visible evidence of deferred maintenance or indications of inadequate habitability. Listings are retained only if they reflect standard-quality, market-rate for analytic comparability. This screening is based on MLS listing descriptions, listing photographs, and confirmation obtained through direct communication with property managers. This screening is conducted for research purposes and does not constitute a formal HQS inspection or an official rent reasonableness determination. Observed rents are compared to FMR and SAFMR benchmarks to evaluate relative alignment under alternative payment standard thresholds. The study does not independently certify compliance with HUD rent reasonableness requirements, which remain the responsibility of the administering PHA.

As described above, unit availability is reported in absolute and percentage terms relative to the FMR baseline, enabling a tiered assessment of how exception payment standard thresholds may expand or stabilize rental access for voucher holders in high- and low-opportunity ZIP Codes.

The study identifies the number of rental units priced at or below multiple payment standard thresholds, including the metropolitan FMR, the ZIP Code–level SAFMR, and higher percentage adjustments consistent with HUD's regulatory framework under 24 C.F.R. § 982.503. These thresholds represent progressively greater HCVP purchasing power within the allowable regulatory structure.

To reflect current market conditions and maintain temporal consistency across analyses, rental listings were first collected within a fixed 90-day window. If fewer than five comparable listings were unavailable, the window was extended to one year. This

uniform window ensures comparability across ZIP Codes and mitigates distortions associated with short-term listing variability.

For each ZIP Code, the number of available rental units at each payment threshold is calculated as both an absolute count and as a percentage of all two-bedroom listings observed during the defined data window. The change in available inventory from the FMR baseline to SAFMR and higher payment standard levels is then measured in both absolute and percentage terms, enabling a structured analysis of expanded availability.

This analytic framework offers a consistent and transparent approach to evaluating how SAFMR-based exception payment standards may expand or stabilize rental access for voucher holders in high- and low-opportunity ZIP Codes. It supports the empirical analysis of targeted payment standard adjustments within HUD's existing regulatory framework without prescribing specific administrative actions.

Summary of Methodological Approach

The methodological approach in this study is anchored in three integrated frameworks: COI, NPG, and the NOAF. COI defines the content of high-opportunity indicators, NPG situates the analysis within a governance and policy context, and NOAF provides the methodological bridge by formalizing tract-MLS containment and enabling translation to ZIP Codes for SAFMR application. Together, these frameworks link conceptual, governance, and methodological dimensions, providing the structure for addressing the study's three research questions.

For RQ1, the NOAF is applied to verify tract-MLS containment and to attribute COI-defined indicators of opportunity, poverty, education, and crime, to neighborhood proxies. This process ensures that opportunity measures are accurately aligned with

residential geographies. For RQ2, market rents for two-bedroom units are compared against HUD-designated FMRs to assess the adequacy of current payment standards, with NPG providing the governance lens to interpret these findings within broader rent-setting practices. For RQ3, SAFMR-based exception payment standards are modeled at the ZIP Code level, with the NOAF restricting the analysis to fully contained tract-MLS areas that fall within a single ZIP Code. This ensures that tract-level indicators can be reliably extended to policy-relevant geographies.

The chapter has detailed how these frameworks are implemented through a multi-scalar spatial alignment strategy that verifies tract-MLS containment, validates property boundaries, and aggregates opportunity indicators to the 2020 Census tract geography. Only fully contained tract-MLS areas that also align entirely within a single ZIP Code are used in SAFMR scenario modeling to preserve spatial and policy coherence. Market rents are screened for comparability, and SAFMR scenarios are modeled at baseline, policy, and exception thresholds (FMR, SAFMR, and 110% SAFMR). Throughout, spatial alignment tools, including the HUD-USPS ZIP Code Crosswalk, U.S. Census Bureau Geocoder, and PRAD parcel-level validation, ensure geographic consistency. Collectively, this multi-method, spatially grounded design enables a comprehensive evaluation of tenant distribution, rent standard adequacy, and SAFMR responsiveness in Amarillo, Texas.

Validity and Reliability

In addition to outlining the methodological framework, this study incorporates multiple strategies to ensure the validity and reliability of the analysis while minimizing potential biases. Validity is strengthened by selecting theoretically grounded and

empirically supported indicators of neighborhood opportunity, such as poverty rates, school performance, and crime rates, from authoritative and methodologically consistent sources. In the housing analysis, only two-bedroom units that meet HUD's standard-quality criteria are included, with systematic exclusion of both luxury and substandard units. Duplicate listings are removed to prevent overcounting and to ensure more accurate estimates of rental availability.

For the education dataset, STAAR results reflect only valid, reported scores, as non-response cases are excluded by TEA's processing protocols, thereby preserving the conceptual integrity of academic opportunity indicators. These practices enhance internal validity by ensuring that each variable accurately represents its intended construct. Reliability is supported through consistent application of standardized procedures across fully contained tract-MLS areas and ZIP Codes, including uniform assignment of households and opportunity indicators to neighborhood proxies. Market rent data are collected within a fixed 90-day window, and if fewer than five comparable listings are available, the window is uniformly extended to one year to ensure temporal consistency; all extensions are transparently documented. To enable meaningful comparisons across opportunity levels, ZIP Codes are purposively selected to include both high- and low-opportunity areas; while this approach is not random, it ensures that the analysis can evaluate policy implications across the full spectrum of neighborhood conditions. Collectively, these methodological safeguards enhance the study's reliability, support replicability, and reinforce the validity of the spatial and policy assessments that follow in Chapter IV.

Limitations

This study uses purposive sampling to select ZIP Codes for SAFMR exception payment standard scenarios, focusing on illustrative contrasts between high- and low-opportunity areas rather than generalizing to a broader population. This approach is necessitated by the lack of any official dataset integrating tract-level HCV household estimates, tract-MLS neighborhood proxies, and detailed rental listings at tract or ZIP Code resolution. While constructing such a unified dataset is technically possible, it requires extensive manual integration of fragmented sources, making it excessively time-consuming.

To address data integration challenges, the analysis focuses on tract-MLS areas fully contained within a single ZIP Code, avoiding complexities associated with tracts spanning multiple ZIP Codes. When tracts cross ZIP Code boundaries, significant manual effort is required to reconcile overlapping geographies, verify address-level placement within ZIP Codes, and validate proportional data allocation, all of which further complicate the integration process.

Though purposive sampling limits generalizability and may introduce selection bias, it is an intentional approach that enables illustrative exploration of policy impacts and methodological insights within a quantitative research design without asserting population-wide applicability (Memon et al., 2025). When applied with clear criteria and transparency, purposive sampling can provide sound findings relevant to specific research objectives while acknowledging its methodological constraints.

The COVID-19 pandemic introduced disruptions that could be reflected in supporting indicators of neighborhood opportunity, including poverty, school

performance, and crime. This study uses 2020 Census tract geography, enumerated at the pandemic's onset. Its analytic period of 2023–2024 may reflect lingering impacts. The study remains focused on evaluating housing availability under FMR and SAFMR-based payment standards, which are set through HUD's methodology and are not directly altered by temporary shocks such as COVID-19. However, the pandemic's economic consequences may have indirectly influenced rental housing availability in the study area, and this context is acknowledged in the interpretation of results.

Bias Mitigation

To uphold the accuracy and validity of the analysis, rigorous data validation and verification procedures are implemented. Geographic data are precisely aligned using established tools, including the HUD-USPS ZIP Code Crosswalk, the U.S. Census Bureau Geocoder, and PRAD parcel boundary records, and are supplemented by manual verification of key spatial correspondences to reduce geocoding errors and ensure spatial accuracy. Rental listings were sourced from multiple authoritative databases and cross-checked to eliminate duplication and improve representativeness. Screening protocols exclude both luxury and substandard units to maintain alignment with HUD's standard-quality benchmarks.

The data collection window for rental listings is strategically extended when the initial sample of listings falls below predefined thresholds, balancing the need for timeliness with ensuring sufficient analytical robustness. Missing or incomplete responses in the education and crime datasets are systematically addressed through source-specific validation procedures, ensuring the reliability of the resulting indicators.

All data cleaning, screening, and operational decisions are transparently documented to support replicability and enable the assessment of potential sources of measurement bias. While some limitations inherent to administrative data persist, these rigorous procedures maximize the reliability and validity of the study's findings.

Methodology Conclusion

This chapter presented the integrated spatial and quantitative methods used to examine HCV household access to high-opportunity neighborhoods in Amarillo. It detailed the data sources, geospatial frameworks, and operational definitions structuring the analysis across multiple geographic units, including census tracts, MLS areas, and ZIP Codes, with procedures designed to support temporal and geographic consistency. Collectively, these steps established a tract-anchored, MLS area-translated, and ZIP Code-aligned design to validate tract-level household distributions, construct opportunity indicators, and provide the basis for comparing HUD payment standards with prevailing market rents.

The next chapter applies this design in three stages aligned with Research Questions 1, 2, and 3. First, it reports tenant distribution and opportunity classifications based on tract-level household identification, spatial alignment, and opportunity indicator integration. Second, rent-gap comparisons between HUD-published FMRs and market rents are examined. Third, ZIP Code-level SAFMR exception payment standard scenarios are modeled to assess the availability of rental units in high-opportunity neighborhoods at FMR, SAFMR, and 110% SAFMR thresholds. Together, these analyses transition from methodological design to empirical evidence, illustrating the distribution of HCV

households, how current standards shape access, and whether SAFMR-based adjustments can expand the supply of available units in high-opportunity areas.

Chapter IV

Results

This chapter presents the findings of the study in alignment with the analytical procedures outlined in Chapter III. The first analytical phase addresses RQ1 by evaluating whether standard FMRs enable HCV tenants to reside in a tract-MLS area that meets the study's criteria for high-opportunity within the city limits of Amarillo, Texas, during the 2018–2022 period.

The second phase addresses RQ2 by comparing prevailing market rents in the tract-MLS area meeting those criteria to the applicable FMRs. This comparison examines the extent to which HUD-designated payment standards correspond to local market conditions during the same analytic window used for opportunity classification, ensuring temporal consistency between opportunity assessment and rent evaluation.

The final phase addresses RQ3 by assessing whether SAFMR-based exception payment standards could expand the availability of rental units in the identified opportunity context. This phase returns the analysis to the ZIP Code scale, the geographic level at which SAFMR benchmarks are established and commonly implemented and reflects present policy relevance and HUD's localized adjustment mechanism under 24 C.F.R. § 982.503.

Overview of Tract Selection

The analysis began at the county level to establish the full scope of HCV household presence across both Potter and Randall Counties. This ensured that every

residential area with voucher use was captured in the initial geographic frame and allowed program activity to be interpreted in relation to the Amarillo Housing Authority's (AHA) jurisdictional service area, which operates within the city limits. After confirming this baseline, a 15% saturation rate was applied to distinguish tracts with stronger program presence from those with incidental use. This cutoff functions as a pragmatic concentration screen by flagging tracts where voucher households represent a meaningful share of the renter market, improving interpretability of 'program presence' without restricting the containment verification that follows. This threshold did not determine eligibility but helped identify areas appropriate for initial opportunity assessment while still preserving all tracts for later spatial verification. Once saturation levels were established, tract-MLS alignments were tested through the containment procedures described in Chapter III. Only tract-MLS areas meeting the Full Containment criterion advanced to the next stage of analysis, forming the spatial foundation for opportunity assessment and rent comparison consistent with neighborhood-scale housing conditions.

Tract-Level Identification and Saturation of HCV Households

Table 13 provides tract-level HCV identification and saturation rates by county, establishing the baseline spatial distribution of voucher households in the study area. Potter County has 29 tracts with HCV households, nine of which exceed the 15% saturation threshold, accounting for over half of all HCV households in the county. In contrast, Randall County has 12 tracts with HCV households, none surpassing the threshold. This distribution reflects the geographic concentration of voucher households in Potter County and provides the analytical foundation for organizing the focus from the

full tract universe to a targeted set of tract-MLS areas that meet containment criteria and are suitable for subsequent opportunity indicator assessment and SAFMR scenario modeling.

Table 13

Tract HCV Household Identification and Saturation Summary by County

County	Tracts with HCV Households	Tracts ≥ 15%	HCV Households in ≥ 15%	Share of HCV Households (%)	Highest Tract Saturation (%; tract)
Potter	29	9	1,009	54.39	28.76 (013900)
Randall	12	0	0	0.00	11.63 (021102)

Note. Full tract-level results are provided in Appendix B (Tables B1 and B2).

Building on this baseline distribution, the containment classification identified tract-MLS areas meeting the Full Containment criterion before applying the RUE protocol. As shown in Table 14, this process reduced the initial 41 tracts with HCV households to nine qualifying areas, and after RUE application, a final analytic set of four fully contained tract-MLS areas (three in Potter County and one in Randall County) constituted the study's core spatial framework for all subsequent analyses under RQ1–RQ3.

Table 14

Reduction of Tract-MLS Areas from Baseline to Final Analytic Set

Classification Stage	Potter County	Randall County	Total
Tracts with HCV households	29	12	41
Pre-RUE Full Containment	6	3	9
Post-RUE Final Analytic Set	3	1	4

Note. Potter and Randall Pre-RUE and RUE diagnostic summaries included in Appendix C (Tables C1 – C6). Supporting methodological materials are provided in the appendices.

Final Full Containment Classification

Table 15 summarizes the tract-MLS areas that remained classified as Full Containment following application of the RUE protocol. These tracts represent the final analytic units for opportunity indicator assessment under RQ1 and rent comparison under RQ2. HCV household counts and tract-level HCV share percentages are included to contextualize program concentration prior to ZIP-level aggregation and SAFMR scenario modeling.

Table 15

Full Containment Tract-MLS Areas Eligible for Opportunity Indicator

County	Tract	MLS Area	HCV Households	HCV of Renter-Occupied Units (%)
Potter				
	011000	Fairgrounds (0301)	21	5.21
	011500	Bivins (0101)	68	8.40
	012200	Stockyards (0310)	29	5.29
Randall				
	021602	Puckett (0212)	28	3.33

Note. Eligibility reflects tract-MLS areas classified as Full Containment after the application of the NOAF and RUE protocol identified in Appendix C (Tables C5 and C6).

Subsequent to the Full Containment classification in Table 15, school attendance boundary mapping was completed next because school performance data are reported only at the campus scale, and the tract-MLS area framework was already established.

School Mapping

Table 16 presents the assignment of school campuses to each census tract and its corresponding MLS area within the study's fully contained neighborhood boundaries.

These assignments reflect the attendance zones applicable during the study period and provide the basis for linking school performance indicators to neighborhood opportunity classifications.

Table 16

School Attendance Zones Aligned with Fully Contained Tract-MLS Areas

Tract	MLS Area	Elementary	6th Grade	Middle School	High School
011000	Fairgrounds (0301)	Sanborn Humphrey's	Bowie 6th	Bowie	Caprock
011500	Bivins (0101)	Bivins	N/A	Austin	Tascosa
012200	Stockyards (0310)	Emerson	Johnny N Allen 6th	Mann	Palo Duro
021602	Puckett (0212)	Puckett	N/A	Bonham Crockett	Amarillo

Note. Campus assignments reflect district attendance zones during the study period. AISD confirmed through a public information request that no boundary line changes occurred for these campuses between 2018 and 2022 (Phillips, personal communication, October 21, 2025; see Appendix D, Figure D5). Full assignment details and boundary maps are provided in Appendix D (Figures D1–D4).

With tract-MLS areas and school attendance boundaries already spatially aligned, the next step was to assess whether any fully contained neighborhoods met the study's high-opportunity criteria.

High-Opportunity Indicator Assessment

Following the spatial translation of fully contained census tracts to MLS-defined neighborhoods, high-opportunity indicators, including poverty rate, school performance, and crime rate, are assessed to characterize the local opportunity context for HCV tenants. These indicators are applied through the GATE Framework developed for this

study, which structures the assessment of economic, educational, and safety conditions across eligible tract-MLS areas. Indicators are quantified at the tract level and attributed to fully contained neighborhoods, ensuring spatial precision. These results provide the foundation for the integrated opportunity framework used to evaluate neighborhood conditions under RQ1 and inform comparative rent and payment standard analyses in RQ2 and RQ3.

Poverty Rate Assessment – Gate A (Economic Context) Results

Gate A evaluates neighborhood economic conditions by identifying which tract-MLS areas meet the low-poverty criterion. A tract-MLS area passes Gate A only when both total-poverty and child-poverty rates fall below 15%. This dual condition ensures that economic stability extends across the general and child populations. Poverty thresholds from Chapter III (< 15% = Low, 15–24.9 % = Moderate, ≥ 25% = High) were applied to classify each tract-MLS area into categorical tiers representing the local economic context. Table 17 reports the total-poverty and child-poverty rates used to evaluate Gate A and shows the resulting pass or not pass classification for each tract-MLS area.

Table 17

Gate A (Poverty) Classification by Tract-MLS Area, 2018–2022 (pooled)

County	Tract	MLS Area	Total Poverty (%)	Child Poverty (%)	Gate A Results
Potter					
	011000	Fairgrounds (0301)	19.95	22.49	Not Pass
	011500	Bivins (0101)	14.50	12.32	Pass
	012200	Stockyards (0310)	24.99	29.37	Not Pass
Randall					

County	Tract	MLS Area	Total Poverty (%)	Child Poverty (%)	Gate A Results
	021602	Puckett (0212)	6.44	5.79	Pass

Note. Values in this table are presented as percentages to two decimal places for interpretability. Corresponding SPSS proportions used in analysis (e.g., 0.1450) are shown in Appendix E. "Pass" = both total and child poverty < 15%; "Not Pass" = either ≥ 15%.

Bivins (0101) and Puckett (0212) meet the low-poverty condition, indicating the strongest economic environments. Fairgrounds (0301) and Stockyards (0310) exceed the 15% threshold in both total and child poverty, indicating moderate to high poverty levels and not meeting Gate A's economic standard.

School Performance Assessment – Gate B (Academic Context) Results

Gate B evaluates academic opportunity using pooled 2018–2022 results from the Student Achievement (SA) and School Progress (SP) domains. Neighborhoods pass when both domains meet Amarillo ISD (AISD) benchmark thresholds for All Students, with results for economically disadvantaged (ED) students reviewed for context. As documented in Appendix F (Tables F1 and F3), annual benchmark flags were first applied to each tract-MLS area. These flags were then pooled across the five-year study period to capture whether benchmark attainment was sustained over time, rather than driven by single-year outcomes. The resulting proportions in Appendix F (Table F2 for All Students and Table F4 for Economically Disadvantaged students) represent the share of valid years in which AISD benchmarks were met or exceeded. Table 18 in Chapter IV reports these pooled values and applies the Pass, Mixed, or Not Pass classifications based on the consistency of benchmark attainment across both domains.

Table 18

Gate B (School Performance) Classification by Tract-MLS Area, 2018–2022 (pooled)

County	Tract	MLS Area	SA-All (%)	SA-ED (%)	SP-All (%)	SP-ED (%)	Gate B Results
Potter							
	011000	Fairgrounds (0301)	20.00	60.00	0.00	0.00	Not Pass
	011500	Bivins (0101)	100.00	100.00	0.00	0.00	Mixed
	012200	Stockyards (0310)	20.00	60.00	0.00	0.00	Not Pass
Randall							
	021602	Puckett (0212)	100.00	100.00	100.00	0.00	Pass

Note. Percentages are reported to two decimal places for consistency and clarity. Corresponding pooled proportions (e.g., 0.2000, 0.6000, 1.0000) are shown in Appendix F (Tables F2 and F4). “Pass” = both domains (Student Achievement and School Progress) met AISD benchmarks for All Students; “Mixed” = one domain met benchmarks for All Students; “Not Pass” = neither domain met benchmarks for All Students.

Puckett (0212) met AISD benchmarks in both domains for all students, satisfying the primary requirement for a Gate B pass. Results for Economically Disadvantaged students were lower, but since classification is based on all-student attainment, these values served mainly to show differences between all students and economically disadvantaged students. Bivins (0101) met the Student Achievement benchmark for both populations but did not meet School Progress, resulting in a mixed classification. Fairgrounds (0301) and Stockyards (0310) did not meet either benchmarked domain, indicating limited academic performance and a lack of sustained growth over the pooled period.

Crime Assessment – Gate C (Safety Context)

Gate C evaluates neighborhood safety conditions by classifying tract-MLS areas according to violent and property crime rates, parallel to the economic and academic conditions analyzed under Gates A and B. Offense rates were calculated as pooled 2018–2022 values per 1,000 residents using population estimates from the ACS 2018–2022 5-Year Estimates. Neighborhoods qualify as Pass only when both violent and property crime rates fall within the low-crime tier, following the threshold framework documented in Appendix G and the detailed ranking procedure described therein.

Between 2018 and 2022, the four study tracts contained 3,670 violent and property offenses provided by APD. Offense counts were summarized by tract and year. APD noted that a records-management-system transition in early 2020 and subsequent manual data cleaning beginning in 2021 introduced a small mapping discrepancy of roughly 2%, and that 2020 may reflect COVID-19–related reporting anomalies. These potential effects are mitigated by pooling offense counts across the five-year period, as described in Appendix G. Table 19 summarizes the resulting violent and property crime tier classifications and the corresponding Gate C outcome for each tract-MLS area.

Table 19

Gate C (Crime) Classification by Tract-MLS Area, 2018–2022 (Pooled Rates and Tier Outcomes)

County	Tract	MLS Area	Violent Tier	Property Tier	Gate C Results
Potter					
	011000	Fairgrounds (0301)	Moderate	High	Not Pass
	011500	Bivins (0101)	Moderate	Moderate	Mixed
	012200	Stockyards (0310)	High	Moderate	Not Pass

County	Tract	MLS Area	Violent Tier	Property Tier	Gate C Results
Randall					
	021602	Puckett (0212)	Low	Low	Pass

Note. Violent and property crime tiers reflect tract-level pooled offense rates for 2018–2022 calculated per 1,000 residents. Rank-band assignments, tier thresholds, and tract-MLS rate calculations are documented in Tables G1, G2, and G3, which provide the numeric criteria used to determine each Gate C classification.

Puckett (0212) achieved low-tier rankings for both violent and property offenses, reflecting the most favorable safety environment among the study neighborhoods. Bivins (0101) recorded moderate rates in both tiers, resulting in a mixed classification. Fairgrounds (0301) and Stockyards (0310) exhibited elevated exposure to violent and property offenses, placing them in the Not Pass category for Gate C.

Integrated Opportunity Assessment (RQ1)

This section synthesizes the results of Gates A, B, and C to present a multidimensional profile of neighborhood opportunity across the study area. Each gate represents a distinct domain: Gate A (economic context – poverty), Gate B (academic context – school performance), and Gate C (safety context – crime). Classifications follow the rules defined in Chapter III and detailed in Appendices E, F, and G; no additional weighting is applied. Integrated classifications reflect the combined gate outcomes without additional weighting: tract-MLS areas passing all three gates are classified as high-opportunity; areas failing all three gates are classified as low-opportunity; and mixed combinations are classified as partial-opportunity. Table 20

presents the integrated GATE results in one place, allowing opportunity conditions to be compared clearly across neighborhoods.

Table 20

Integrated Gate Results by Tract-MLS Area (2018–2022)

County	Tract	MLS Area	Gate A (Poverty)	Gate B (School)	Gate C (Crime)	Integrated Classification
Potter						
	011000	Fairgrounds (0301)	Not Pass	Not Pass	Not Pass	Low Opportunity – economic, academic, and safety disadvantages present.
	011500	Bivins (0101)	Pass	Mixed	Mixed	Partial Opportunity – favorable economic base with moderate academic and safety context.
	012200	Stockyards (0310)	Not Pass	Not Pass	Not Pass	Low Opportunity – consistent disadvantage across all domains.
Randall						
	021602	Puckett (0212)	Pass	Pass	Pass	High Opportunity – low poverty, strong school performance, and low crime exposure.

Note. Gate outcomes reflect categorical classifications defined in Chapter III and documented in Appendices E (Poverty), F (School Performance), and G (Crime). "Pass" indicates the neighborhood met low-risk or high-performance criteria in that domain; "Mixed" indicates one or more moderate outcomes; "Not Pass" indicates the presence of high-risk or underperformance conditions.

Summary of Findings for RQ1

The GATE Framework confirmed that only one tract-MLS area, Puckett (0212), met the combined economic, academic, and safety criteria for high-opportunity classification. Bivins (0101) demonstrated a favorable economic context but showed mixed outcomes on academic and safety indicators, while Fairgrounds (0301) and Stockyards (0310) did not meet any gate criteria. These results indicate that voucher

households within the fully contained tract-MLS analytic set were generally located outside high-opportunity environments at the time of analysis, raising the question of whether existing FMR-based payment standards align with local market conditions in high-opportunity areas.

Although only one tract-MLS area satisfied all opportunity criteria, this outcome does not limit analytical progression. As established in Chapter III, the cross-sectional design allows the study to proceed regardless of the number of qualifying areas. Instead, these findings reinforce the rationale for RQ2 by raising the question of whether prevailing payment standards align with local rental market conditions. If payment standards are set below prevailing rents, they may reduce the financial availability of units in high-opportunity tracts, which is an issue directly examined under RQ2.

Renter Housing Cost Burden Results (RQ1/RQ2 Context)

Renter housing cost burden is reported to contextualize affordability conditions in neighborhoods with verified HCV tenant presence, linking RQ1 findings on opportunity context to RQ2's rent-gap analysis. As shown in Table 21, renter housing cost burden is substantial in all four MLS areas, with the lowest level exceeding 37% of renter households spending 30% or more of income on gross rent. In federal housing policy, a household is typically classified as cost-burdened if its total housing expenses are greater than 30% of its income, a benchmark used by HUD to evaluate affordability (Daniels et al., 2025). Although renter housing cost burden does not determine voucher eligibility or payment standard adequacy directly, it provides an affordability context for interpreting whether observed rent levels reflect broader housing stress or payment ceiling misalignment. These values provide a neighborhood-level affordability context for

interpreting opportunity indicators and assessing the adequacy of existing payment standards.

Table 21

Renter Housing Cost Burden by Fully Contained Tract-MLS Area, 2018–2022

Tract	MLS Area	Renter Households Adjusted	Renter Households ≥ 30%	Housing Cost Burden %
011500	Bivins (0101)	1059	629	59.3956
021602	Puckett (0212)	646	241	37.3065
011000	Fairgrounds (0301)	518	249	48.0694
012200	Stockyards (0310)	477	207	43.3962

Note. "Renter Households (Adjusted)" excludes the subset of renter households for which a gross rent-to-income ratio was not calculated (ACS Table B25070, 011E).

Rent Gap Analysis in a High-Opportunity Neighborhood (RQ2)

Puckett (0212), the only high-opportunity MLS–tract area identified in the study, was used to assess the adequacy of HUD-designated FMRs relative to prevailing market rents. Because FMRs are set at the metropolitan level, the same two-bedroom FMR applied across Potter and Randall Counties in each fiscal year; therefore, all comparisons use the Amarillo HUD Metro FMR in effect at the time the units were leased. Two-bedroom units were analyzed, and median and mean market rents were compared to the applicable metropolitan FMR for FY 2018–2022.

Two-Bedroom Gross Rent Comparison by Structure Type

Two-bedroom rents in Puckett presented a clear structural divide by unit type, as shown in Table 22. Multifamily units displayed a stable price band centered around a median of $834.00, while single-family (attached) units formed a separate and higher-priced tier with a median of $1,296.00. The limited overlap between unit types and the

broader dispersion among single-family listings suggest that rental pricing patterns differed substantially by structure type within the same high-opportunity tract. These patterns in Table 22 illustrate that the multifamily segment aligned more closely with HUD's FMR benchmarks, while single-family rentals operated well above them.

Table 22

Descriptive Statistics for Two-Bedroom Units in the Puckett High-Opportunity Tract

Statistic	Multifamily	Single-family
n	30	30
Mean gross rent ($)	881.97	1,335.20
Standard deviation ($)	125.41	133.96
95% confidence interval	835.14–928.80	1,285.18–1,385.22
Median ($)	834.00	1,296.00
Minimum ($)	788	1,192
Maximum ($)	1,215	1,829
Interquartile range ($)	47 (≈ 817–864)	146 (≈ 1,242–1,388)
Robust M estimator ($)	834.35	1,304.40

Note. Gross rent includes contract rent plus tenant-paid utility allowance, consistent with HUD's definition of gross rent for FMR estimation.

For two-bedroom units in Puckett, the FMR thresholds and the AHA payment standard followed the same pattern shown in Table 23: multifamily units were largely within reach, while single-family rentals were not. Nearly 90% of multifamily listings met at least one affordability threshold, yet no single-family unit qualified under any benchmark, including the AHA payment standard plus utility allowance. Table 23 therefore confirms that voucher accessibility in this tract was limited to the multifamily segment, leaving the single-family market effectively inaccessible despite shared location within a verified high-opportunity area.

Table 23

Availability of Two-Bedroom Units Under FMR Thresholds and AHA Payment Standard, Puckett High-Opportunity Tract

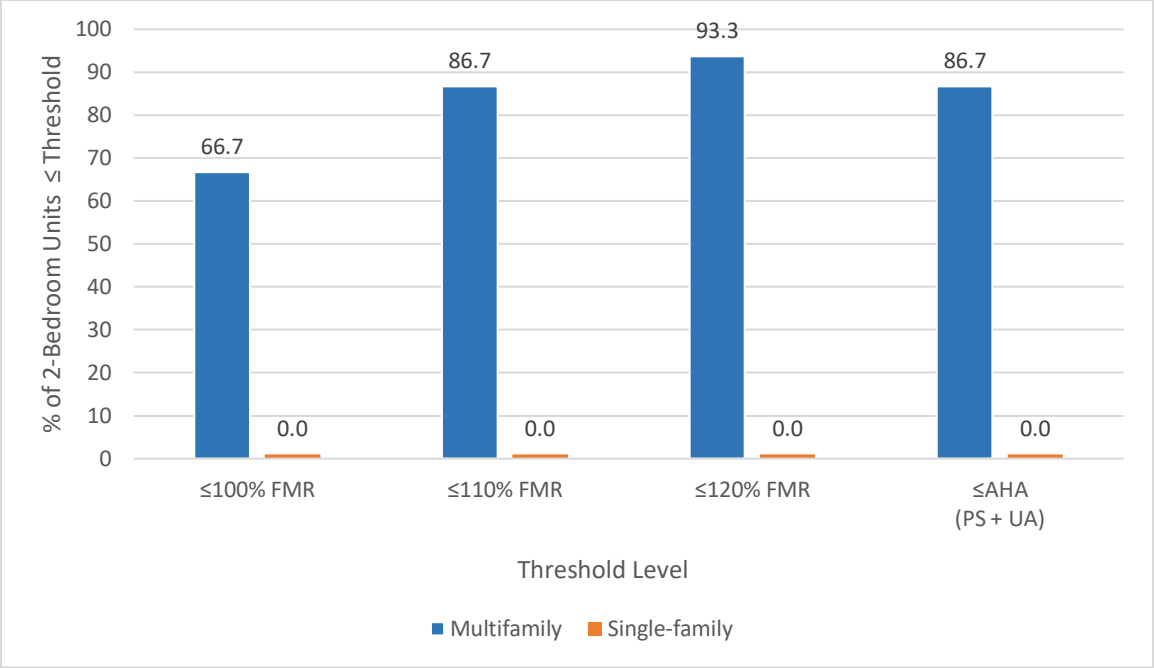
Structure type	≤ 100% FMR	≤ 110% FMR	≤ 120% FMR	≤ AHA PS + UA
Multifamily	66.7%	86.7%	93.3%	86.7%
Single-family	0.0%	0.0%	0.0%	0.0%

Note. Percentages represent the share of two-bedroom listings with gross rent at or below each threshold within structure type. AHA PS + UA = AHA two-bedroom payment standard (PS) plus two-bedroom utility allowance (UA). FMR refers to HUD's FMR for two-bedroom units; payment standards are locally adopted. Underlying cross-tabulation counts and row percentages are provided in Appendix H.

To assess how closely existing payment standards align with observed market rents, each two-bedroom listing was compared against thresholds at 100%, 110%, and 120% of the applicable FMR. Figure 3 illustrates these results, showing the proportion of units available to HCV holders under each threshold and clarifying that multifamily units remain largely obtainable while single-family rentals lie entirely beyond the 120% FMR limit.

Figure 3

Availability of Two-Bedroom Units at FMR Thresholds by Structure Type



The results showed that FMR-based payment standards and the AHA's locally adopted ceiling, combining the two-bedroom payment standard and utility allowance, were sufficient to cover the multifamily segment but not the single-family market. The combined ceiling effectively aligned with about 110% of the metropolitan FMR, a relationship specific to the Puckett high-opportunity tract. Because this analysis was confined to a single submarket and aggregated across 2018–2022, the observed equivalence reflects local rent dynamics rather than a uniform policy condition across the Amarillo HUD Metro FMR Area.

Summary of Findings for RQ2

The comparative analysis indicated that metropolitan-level FMRs were set below prevailing single-family market rents in the Puckett high-opportunity tract. While multifamily rents aligned closely with FMR-based payment standards, single-family rents consistently exceeded all affordability thresholds, including the combined AHA payment standard and utility allowance. As a result, voucher holders were effectively priced out of

the single-family segment in this opportunity context. Given these results, further evaluation under RQ3 was undertaken to test whether SAFMR-based exception payment standards could correct these affordability gaps within high-opportunity tracts.

RQ3 proceeded under current policy conditions, advancing beyond the 2018–2022 diagnostic period used for opportunity verification. The tract-MLS area remained the analytical unit, and ZIP Code full containment was incorporated to align that verified opportunity context with the SAFMR policy structure administered at the ZIP Code level under 24 C.F.R. § 982.503.

ZIP Code Alignment for SAFMR Scenario Modeling (RQ3)

Baseline tract-to-ZIP alignments were verified under the HUD–USPS ZIP Code Crosswalk (Q1 2024) and revalidated using the Q2 2025 release. The results confirmed consistent containment classifications across both datasets, demonstrating stable residential address assignment patterns suitable for SAFMR-based scenario modeling. Only ZIP Codes with verified residential presence (RES_RATIO > 0.0000) were reported in Table 24, which is why Tract 012200 includes only ZIP Code 79107. In this step, RES_RATIO was used solely to confirm residential address presence and verify ZIP Code containment; it was not used as a proportional allocation weight for distributing tract-level HCV households across ZIP Codes. This ensured that SAFMR modeling reflected ZIP Codes with actual residential relevance rather than administrative boundary overlap.

Only Stockyards (0310) and Puckett (0212) exhibited full ZIP Code containment, qualifying them for SAFMR exception payment standard modeling. This consistency

between crosswalk releases supports the geographic validity of tract–ZIP alignment used for scenario modeling.

Table 24

ZIP Code Alignment for SAFMR Exception Payment Standards Scenario Modeling (RQ3)

Tract	MLS Area	ZIP Code(s)	ZIP Code Alignment Outcome
011000	Fairgrounds (0301)	79102, 79104	Multiple ZIPs – Not advancing (residential split)
011500	Bivins (0101)	79101, 79102	Multiple ZIPs – Not advancing (residential split)
012200	Stockyards (0310)	79107	Single residential ZIP – Advancing
021602	Puckett (0212)	79109	Fully aligned – Advancing

Note. Alignment outcomes verified using the HUD–USPS ZIP Code Crosswalk datasets (Q1 2024 and Q2 2025). The corresponding RES_RATIO values and detailed crosswalk outputs are provided in Appendix I. "Not advancing" indicates that the tract-MLS area did not meet the containment requirement needed to move forward into SAFMR exception payment standard scenario modeling.

Housing Cost Burden in ZIP Codes 79107 and 79109

Renter housing cost burden at the ZIP Code scale is about 59% in 79107 and about 48.4% in 79109 (ACS 2018–2022, B25070). These ZIP Code-level figures establish the affordability context for the SAFMR-based scenario analysis, as Stockyards (ZIP Code 79107) represents a lower-cost area and Puckett (ZIP Code 79109) reflects a higher-cost, high-opportunity area (see Table 25). This framing provides an economic lens for interpreting whether SAFMR adjustments could meaningfully reduce cost barriers and improve access to high-opportunity areas.

Table 25

Renter Housing Cost Burden by ZIP Code

ZIP Code	Renter Households (Adjusted)	Renter Households ≥ 30%	Housing Cost Burden %
79107	3,786	2,233	58.9804
79109	6,915	3,349	48.4309

Note. Renter household counts are adjusted using the denominator calculation (001E − 011E) from the ACS 5-Year Estimates (2018–2022), Table B25070.

Analysis of SAFMR-Based Exception Payment Standards Results (RQ3)

Two-bedroom rents in Puckett during the recent 12-month period again showed a distinct structural divide by unit type, as displayed in Table 26. Multifamily units remained tightly grouped around a mean of $1,201.40, while single-family units formed a higher-priced tier centered near $1,673.00, with a wider spread of values. This separation established the baseline for evaluating alignment with HUD's metropolitan FMR, the AHA's Payment Standard plus Utility Allowance, and ZIP Code–level SAFMR mechanisms that informed exception payment standards scenarios.

Table 26

Descriptive Statistics for Two-Bedroom Gross Rent in the Puckett High-Opportunity Tract (Last 12 Months)

Statistic	Multifamily	Single-family
n	15	6
Mean gross rent ($)	1,201.40	1,673.00
Standard deviation ($)	69.25	98.74
95% confidence interval	1,163.05–1,239.75	1,569.38–1,776.62
Median ($)	1,151.00	1,648.00
Minimum ($)	1,151	1,548

Statistic	Multifamily	Single-family
Maximum ($)	1,341	1,823
Interquartile range ($)	102 (≈ 1,151–1,253)	163 (≈ 1,604–1,767)
Robust M estimator ($)	– a	1,664.10

Note. Gross rent = contract rent + tenant-paid utilities, consistent with HUD's Fair Market Rent methodology. The M-estimator could not be computed for multifamily units due to insufficient dispersion in the analytic sample for robust estimation under the selected procedure.

Two-Bedroom Rent Gap Comparison

Rent gaps again diverged sharply by structure type and MLS area, as shown in Table 27. In Puckett (0212), multifamily rents stayed close to HUD benchmarks, coming within roughly $1 of the SAFMR level, indicating near alignment with payment standards. By contrast, single-family units averaged more than $500 above the metropolitan FMR, demonstrating that prevailing prices remained well beyond standard voucher limits. In Stockyards (0310), multifamily units fell below all benchmarks, while single-family units were modestly above the FMR but still below the payment standard plus utility allowance (PSUA). Table 27 therefore shows that current payment ceilings capture multifamily pricing more accurately than single-family costs in the Puckett high-opportunity tract.

Table 27

Two-Bedroom Rent Gaps Relative to FMR, PSUA, and SAFMR by MLS Area and Structure Type (Gross Rent − Benchmark, Last 12 Months)

MLS Area	Structure type	n	Mean gap to FMR ($)	Mean gap to PSUA ($)	Mean gap to SAFMR ($)
Puckett (0212)	Multifamily	15	43.40	−113.33	1.40
	Single-family	6	523.67	242.00	478.00
Stockyards (0310)	Multifamily	5	−296.00	−385.50	−228.00
	Single-family	3	74.00	−159.50	134.67

Note. Gaps are calculated as Gross Rent − Benchmark. Positive values indicate market rents above the benchmark; negative values indicate benchmarks exceeding market rents. SPSS calculations are summarized in Appendix J.

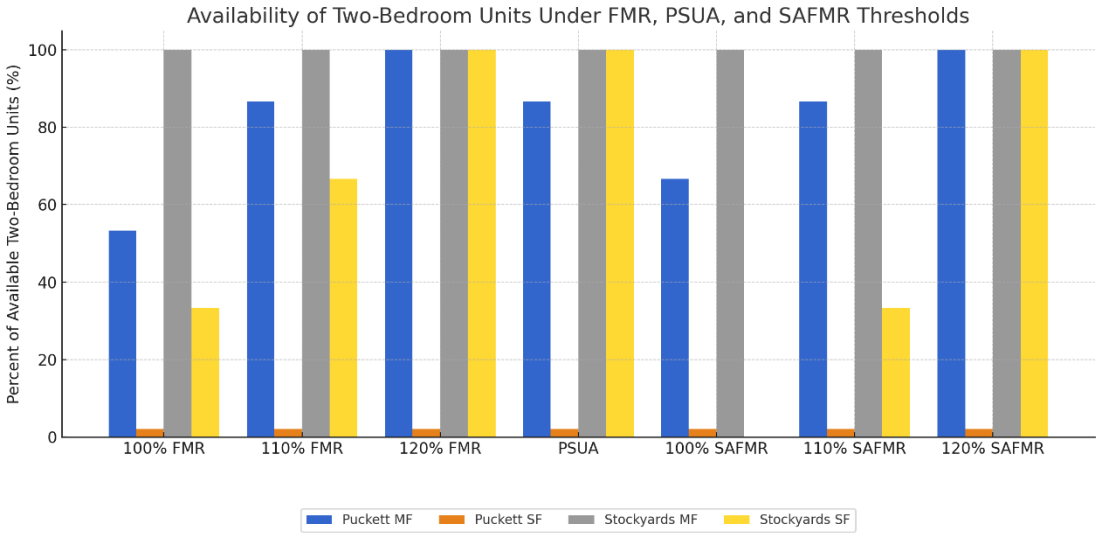
Availability Thresholds

Figure 4 visualizes availability thresholds across tracts and structure types. In Puckett (0212), 53% of multifamily units were affordable at 100% FMR, increasing to 87% at 110% FMR and PSUA levels, and 100% at 120% FMR. By contrast, no single-family units were available under any of the evaluated thresholds through 120% SAFMR, demonstrating the persistence of the single-family affordability gap within the high-opportunity tract.

In Stockyards (0310), multifamily units were fully available under every standard, while single-family units achieved partial availability (33%) at 100% FMR and full availability by 120% FMR, PSUA, and SAFMR. These results confirm that while FMR-based ceilings sufficiently accommodate multifamily rents in both tracts, they underrepresent single-family rent levels in Puckett.

Figure 4

Availability of Two-Bedroom Units by Payment Standard Thresholds in Puckett and Stockyards



Note. Percentages reflect the share of screened, standard-quality two-bedroom listings with gross rent at or below each modeled payment standard threshold. Underlying SPSS CROSSTABS results are summarized in Appendix K (Tables K1 and K2).

Detailed Pre-RUE worksheets are provided in Appendix L, RUE worksheets are provided in Appendix M, and the Neighborhood Opportunity Attribution Framework Guidebook is provided in Appendix N.

Interpretive Bridge to SAFMR Exception Payment Standards Scenario

These results reveal that FMR-based ceilings effectively capture multifamily pricing in Puckett but leave single-family housing in this high-opportunity neighborhood out of reach. In the contrast case, Stockyards shows how ZIP Code–level ceilings can exceed neighborhood rents in lower-cost submarkets. This inverse relationship highlights the policy tension between equity and efficiency within metro-wide payment structures and supplies the empirical rationale for modeling tract-level SAFMR-based exception payment standards as a targeted adjustment mechanism.

SAFMR-Based Exception Payment Standards Scenario Analysis

Two-bedroom rents in Puckett were evaluated to determine whether tract-level SAFMR-based exception payment standards could improve affordability within this high-opportunity tract while avoiding metropolitan-level inflation of payment standards. Multifamily units were already affordable under AHA's 110% FMR payment standard, with full availability reached by 120% FMR or the SAFMR level. Raising the metropolitan FMR or its corresponding payment standard to meet Puckett's higher rents would extend those increases across the entire Amarillo HUD Metro Area, contrary to HUD's intent for localized adjustments. Therefore, SAFMR-based simulations were modeled primarily to assess whether tract-level exception payment standards could expand access to single-family rentals in Puckett without system-wide escalation.

Under baseline conditions, no single-family units were affordable at or below SAFMR. Availability first appeared at approximately 130% SAFMR, when one of six single-family units (16.7%) met the ceiling, and expanded to 66.7% at 140% SAFMR. At this level, most single-family rents in the tract clustered between 130% and 140% SAFMR, indicating that a 140% tract-level exception payment standard would be required under observed rent conditions to make the majority of single-family units attainable for voucher holders.

These results show that multifamily units in Puckett were already largely available under existing payment standards, while single-family rentals remained outside reach under FMR, PSUA, and SAFMR thresholds. Modeling SAFMR–based exception payment standards demonstrated that availability for single-family units began near 130% SAFMR and expanded substantially by 140% SAFMR, where two-thirds of observed

units became attainable to voucher holders. A tract-level exception payment standard near 140% of SAFMR would therefore expand modeled availability of single-family units under voucher payment thresholds within this high-opportunity neighborhood, consistent with HUD's regulatory provisions under 24 C.F.R. § 982.503 for locally justified exception payment standards.

Figure 5

SAFMR-Based Exception Payment Standards Scenario for Two-Bedroom Units in Puckett

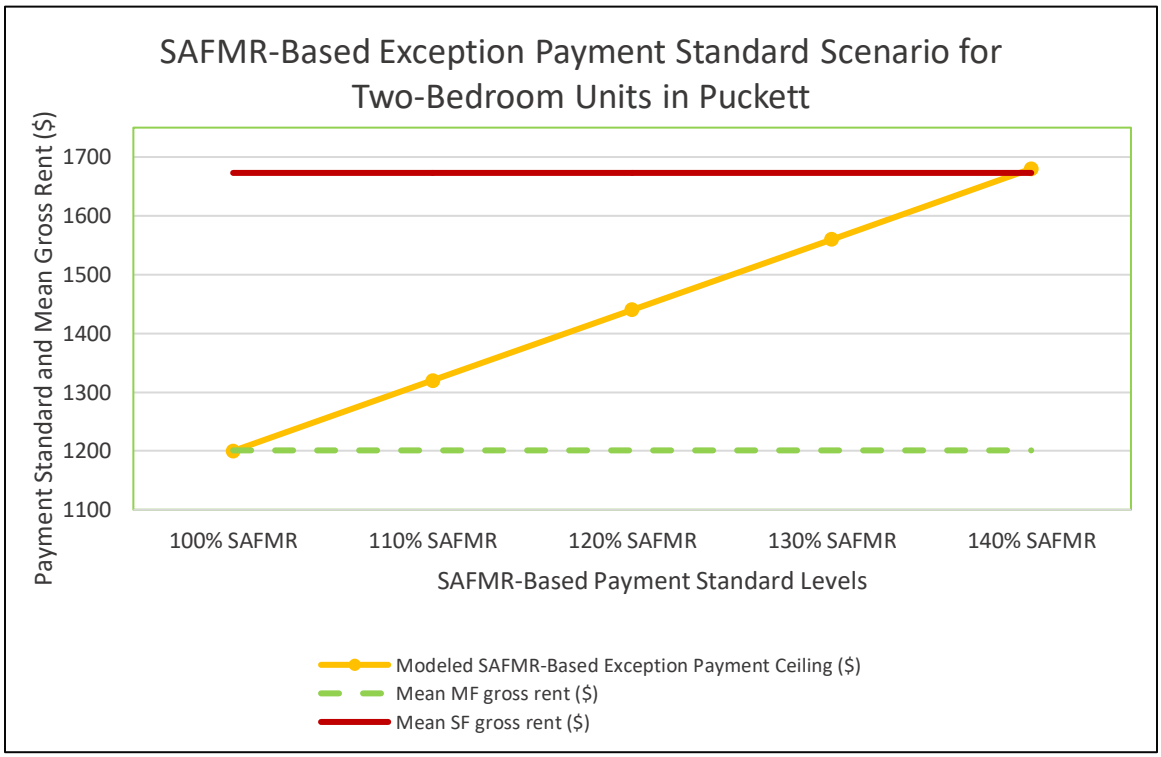


Figure 5 illustrates the simulated effect of SAFMR-based exception payment standards on rental availability in Puckett. The orange line traces modeled ceilings from 100% to 140% of SAFMR, representing incremental policy flexibility beyond AHA's standard. The green dashed and red solid lines mark the mean gross rents for multifamily and single-family units, respectively. The intersection near 140% SAFMR marks the

threshold at which a modeled tract-level exception payment standard would begin to render single-family housing attainable under voucher payment parameters in this high-opportunity tract.

Summary of Findings for RQ3

The SAFMR-based exception payment standards simulation demonstrated that current FMR-based ceilings ensure full multifamily availability in the Puckett high-opportunity tract but do not extend availability to single-family rentals. Modeled adjustments showed single-family unit availability would first emerge near 130% SAFMR and become broadly feasible at approximately 140% SAFMR. These levels exceed the automatic exception authority under 24 C.F.R. § 982.503(d)(2) and instead fall within the HUD approval provisions of paragraphs (d)(3) and (d)(4), which require supporting rental market evidence. Thus, SAFMR-based exception payment standards provide a policy-relevant framework for evaluating potential expansion of single-family availability in high-opportunity tracts under HUD's regulatory structure, without requiring metropolitan-wide payment adjustments.

Limitations

The analytical framework in this chapter involved multiple spatial translations across census tracts, MLS-defined neighborhoods, and ZIP Code boundaries to ensure consistent alignment with HUD's policy geography. While these steps followed rigorous verification procedures, several technical boundaries should be acknowledged for clarity and replication.

The HUD–USPS ZIP Code Crosswalk (Q2 2025) and 2020 Census tract definitions served as the basis for tract–ZIP alignment used in the SAFMR exception

payment standard modeling. These data sources are periodically updated, and while they represent the most current releases available during analysis, future changes to ZIP Code boundaries or address assignments could slightly alter tract–ZIP alignment proportions. Additionally, because ZIP Codes and census tracts are designed for different purposes, mail delivery versus statistical reporting, minor spatial differences can occur at shared boundaries.

The analysis also relied on the RES_RATIO variable from HUD's crosswalk rather than parcel-level geocoding. In this study, RES_RATIO was used solely to confirm residential address alignment and verify ZIP Code containment; it was not used as a proportional allocation weight for distributing tract-level HCV households across ZIP Codes. This method accurately reflects residential address distribution at the tract–ZIP level but does not capture small or newly developed residential clusters that may have emerged after the reference period. Applying the governing ZIP Code's SAFMR to an entire tract assumes relative uniformity in rent conditions within that tract, which simplifies modeling but may not reflect all localized variations in housing stock or price structure.

These considerations extend to the tract-MLS containment classifications established earlier in the chapter. While containment and RUE protocols ensured precise neighborhood attribution, any process of spatial translation carries a degree of generalization. These limitations do not materially affect the internal consistency of the analytical framework but instead clarify its technical boundaries. Recognizing these factors is important for understanding how ZIP Code–based payment standard determinations interact with tract-level housing market characteristics. This is particularly

relevant when evaluating SAFMR exception payment standards scenarios, where tract–ZIP alignment underpins policy modeling and scenario interpretation.

Chapter Summary

Chapter IV presented a sequential analysis linking neighborhood opportunity conditions, rental market alignment, and policy feasibility within the defined study tracts. Under RQ1, the gate-based framework identified Puckett (0212) as the only high-opportunity tract meeting economic, academic, and safety criteria, establishing the opportunity baseline for subsequent analyses. RQ2 demonstrated that existing metropolitan FMR-based payment standards adequately captured multifamily pricing but fell short of single-family market rents, effectively constraining voucher availability in high-opportunity areas. RQ3 extended this analysis by modeling tract-level SAFMR-based exception payment standards, revealing that localized adjustments near 140% of SAFMR would expand modeled single-family availability within the tract under the observed rent conditions without requiring a metropolitan-wide adjustment to existing FMR-based payment standards. While opportunities were identified through gate-based scoring, economic conditions within each MLS area must be considered when interpreting these results. Together, these findings provide an integrated empirical foundation for evaluating targeted, data-informed adjustments within HUD's payment standard framework and guide the policy considerations developed in Chapter V.

Chapter V

Interpretations, Conclusions, and Recommendations

This chapter synthesizes the study's findings to explain how neighborhood opportunity conditions, rental market pricing, and HCVP payment standards interact to shape the availability of rental housing for HCVP households within the verified tract-MLS areas examined in Amarillo. The findings clarify how uniform metropolitan payment standards can produce disproportionate housing opportunities across neighborhoods when localized rent structures diverge from program payment ceilings. Within this context, building directly on the results presented in Chapter IV, the discussion interprets those findings, articulates their implications, and identifies analytically grounded directions for future research and policy evaluation. No new analyses are introduced.

The discussion proceeds in alignment with the study's sequential research design. The interpretation of RQ1 clarifies how the NOAF was applied to identify tract-MLS areas that could be evaluated for high-opportunity conditions while maintaining spatial and data integrity. The interpretation of RQ2 examines whether metropolitan FMR–based payment standards aligned with prevailing market rents in the verified high-opportunity tract, with specific attention to differences in rental housing availability by structure type. The interpretation of RQ3 examines how observed neighborhood-level rent distributions within empirically verified tract-MLS areas compare to metropolitan FMRs and ZIP Code–level SAFMR benchmarks and evaluates SAFMR-based exception payment

standard scenarios to identify the payment thresholds at which the availability of rental units priced within voucher limits is first observed in the analytic sample in the study's high-opportunity tract.

Following these interpretations, the discussion presents conclusions for each research question, situates the findings within prior literature and the study's theoretical framework, and advances recommendations for future research design, methodological development, and policy evaluation practice. Consistent with the study's positivist measurement framework, the discussion emphasizes observable spatial and market alignment rather than causal inference, focusing on how payment standards interact with localized rental markets to influence rental unit availability within voucher limits for HCVP households.

This study located HCVP households within verified tract-MLS areas in Amarillo and, within the tract-MLS area that met high-opportunity criteria in Randall County, assessed whether rental units were financially reachable under existing FMR-based payment standards. Because a single metropolitan FMR is applied across both counties, differences in neighborhood rent levels can limit where voucher households are able to lease, with implications for access to high-opportunity environments. To investigate this problem through a tractable and verifiable analytical process, the study examined three connected research questions concerning rental alignment and policy feasibility in Amarillo.

RQ1 was answered by evaluating four fully contained tract-MLS areas to determine whether they met the economic, academic, and safety indicators associated with high-opportunity conditions as defined in Chapter II. Three of these areas, all

located in Potter County, did not meet the thresholds, which indicates that the neighborhoods where most HCV households reside reflect lower-opportunity environments. The fourth area, Puckett in Randall County, met all indicators and was the only tract-MLS area classified as high opportunity. Because 28 HCV households were present in this tract, the findings confirm observable voucher presence, though limited in scale, within a high-opportunity environment. This observed concentration of HCV households in lower-opportunity areas must be interpreted within the broader context of longstanding spatial patterns in housing markets.

The concentration of HCV households in lower-opportunity areas of Potter County, coupled with limited placement within higher-opportunity areas of Randall County, is consistent with longstanding scholarship documenting the persistence of spatial patterns in housing markets. Prior research has documented a relationship between concentrated poverty and higher levels of crime, which supports the inclusion of crime as an indicator of neighborhood opportunity in this study (Orr et al., 2003). Studies on redlining, mortgage discrimination, and concentrated poverty indicate that historical patterns associated with these practices influence neighborhood investment, school quality, and crime exposure (Chetty et al., 2014; Massey, 1990). Although this study does not directly evaluate the causal impact of historical redlining, the observed geographic distribution of voucher households reflects patterns that align with established literature on spatial stratification and opportunity disparity.

Within this context, the findings suggest that payment standard design interacts with these structural conditions. Where prevailing rents in higher-opportunity areas exceed metropolitan payment ceilings, access may be constrained independent of tenant

preference. Thus, contemporary voucher placement patterns may reflect embedded spatial rent structures that have developed over decades of uneven metropolitan growth and investment, particularly where prevailing rents exceed metropolitan payment ceilings in higher-opportunity areas.

The analysis for RQ2 demonstrated that the relationship between FMR-based payment standards and prevailing market rents in the high-opportunity tract-MLS area identified in RQ1 differed by structure type. This pattern held even when the higher payment standards adopted by the AHA during the study period were considered. Two-bedroom multifamily units were priced within the applicable payment standard range, while two-bedroom single-family units were consistently priced above metropolitan FMR thresholds during the study period. Building on RQ2, RQ3 analysis indicated that SAFMR-based exception payment standards could expand rental availability for HCV tenants in the study's verified high-opportunity tract by bringing payment ceilings into closer alignment with prevailing market rents.

Interpretation of RQ1

The identification of only one high-opportunity tract-MLS area must be understood in relation to the NOAF, which yielded four fully contained areas eligible for opportunity assessment. The use of fully contained tract-MLS areas was essential to preserve data integrity, as MLS areas functioned as neighborhood proxies and full containment ensured that tract-level poverty and crime indicators aligned with the same census tract in which HCV households were counted, while academic indicators could be assigned based on the campuses serving each tract-MLS area.

This interpretation reflects the study's focus on identifying opportunity conditions only within tract-MLS areas that satisfied the NOAF's spatial and indicator requirements, without extending inference beyond those analytically valid units. Accordingly, the assessment is restricted to tract-MLS areas that met both containment and opportunity thresholds, yielding a geographically precise evaluation of neighborhood opportunity as defined by the study's framework. This place-specific evaluation demonstrates that high-opportunity conditions are unevenly distributed across space and cannot be inferred from metropolitan averages alone, reinforcing the importance of geographically precise units of analysis when assessing policy access to opportunity-rich environments.

Interpretation of RQ2

The RQ2 findings showed that rent alignment under metropolitan FMRs differed by structure type within the verified tract-MLS area. Two-bedroom multifamily units aligned within metropolitan FMR limits, indicating that these units were financially reachable under the payment ceilings in effect during the study period. In contrast, two-bedroom single-family units were consistently priced above all metropolitan FMR thresholds, showing that the metropolitan standard did not reflect the rent structure of single-family housing in the qualifying neighborhood.

These findings showed that the availability of units under metropolitan FMRs depended on alignment with structure-specific rent levels, resulting in access to multifamily units but not to single-family units. This established the analytical basis for RQ3, which examined whether SAFMR-based exception payment standards could enhance the availability of rental units for HCV tenants by addressing the payment standard limitations identified in RQ2 within the same tract-MLS area. From a policy

interpretation standpoint, these findings illustrate that the effectiveness of a uniform payment standard depends on how well it captures structure-specific rent formation within localized markets, a condition that becomes clearly observable when rental markets are evaluated at the tract-MLS level. These tract-level findings reflect broader rental housing availability challenges documented in prior voucher research, which has shown that payment design and localized market conditions can constrain the supply of units priced within voucher limits even when program objectives emphasize expanded residential choice. By operationalizing these dynamics within a verified tract-MLS containment framework, this study demonstrates how such constraints manifest at the neighborhood level in ways that may not be detectable through metropolitan or ZIP Code–level analysis.

Interpretation of RQ3

The interpretation of RQ3 examines whether SAFMR-based exception payment standards could address the rent misalignment identified in RQ2 within the tract-MLS areas that met both containment and ZIP Code alignment requirements. Two areas advanced into this stage: Puckett, the study's only high-opportunity neighborhood, and Stockyards, a lower-cost comparison area. The interpretation focuses on whether localized payment flexibility at the tract level could enhance rental availability, particularly for single-family homes, without requiring metropolitan-wide adjustments to FMRs. In this phase, ZIP Code–level SAFMR values served as the benchmark source, with analytically applied percentage benchmarks used for evaluation.

In Puckett, SAFMR-based thresholds mirrored the pattern observed under metropolitan FMRs. Multifamily units were already accessible under existing payment

ceilings. Single-family rentals, however, remained priced above all applicable benchmarks, including SAFMR, consistent with the structure-type divide identified in RQ2. Modeled exception payment standards indicated that alignment between allowable payment ceilings and observed single-family rents did not emerge until approximately 130% of SAFMR, with broader overlap evident near 140%. These threshold values were analytically derived within the context of this case study to identify where rental housing availability within voucher limits emerged and are not presented as regulatory targets or generalized payment standard guidance.

These results indicate that substantial upward adjustment would be required for vouchers to align with prevailing single-family rent levels in this high-opportunity tract. The metropolitan FMR, even as locally increased through the AHA's payment standard, along with the published ZIP Code-level SAFMR benchmarks applicable during the study period, did not align with prevailing single-family rent levels in the absence of tract-level exception payment standards.

Critically, the modeled upward adjustment is interpreted as an access-alignment mechanism within an already higher-priced market context rather than as evidence of a policy-induced price signal, since prevailing rents exceeded metropolitan FMR and published ZIP Code–level SAFMR benchmarks prior to any simulated exception payment standard. Observed single-family rents in Puckett occur within a low-poverty, high-opportunity tract and exceed metropolitan FMR, local payment standards, and published SAFMR benchmarks, indicating that existing voucher ceilings do not align with prevailing neighborhood rent levels. In this context, the modeled adjustment permits voucher participation in an existing rent tier rather than altering rent-setting behavior or

generating additional price pressure. Accordingly, a tract-level SAFMR-based exception payment standard would permit voucher households to access rent levels already observed in the market. In this interpretation, the adjustment is framed as facilitating access to existing rent levels, consistent with prior research showing that rent responses to subsidy benchmarks vary by local market conditions and positioning relative to prevailing rents (Eriksen & Ross, 2015). This finding illustrates how voucher access is shaped by the interaction between federal payment benchmarks and localized rental market conditions within a multi-level governance structure. Accordingly, the analysis focuses on constraints on rental housing availability within voucher limits rather than changes in market rents or housing cost burden among non-voucher households. This interpretation aligns with NPG principles by indicating that payment standards operate most effectively as context-sensitive instruments, where localized discretion and empirical calibration matter more than uniform metropolitan application. Rather than functioning as a price-setting mechanism, SAFMR-based flexibility in this analysis operates as a governance tool intended to align public subsidy limits with existing private-market conditions in specific neighborhood contexts.

In Stockyards, the findings reflected a contrasting cost environment characterized by low market rents alongside elevated renter housing cost burden. Multifamily units fell below every benchmark, including the metropolitan FMR, PSUA, and SAFMR, and were already fully accessible under existing payment standards. Single-family units were modestly above the metropolitan FMR but aligned with the PSUA and SAFMR thresholds, indicating potential availability under higher modeled benchmarks. These results establish Stockyards as a contrast case, illustrating how payment standard

benchmarks can exceed neighborhood-level rent conditions without improving access to higher-opportunity housing contexts.

Rather than serving as a candidate for access expansion, Stockyards functioned analytically to demonstrate the limits of ZIP Code–level benchmarks when applied to heterogeneous neighborhood markets. The tract-MLS analysis conducted in this study showed that structure-type rent alignment differed within a defined neighborhood unit even when ZIP Code–level benchmarks appeared compliant. As a result, availability conditions that constrained HCVP households, particularly the limited availability of single-family units priced within voucher limits in the verified high-opportunity tract-MLS area, were not fully captured at the ZIP Code scale, even though they were observable when rental markets were evaluated at the neighborhood level using tract-aligned frameworks (Collinson & Ganong, 2018; Kwan, 2012).

In lower-cost neighborhoods where prevailing rents already sit below policy ceilings, higher benchmarks risk becoming price-referencing rather than availability-expanding within voucher limits, allowing subsidy levels to be capitalized into rents without meaningfully expanding housing choice or opportunity outcomes, as cautioned in prior research (Collinson & Ganong, 2018; Susin, 2002). Maintaining closer alignment between payment standards and neighborhood rent conditions may therefore help limit unintended price-referencing effects in lower-cost tracts while reinforcing the need for context-sensitive payment standards, as subsidy-related price responses vary by local market conditions and are more likely for units priced near maximum allowable rents (Eriksen & Ross, 2015).

Three interpretive conclusions are supported by the RQ3 analysis. First, tract-level SAFMR-based exception payment standards emerge as a potentially feasible and narrowly targeted approach for expanding the availability of single-family rental units within voucher payment limits in Puckett. Second, the contrasting outcomes between Puckett and Stockyards demonstrate that localized payment adjustments must respond to neighborhood-specific cost structures, reinforcing HUD's rationale for SAFMR policy rather than uniform metropolitan adjustments. Third, the findings align directly with the dissertation's problem statement by demonstrating that expanding the availability of rental units in high-opportunity neighborhoods requires payment standard flexibility that reflects localized rent conditions and structure-type differences rather than a single metropolitan ceiling.

When renter housing cost burden is considered, it provides contextual support for the RQ3 interpretation by distinguishing neighborhoods where rental housing availability is constrained by payment ceilings from those where affordability challenges persist even when rents are below program limits. In Puckett, the relatively lower renter housing cost-burden rate of approximately 37% coexists with higher rents, situating the tract within a high-opportunity market context where voucher access is constrained by payment ceilings rather than neighborhood-wide affordability stress. In Stockyards, by contrast, renter housing cost burden is substantially higher at both the tract level, approximately 43%, and the ZIP Code level, approximately 59%, despite rents that fall well below metropolitan and SAFMR benchmarks. This contrast reinforces the analytic distinction between neighborhoods where access constraints justify upward payment flexibility and those where affordability conditions cannot be addressed through rent ceiling adjustment

alone. Accordingly, Stockyards supports the study's central argument by demonstrating why SAFMR-based exception payment standards must be applied selectively rather than uniformly. The contrast between Puckett and Stockyards thus reinforces the theoretical distinction between access constraints driven by payment standard misalignment and affordability challenges rooted in broader neighborhood economic conditions, underscoring why a single policy instrument cannot be expected to produce uniform outcomes across heterogeneous spatial contexts.

These findings position SAFMR-based exception payment standards as a precision policy tool. In high-opportunity neighborhoods such as Puckett, targeted upward adjustments address empirically documented constraints on rental housing availability within voucher limits without implying changes in neighborhood rent structures. In lower-opportunity neighborhoods such as Stockyards, restraint preserves alignment between payment standards and prevailing rents and avoids reinforcing cost pressures unrelated to access into opportunity-rich environments. By confining payment flexibility to locations where access barriers are empirically observed, this differentiated application supports housing choice while limiting unnecessary expenditure, consistent with HUD's intended use of SAFMR-based flexibility. In this way, targeted adjustments are positioned to enhance the availability of rental units for HCV households in high-opportunity neighborhoods where metropolitan FMRs are insufficiently competitive. At the same time, any localized upward adjustment would require careful monitoring of contract rents near the payment ceiling, as empirical research indicates that subsidy benchmarks may influence rent-setting behavior for units positioned near maximum

allowable rents in certain market contexts (Collinson & Ganong, 2018; Eriksen & Ross, 2015; Susin, 2002).

This distinction clarifies the study's analytical contribution relative to HUD's existing regulatory framework. The findings do not suggest that HUD's use of ZIP Code–level SAFMR benchmarks is incorrect or inappropriate for program administration. Rather, the analysis demonstrates that policy evaluation conducted at the geographies required for regulatory approval may fail to detect specific availability conditions that emerge only at the neighborhood scale, particularly within heterogeneous ZIP Codes. In this study, those conditions include the absence of single-family rental units priced within voucher limits regardless of benchmark compliance at the ZIP Code level, structure-type divergence in rent alignment within the same neighborhood, and the concentration of analytically available units in multifamily stock while higher-opportunity single-family units remain priced above applicable payment ceilings. By applying a tract-MLS framework through the NOAF, the analysis reveals these localized availability constraints, conditions that are masked when rental markets are evaluated using ZIP Code–wide averages. In this way, the tract-MLS approach functions as an evaluative supplement to HUD's regulatory geography, enhancing analytical precision without proposing a replacement for established administrative units.

Study Limitations

The interpretations and conclusions presented in this chapter are subject to limitations associated with the study's design choices and defined analytic scope. Findings are limited to tract-MLS areas that satisfied the NOAF containment and alignment requirements and therefore are not intended to represent broader neighborhood

conditions within Amarillo or other metropolitan contexts. In addition, structure-type comparisons are limited to unit categories for which sufficient standardized listing data were available across the analytic window. Modeled SAFMR-based adjustments are treated as evaluative scenarios rather than observed policy implementations.

Conclusions

This study examined the alignment between neighborhood opportunity, rental market conditions, and HCV payment standards in Amarillo, Texas, using a tract-MLS analytical framework. The conclusions below summarize the study's final findings for each research question and establish the basis for the policy recommendations that follow.

RQ1 Conclusion

Among the tract-MLS areas that met containment requirements and contained HCV households, only Puckett in Randall County satisfied all high-opportunity criteria. This finding establishes that high-opportunity conditions were rare among analytically eligible neighborhoods and that voucher households were present in only one tract-MLS area meeting those criteria during the study period.

RQ2 Conclusion

Within the verified high-opportunity tract, metropolitan FMRs aligned with prevailing two-bedroom multifamily rents but did not align with two-bedroom single-family rents. As a result, voucher affordability in the high-opportunity neighborhood was structure-dependent.

RQ3 Conclusion

SAFMR-based scenario testing indicates that voucher households had no effective access to single-family rental units priced within voucher limits in the high-opportunity tract under standard metropolitan FMRs or published SAFMR benchmarks. Payment standards would need to reach approximately 130% of SAFMR before single-family units began to fall within voucher limits, with broader availability emerging near 140%. These findings demonstrate that, within the evaluated tract-MLS area, existing payment ceilings constrained housing choice by limiting voucher access to multifamily units only, and that tract-level exception payment standards would be required to make single-family housing financially reachable in a high-opportunity neighborhood.

These conclusions establish that rental housing availability within voucher limits in the verified high-opportunity tract was constrained by payment ceilings for single-family units. Prevailing single-family rents exceeded applicable voucher limits under both metropolitan FMRs and published SAFMR benchmarks, limiting availability within the HCVP. The next section translates these findings into policy recommendations supportive of HUD's regulatory framework and responsive to local implementation considerations.

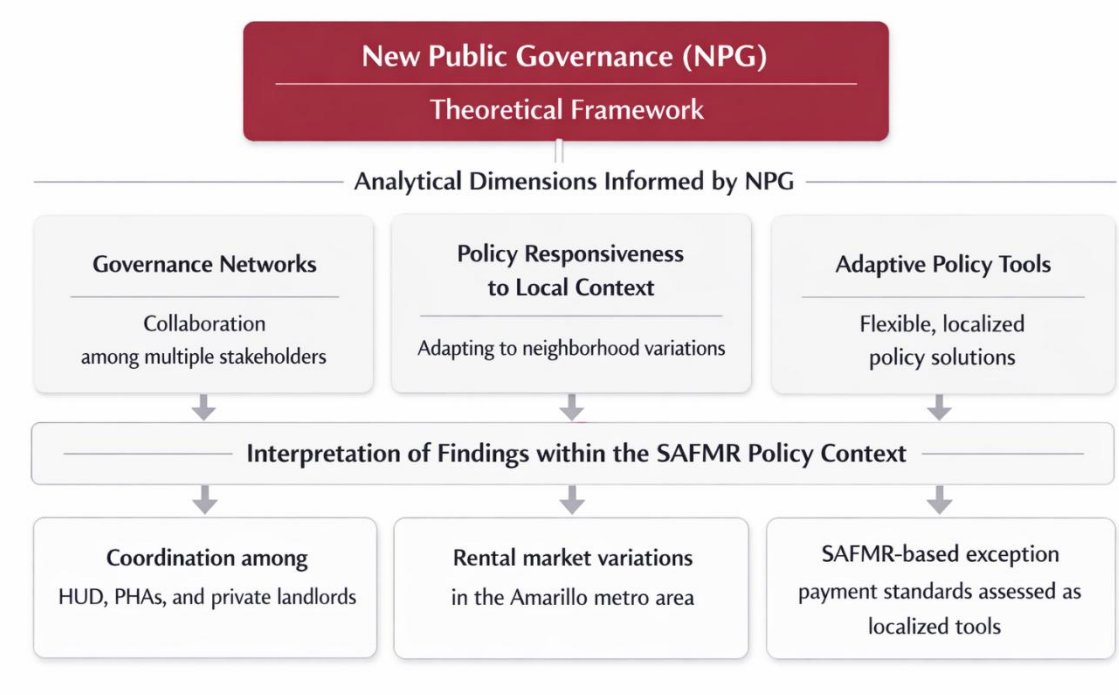
Integration with Prior Literature and Theoretical Framework

This section situates the study's empirically derived tract-MLS findings within the broader scholarly and policy contexts established in Chapter II and within the theoretical foundation guiding the analysis. The discussion interprets the study's original empirical results in relation to prior SAFMR evaluations, voucher program policy development, and governance theory. As documented in Chapter II, prior peer-reviewed SAFMR

evaluations primarily relied on census tracts or ZIP Codes as administratively defined analytic units and did not employ a formal tract–neighborhood containment verification process before conducting opportunity classification or rent alignment analysis. Nor did identified studies analytically apply SAFMR-based exception payment standards at the tract–neighborhood scale within a validated containment framework. Through the introduction and application of the NOAF, this study established a tract-MLS containment verification system that enabled opportunity attribution and rent alignment testing at a spatial resolution not previously examined in SAFMR research.

Figure 6

Framework Linking Tract-MLS Findings, SAFMR Policy, and NPG



By connecting these tract-MLS findings, rent alignment results, and SAFMR-based scenario modeling to the evolution of Section 8 policy and the principles of NPG, the study clarifies how its conclusions extend, refine, and operationalize existing knowledge while contributing new empirical evidence at that same spatial scale. The

relationships among the study's empirical findings, methodological contribution, and theoretical interpretation are summarized in Figure 6.

Alignment with the Evolution of Section 8 and SAFMR Policy

The findings of this study are situated within the broader evolution of the HCVP and the policy refinements that have shaped its administration over time. The transition from project-based assistance to tenant-based vouchers was intended to expand residential choice and reduce the concentration of low-income households in distressed neighborhoods. Metropolitan-wide FMRs were designed to balance cost control with access; however, subsequent scholarship and policy evaluations have demonstrated that uniform metropolitan benchmarks can obscure meaningful rent variation within metropolitan areas. In the Amarillo HUD Metro FMR Area, a single metropolitan FMR applies across both Potter and Randall Counties, although there are measurable differences in rental market conditions between the two counties.

The development of SAFMRs reflected recognition that metropolitan FMRs may inadequately represent localized market conditions. Prior SAFMR demonstration studies have evaluated the effects of ZIP Code–level rent benchmarks on voucher holder location and neighborhood opportunity outcomes. This study extends that line of inquiry by examining the feasibility of SAFMR-based exception payment standards as a targeted adjustment mechanism rather than evaluating system-wide SAFMR implementation. The results showed that applying a single metropolitan FMR across Potter and Randall Counties produced structure-specific access constraints in higher-rent, higher-opportunity neighborhoods of Randall County, where prevailing single-family rents exceed metropolitan payment ceilings. In this respect, the findings are consistent with the policy

rationale underlying SAFMR development: improving alignment between payment ceilings and localized rental markets without abandoning cost oversight. Rather than challenging the metropolitan framework itself, this study isolates SAFMR-based exception payment standards as a narrower, incremental instrument capable of addressing localized misalignment within the existing regulatory structure.

Methodological Contribution Relative to Prior SAFMR Evaluations

The peer-reviewed SAFMR evaluations reviewed in Chapter II have relied on census tracts or ZIP Codes as administratively defined analytic units, often assessing outcomes at the metropolitan or ZIP Code scale using administrative relocation data. These studies relied on administratively defined geographies as primary analytic units without formal containment validation of neighborhood market congruence. In contrast, this study introduced and applied the NOAF as a formal containment-validation system prior to opportunity classification and rent alignment analysis. Through the sequential application of Pre–RUE and RUE protocols, the NOAF verified residential-use containment and HCV household adjacency before tract-level indicators were attributed to MLS-defined neighborhood proxies.

By operationalizing NOAF before any opportunity scoring or rent comparison occurred, the study treated spatial congruence as a methodological prerequisite rather than an assumed condition. This directly addressed concerns associated with the MAUP by preventing aggregation across heterogeneous spatial units prior to classification. The framework also revealed how ZIP Code–level aggregation can mask structure-type divergence within heterogeneous ZIP Codes, particularly where multifamily units priced within voucher limits coexist alongside single-family units priced above all applicable

thresholds. By preserving tract-level opportunity attribution under NOAF before translating findings to ZIP Code geography for SAFMR-based modeling, the study strengthened internal spatial validity and reduced the risk of misclassification.

In this respect, the study extends prior SAFMR methodology by introducing a formal tract–neighborhood containment verification framework that enhances spatial precision before policy simulation is undertaken. Rather than accepting census tracts or ZIP Codes as analytically sufficient, the NOAF constructs a validated bridge between neighborhood-level opportunity assessment and ZIP Code–level regulatory compliance.

Governance Interpretation Through NPG

Anchored in NPG principles, this study conceptualizes payment standards as adaptive governance instruments rather than static fiscal thresholds. NPG emphasizes collaborative networks, contextual responsiveness, and decentralized problem-solving within overarching regulatory frameworks. The evidence presented in this study indicates that uniform metropolitan payment standards may insufficiently account for localized rental variation across heterogeneous submarkets within the Amarillo metropolitan area.

SAFMR-based exception payment standards represent a governance mechanism that preserves federal oversight while allowing localized calibration. By enabling targeted adjustment within defined geographies, exception standards align with NPG's emphasis on policy flexibility within multi-level governance systems. The study's findings demonstrate that such localized calibration may improve alignment between voucher ceilings and actual market rents in higher-opportunity neighborhoods without necessitating full system conversion to SAFMRs.

Viewed through this theoretical lens, the results support the proposition that adaptive, spatially responsive policy instruments can enhance the effectiveness of federally structured programs administered at the local level. Rather than reframing the voucher program's core design, SAFMR-based exception payment standards operate as a context-sensitive refinement consistent with collaborative governance principles and localized market realities.

Recommendations

The findings of this study support a focused set of methodological extensions related to spatial containment, policy-scale representation, and post-alignment interpretation under SAFMR-based scenarios. These extensions retain the study's analytic logic while expanding how robustness and policy relevance can be evaluated.

First, the NOAF can be extended by applying tiered residential containment classifications rather than a single full-containment threshold. Applying the analysis across graduated levels of tract-MLS overlap permits inclusion of additional analytically valid units. This graded approach in turn allows direct evaluation of the sensitivity of availability conclusions to spatial strictness.

Second, tract-MLS availability results can be translated to HUD's SAFMR benchmark geography using RES_RATIO-weighted ZIP Code alignment. Comparing each tract's availability percentage to its RES_RATIO share within the ZIP supports regulatory interpretation while keeping the tract-MLS unit of analysis analytically central.

These extensions build on the study's neighborhood-scale rental availability analysis by expanding the analytic sample to include additional tract-MLS units in

support of a broader, policy-relevant body of evidence for SAFMR-based evaluation within controlled containment parameters. As spatial relationships become more complex, preserving tract-MLS high-opportunity indicators remains essential to maintaining policy-relevant interpretation. Through controlled containment tiering and proportional ZIP Code alignment, additional tract-MLS units can be incorporated while retaining indicator structure and neighborhood attribution. In this way, the recommendations demonstrate how an expanded, indicator-consistent set of rental availability evidence can inform SAFMR-based evaluation and exception payment standard consideration without sacrificing neighborhood-level analytic discipline.

These findings indicate that rental housing availability within voucher payment limits in high-opportunity neighborhoods is contingent on alignment between payment standards and localized, neighborhood-level rent structures. This study addresses a gap in the literature by evaluating this alignment at the tract-MLS level, where tract-MLS areas function as neighborhood-scale proxies for opportunity conditions, and by identifying how structure-type variation (e.g., multifamily versus single-family) influences both the availability of units within voucher payment limits and the payment thresholds at which they first become accessible in high-opportunity contexts. Because this approach operationalizes a method for identifying neighborhood-level availability in relation to specific payment thresholds, future research could apply the same tract-MLS framework in other housing markets, including larger Texas metros such as Houston or Dallas, where differences in metropolitan scale and rental market structure may affect how payment thresholds correspond to neighborhood-level rent structures. The method could also be applied in states such as California, Illinois, or New York, where housing markets

operate within different institutional and regulatory environments that may shape how payment standards interact with localized rent structures and landlord participation. These considerations reinforce the importance of evaluating rental housing availability within voucher payment limits at the neighborhood level, in relation to high-opportunity outcomes, where tract-MLS areas serve as analytically coherent neighborhood proxies.

Overall Conclusion

The findings of this study indicate that the availability of rental housing within voucher payment limits depends on alignment between payment standards and localized, neighborhood-level rental market conditions within defined tract-MLS contexts. In contrast, NPM's emphasis on uniform administrative efficiency is not supported by the findings, as a single metropolitan payment standard did not align with heterogeneous rental market conditions identified in RQ2 and observed in the spatial distribution of HCV households in RQ1. Similarly, while NPS provides an appropriate framework for understanding the public purpose of expanding access to high-opportunity neighborhoods through its emphasis on public interest, community engagement, and responsiveness to citizen needs, the findings in this study operate primarily at the level of policy instrument design and market alignment. The NOAF and GATE frameworks operationalize this analysis by enabling spatial classification and policy–market alignment at the neighborhood level, thereby allowing SAFMR-based exception payment standards to be evaluated as localized policy tools within defined tract-MLS contexts, functions that extend beyond the normative and participatory focus of NPS. These findings are more effectively interpreted through NPG, which explains how coordination across policy instruments, local housing authorities, and private rental markets, combined with flexible,

context-sensitive mechanisms, allows payment standards to be calibrated to structure-specific and neighborhood-level rent variation. As demonstrated in RQ3, SAFMR-based exception payment standards provide a mechanism through which this calibration can occur within a multi-level governance system, enabling alignment with localized neighborhood-level market conditions. In this way, NPG provides the most appropriate framework for understanding how rental housing availability within voucher payment limits can be expanded in heterogeneous housing markets, as its emphasis on coordination and context-sensitive policy calibration supports alignment between payment standards and dynamic local market conditions.

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Appendix A:

Institutional Review Board Protocol Exemption Report

Institutional Review Board (IRB)
For the Protection of Human Research Participants

PROTOCOL EXEMPTION REPORT

Protocol Number: 04311-2022 **Responsible Researcher(s):** Cara King

Supervising Faculty: Dr. Bonnie Peterson

Project Title: *Disproportionate Housing Opportunities: Study of HUD Housing Choice Voucher Program within the City Limits of Amarillo, TX.*

INSTITUTIONAL REVIEW BOARD DETERMINATION:

This research protocol is **exempt** from Institutional Review Board (IRB) oversight under 45 CFR 46.101(b) of the federal regulations **category 4**. If the nature of the research changes such that exemption criteria no longer apply, please consult with the IRB Administrator (irb@valdosta.edu) before continuing your research study.

ADDITIONAL COMMENTS:

- *Upon completion of the research study, all collected data must be securely maintained and accessible only by the researcher(s) for a minimum of 3 years. At the end of the required time, collected data must be permanently destroyed.*

☒ ***If this box is checked, please submit any documents you revise to the IRB Administrator at irb@valdosta.edu to ensure an updated record of your exemption.***

Elizabeth Ann Olphie *07.05.2022*
Elizabeth Ann Olphie, IRB Administrator

Thank you for submitting an IRB application.
Please direct questions to irb@valdosta.edu or 229-253-2947.

Revised: 06.02.16

Appendix B:

HCV Household Counts and Utilization by Census Tract

HCV Household Counts and Utilization by Census Tract

Appendix B presents the HUD–reported HCV household counts and utilization rates by census tract for Potter and Randall Counties. The utilization metric represents the share of renter-occupied housing units with HCV assistance, as published by HUD (HCV_PUBLIC_PCT). These data establish the baseline distribution of voucher households within Potter and Randall Counties. Table B1 reports the census tract–level HCV household counts and utilization rates for Potter County.

Table B1

HCV Household Count and Utilization by Census Tract in Potter County

Census Tract	HCV Count	HCV of Renter-Occupied Units (%)
011700	186	9.79
013900	170	28.76
015300	169	17.05
015000	168	15.82
011900	106	15.45
013300	105	24.65
010300	86	16.17
010600	75	21.61
011500	68	8.40
013000	66	22.30
014100	64	21.12
012800	58	9.46
014701	57	6.75
011600	49	5.47
014800	49	14.50
012000	48	10.88
012600	48	11.14
010100	43	8.01
014500	34	4.64
012200	29	5.29
014900	25	3.86
010700	24	6.63
015400	21	5.08
011000	21	5.21
010400	19	3.93
011800	19	2.81
013200	19	8.41
014702	17	3.99
015200	12	3.80

Note. Data from HUD (2024a), Housing Choice Vouchers by Census Tract (2020 boundaries; updated May 7, 2024). Percentages reflect the HCV_PUBLIC_PCT field (HCV households as a share of renter-occupied housing units). The aggregated total of all tract counts equals 1,855 HCV households for Potter County, which serves as the denominator for the "Share of HCV Households (%)" calculation in Table 13. Minor discrepancies may occur due to HUD rounding conventions.

Table B2 reports the census tract–level HCV household counts and utilization rates for Randall County.

Table B2

HCV Household Count and Utilization by Census Tract in Randall County

Census Tract	HCV Count	HCV of Renter-Occupied Units (%)
021102	142	11.63
020800	50	6.68
020500	49	6.43
020200	48	9.74
021200	40	5.31
020300	37	6.65
021610	33	5.96
020900	33	6.55
021602	28	3.33
021300	28	3.21
021101	24	4.07
021900	23	5.39
022002	16	2.03

Note. Data from HUD (2024a), Housing Choice Vouchers by Census Tract (2020 boundaries; updated May 7, 2024). Percentages reflect the HCV_PUBLIC_PCT field (HCV households as a share of renter-occupied housing units). The aggregated total of all tract counts equals 551 HCV households for Randall County. Tract 021900 (23 HCV households) is included in this HUD total but excluded from spatial analysis because it falls outside the Amarillo city limits. Minor discrepancies may occur due to HUD rounding conventions.

Appendix C:

Pre-RUE and RUE Protocol Summary — Potter and Randall Counties

Pre-RUE and RUE Protocol Summary — Potter and Randall Counties

This appendix presents the tract-level containment tables and outcomes from the application of the Pre-RUE and RUE protocols used in the NOAF. The analytic sequence applied in this study is reflected below:

(1) Pre-RUE diagnostic classification → (2) Pre-RUE full containment tables → (3) RUE protocol results

Pre-RUE Diagnostic Classification

The Pre-RUE diagnostic stage identifies all tract-MLS area relationships prior to exclusion protocols, serving as the foundation for determining which areas advance to full containment status. Table C1 summarizes the Pre-RUE diagnostic classification outcomes for census tracts in Potter County, identifying the tract-MLS relationships and corresponding NOAF diagnostic codes used to determine advancement to subsequent containment evaluation.

Table C1

Potter County Pre-RUE Diagnostic Classification Summary

Census Tract	MLS Area(s) Involved	Diagnostic Code
010100	Belmar (0204)	F2
010300	Lawrence Park (0202)	P1
010400	Wolflin (0201)	F2
010600	Ross Post Office (0400)	P1
010700	Lawndale (0401), Ross Post Office (0400)	F2
011000	Fairgrounds (0301)	F2
011500	Bivins (0101)	F2
011600	Country Club/Avondale (0105), Sunset/Westlawn (0103)	P1
011700	Ridgeview Medical Center (0107), Owners (0106), Puckett West (0205), Quail Creek (0113)	O1
011800	Country Club/Avondale (0105), West Hills (0112)	P1
011900	Sunset/Westlawn (0103), San Jacinto (0111)	P1

012000	Wild Horse Lake (0110), North Heights (0120)	P1
012200	Stockyards (0310), Fairgrounds (0301)	F2
012600	North Amarillo (0321), Eastridge (0322)	P1
012800	Martin Road (0320)	P1
013000	Broadway (0131), Thompson Park (0130), North Heights (0120)	P1
013200	West Hills (0112)	P1
013300	Tascocita (1039), Cliffside (1125), The Woodlands (0133), Tascosa/La Paloma (0122), Westcliff (0123), Quail Creek (0113)	O1
013900	Hamlet (0330)	P1
014100	North Loop Village (3105), Mesa Verde (0331), Park Terrace (0332)	O1
014500	Sunrise (0302), Oakdale (0402)	P1
014701	Plemons (0100), Santa Fe Station (0300)	P1
014702	Oliver Eakle/AC (0200), Ross Post Office (0400)	P1
014800	North Heights (0120), Wild Horse Lake (0110)	P1
014900	Eastridge (0322), Park Terrace (0332), Big Texan North (0303), Sunrise (0302)	P1
015000	Hamlet (0330), Martin Road (0320)	P1
015200	Pleasant Valley West (0140), Thompson Park (0130), Pleasant Valley East (0340)	P1
015300	Forest (0132), San Jacinto (0111)	P1
015400	Santa Fe Station (0300), Plemons (0100), Bivins (0101)	P1

Note. Diagnostic Codes reflect NOAF taxonomy (F0, F2, F3 = Full; P1 = Partial; O1 = Out of Scope). See NOAF Guidebook located in Appendix N for complete code definitions. NOAF Worksheets (Pre-RUE) for Potter County located in Appendix L.

Table C2 summarizes the Pre-RUE diagnostic classification outcomes for census tracts in Randall County, identifying the tract-MLS relationships and corresponding

NOAF diagnostic codes used to determine advancement to subsequent containment evaluation.

Table C2

Randall County Pre-RUE Diagnostic Classification Summary

Census Tract	MLS Area(s) Involved	Diagnostic Code
020200	Olsen (0203)	F2
020500	Gables (0412), Oliver Eakle/AC (0200)	P1
020800	Southlawn South (0421), Southlawn North (0411), Tradewind Square (0422)	P1
020900	Southlawn North (0411), South Georgia (0420)	P1
021101	Paramount Mays (0210)	P1
021102	Paramount Mays (0210)	P1
021200	Ridgecrest (0211), Western Plateau (0220)	P1
021300	Western Plateau (0220)	P1
021602	Puckett (0212)	F0
021610	Westover (0240), Hollywood/Scotsman (0430)	F3
022002	Oakdale (0402), Tradewinds (0413), Windmill Acres (0414), Merrida/Crestview (4038), Tradewind Square (0422), Gables (0412)	O1

Note. Diagnostic Codes reflect NOAF taxonomy (F0, F2, F3 = Full; P1 = Partial; O1 = Out of Scope). See NOAF Guidebook located in Appendix N for complete code definitions. NOAF Worksheets (Pre-RUE) for Randall County located in Appendix L.

Pre-RUE Full Containment

The Pre-RUE full containment stage identifies MLS areas fully contained within individual census tracts prior to the application of the RUE. These represent the initial analytic universe for opportunity indicator assessment and rental market analysis. Tables C3 and C4 report the Pre-RUE full containment tract-MLS finalists for Potter and Randall Counties, respectively, along with the corresponding HCV household counts and

renter-occupied saturation rates used to establish the initial analytic universe for subsequent opportunity indicator and rental market analyses.

Table C3

Potter County Pre-RUE Full Containment Finalists and Saturation Rates

Census Tract	MLS Area / Code	HCV Households	HCV of Renter-Occupied Units (%)
010100	Belmar (0204)	43	8.01
010400	Wolflin (0201)	19	3.93
010700	Lawndale (0401)	24	6.63
011000	Fairgrounds (0301)	21	5.21
011500	Bivins (0101)	68	8.40
012200	Stockyards (0310)	29	5.29

Note. Corresponding household counts and saturation percentages can be found in Table B1.

Table C4

Randall County Pre-RUE Full Containment Finalists and Saturation Rates

Census Tract	MLS Area / Code	HCV Households	HCV of Renter-Occupied Units (%)
020200	Olsen (0203)	48	9.74
021602	Puckett (0212)	28	3.33
021610	Westover (0240)	33	5.96

Note. Corresponding household counts and saturation percentages can be found in Table B2.

RUE Protocol Results

The RUE protocol was applied following the full containment classification to systematically exclude tract-MLS areas that did not meet the study's residential-use criteria. The remaining fully contained tract-MLS areas are those carried forward into opportunity indicator analysis (RQ1) and rental market comparison (RQ2). Tables C5 and

C6 report the RUE protocol outcomes for the fully contained tract-MLS areas in Potter and Randall Counties, respectively, identifying which areas retained full containment status and therefore advanced to opportunity indicator assessment under RQ1.

Table C5

Potter County Fully Contained Tract-MLS Area RUE Protocol Results

Census Tract	MLS Area	Diagnostic Code
010100	Belmar (0204)	P0
010400	Wolflin (0201)	P0
010700	Lawndale (0401)	P0
011000	Fairgrounds (0301)	F2
011500	Bivins (0101)	F2
012200	Stockyards (0310)	F2

Note. Diagnostic Code P0 = partial containment, F2 = full containment. NOAF Worksheets (RUE) for Potter County located in Appendix M. NOAF Guidebook located in Appendix N.

Table C6

Randall County Fully Contained Tract-MLS Area RUE Protocol Results

Tract	MLS Area	Diagnostic Code
020200	Olsen (0203)	P0
021602	Puckett (0212)	F0
021610	Westover (0240)	P0

Note. Diagnostic Code P0 = partial containment, F0 = full containment. Worksheets (RUE) for Randall County located in Appendix M. NOAF Guidebook located in Appendix N.

Only tract-MLS areas retaining an F-code after RUE application advanced to opportunity indicator assessment under RQ1.

Appendix D:

Spatial Mapping of Census Tracts, MLS Areas, and Associated Schools

Spatial Mapping of Census Tracts, MLS Areas, and Associated Schools

This appendix documents the spatial framework, georeferencing procedure, and containment classification process described in Chapter III. The procedure began with importing the original 2021 MLS Area Map (PDF) into QGIS. This map displays MLS area numbers without leading zeros (unlike the MLS platform, which includes them); therefore, this study standardized the identifiers to leading zeros to maintain consistency across data sources. A georeferenced raster layer was created by assigning control points to match identifiable map features with their corresponding locations in the coordinate reference system used for the 2020 U.S. Census Bureau TIGER/Line census tract shapefiles. This step ensured the spatial accuracy of subsequent overlays and analyses. These overlays provide the spatial basis for assigning school performance indicators to tract-MLS areas under Gate B.

After generating the georeferenced raster, the MLS areas were aligned with the census tract boundaries to verify containment classifications. Residential perimeter points around each MLS area were identified and geocoded to enhance spatial precision. These perimeter points were then cross-referenced with the AISD school locator system to identify the elementary, middle, and high schools serving each fully contained tract-MLS area.

The resulting overlays depict how school attendance zones align with tract-MLS area boundaries used in this analysis. Figures D1–D4 display the spatial relationships for each tract-MLS area included in the study's final analytic set.

Figure D1

School Attendance Boundary Mapping for Tract 011000 / *MLS Area Fairgrounds (0301)*

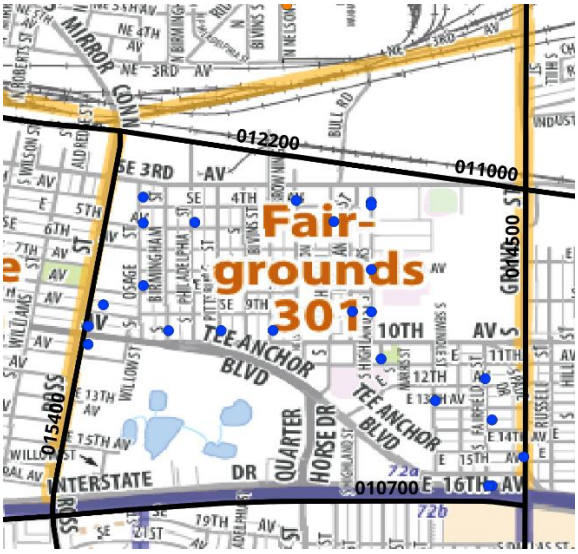

Figure D2

School Attendance Boundary Mapping for Tract 011500 / MLS Area Bivins (0101)

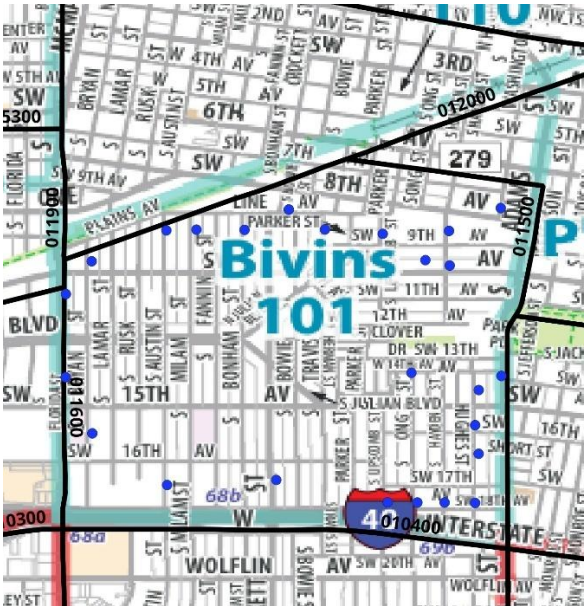

Figure D3

School Attendance Boundary Mapping for Tract 012200 / MLS Area Stockyards (0310)

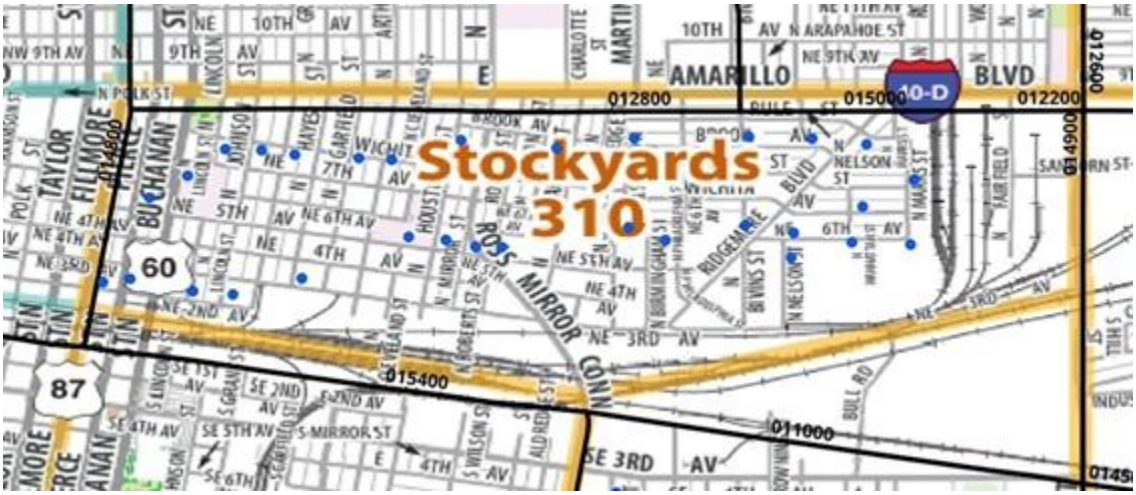

Figure D4

School Attendance Boundary Mapping for Tract 021602 / MLS Area Puckett (0212)

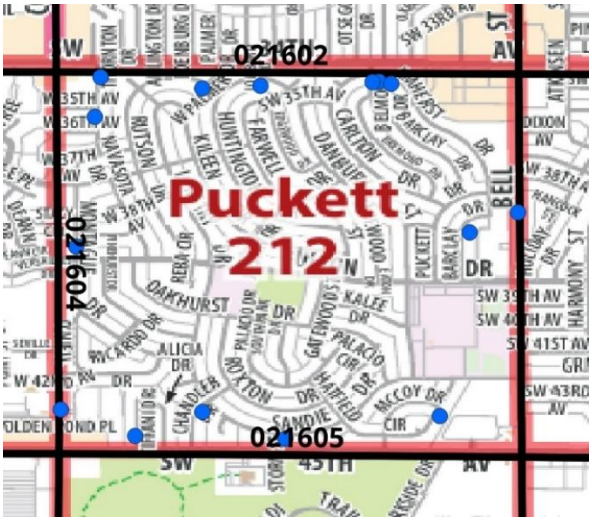

Figure D5 reproduces the email response confirming that no attendance boundary changes occurred during the relevant period of analysis.

Figure D5

Email Response Confirming No Attendance Boundary Changes (October 21, 2025)

Outlook

Re: [External Email] Public Information Request or Open Records Request

From Kevin Phillips <kevin.phillips@amaisd.org>
Date Tue 10/21/2025 4:01 PM
To Cara M King <carking@valdosta.edu>; Public Information <publicinformation@amaisd.org>; Kimberly Jones <kimberly.jones@amaisd.org>; Kevin Phillips <kevin.phillips@amaisd.org>

Delivered From External Sender

Cara-

There were no boundary line changes between 2018-2022 for the schools mentioned in your public information request dated 10/16/2025. Therefore, we have no responsive documents to your request.

Thank you,

Kevin L. Phillips
Deputy Superintendent
Amarillo Independent School District
kevin.phillips@amaisd.org
806.326.1123

Appendix E:

Gate A: Poverty (Economic Context)

Gate A: Poverty (Economic Context)

Gate A establishes the starting condition for neighborhood opportunity using poverty rates. Each tract-MLS area is classified as low, moderate, or high poverty using fixed thresholds for total and child poverty:

- Value 1 – High poverty (≥0.2500)
- Value 2 – Moderate poverty (0.1500–0.2499)
- Value 3 – Low poverty (<0.1500)

Data is sourced from the ACS 2018–2022 for total population and child poverty rates in census tracts and MLS areas. Table reports the tract-level poverty rates and corresponding classification tiers used in the Gate A economic assessment.

Table E1

Tract-Level Poverty Rates and Gate A Classification

Census Tract	TotalPop_PovRate	Child_PovRate_5_17	Poverty_Class	ChildPov_Class
011000	0.1995	0.2249	2	2
011500	0.1450	0.1232	3	3
012200	0.2499	0.2937	2	1
021602	0.0644	0.0579	3	3

Note. Poverty rates are expressed as proportions to four decimal places. Poverty_Class and ChildPov_Class correspond to the three-tier classification described above.

A tract-MLS area receives a Pass when both total- and child-poverty tiers are classified as Low Poverty (3). This dual requirement prevents a favorable adult measure from masking child poverty. It establishes the study's economic baseline against which educational and safety contexts are interpreted. This classification framework permits evaluating economic context by distinctly categorizing neighborhoods as high, moderate, or low poverty, providing a clear baseline for correlating with subsequent school

performance analyses. Of particular note, the total population poverty rate for census Tract 012200, measured at 0.2499, falls just below the high-poverty threshold of 0.2500.

Appendix F:

Gate B: School Performance (Educational Context)

Gate B: School Performance (Educational Context)

Neighborhood-level educational opportunity was evaluated using the TEA TAPRs for 2018 through 2022. Campus-level outcomes for the STAAR performance, CCMR, four-year graduation rates, and annual academic growth were entered for each public school zoned to serve any portion of the tract-MLS area and then linked using verified attendance zone assignments. School performance was attributed to MLS areas only when Full Containment was confirmed through the tract-MLS translation procedures established within the NOAF in Chapter III. For each year, averages for each tract-MLS area were compared with AISD benchmarks to determine whether neighborhood performance met or exceeded district levels.

To reduce year-to-year variation, results were pooled across the five-year period to calculate the proportion of years in which each tract-MLS area met AISD benchmarks. The lower pooled proportion between the All Students and Economically Disadvantaged students was then applied as an equity screen, ensuring that final Gate B classifications reflected both overall and subgroup achievement.

Data Sources and Indicators

The data underlying Gate B were drawn from TEA's public reports and AISD district averages for 2018–2022. Indicators correspond to TEA's Accountability Framework:

Student Achievement

- K–8 campuses: STAAR Meets Grade Level or Above (All Grades, All Subjects).
- High schools: Mean of STAAR Meets Grade Level or Above, CCMR, and Four-Year Graduation Rate.

School Progress

- Annual Academic Growth (All Grades, Both Subjects), entered as School Progress in SPSS.

AISD's annual district averages served as year-level benchmarks. After tract-MLS records were linked to their corresponding years, each value was compared against the appropriate AISD benchmark to evaluate whether the tract-MLS area met the district standard.

Step 1 – Year-Level Comparisons (All Students)

Each tract-MLS area was assigned a year-specific Student Achievement (SA) value and, where available, a School Progress (SP) value. These values were drawn from serving-school performance records in SPSS and aligned with the correct calendar year. The AISD benchmarks were built separately by year and merged to the tract-MLS dataset before final comparison. Each tract-MLS area received a flag of 1 if its annual mean met or exceeded the AISD benchmark and 0 if it fell below the benchmark. These year-level comparisons formed the basis for pooled proportions in the next step of the analysis (see Table F1).

Table F1

Year-Level Benchmark Comparisons (All Students)

Row	MLS	School Year	Student Achievement (SA)	AISD SA Benchmark	SA Flag	School Progress (SP)	AISD SP Benchmark	SP Flag
1	0101	2018	.5635	.5425	1	.6500	.6900	0
2	0212	2018	.6731	.5425	1	.7100	.6900	1
3	0301	2018	.5052	.5425	0	.6780	.6900	0
4	0310	2018	.4408	.5425	0	.6400	.6900	0
5	0101	2019	.5977	.5423	1	.6566	.6800	0
6	0212	2019	.6750	.5423	1	.7025	.6800	1
7	0301	2019	.4886	.5423	0	.6280	.6800	0
8	0310	2019	.4745	.5423	0	.6375	.6800	0
9	0101	2020	.8395	.8185	1	----	----	----
10	0212	2020	.8820	.8185	1	----	----	----
11	0301	2020	.8600	.8185	1	----	----	----

12	0310	2020	.8185	.8185	1	----	----	----
13	0101	2021	.5300	.4924	1	----	----	----
14	0212	2021	.6107	.4924	1	----	----	----
15	0301	2021	.3881	.4924	0	----	----	----
16	0310	2021	.4447	.4924	0	----	----	----
17	0101	2022	.5501	.5294	1	.6633	.7100	0
18	0212	2022	.6593	.5294	1	.7150	.7100	1
19	0301	2022	.4354	.5294	0	.6680	.7100	0
20	0310	2022	.4927	.5294	0	.6575	.7100	0
Total N	20	20	20	20	20	12	12	12

Note. Flags = 1 if tract-MLS ≥ AISD benchmark; 0 otherwise. "----" indicates years without reportable data. SA = Student Achievement; SP = School Progress.

Step 2 – Pooling Across Years (All Students)

The annual benchmark flags generated in Table F1 served as the inputs for pooling. Each year was coded as either 1 (met AISD benchmark) or 0 (did not meet), and these binary values were then summed and divided by the total number of valid years. This procedure generated the pooled proportions shown in Table F2, representing the consistency of benchmark attainment over the five-year period.

Five-year pooled proportions summarize how consistently each tract-MLS area met AISD benchmarks for the Student Achievement and School Progress domains. This step moved the analysis beyond single-year results by assessing whether benchmark attainment was sustained over time (see Table F2). The _Prop values represent tract-level outcomes derived from the combined values of all serving schools attributed to each tract-MLS area, indicating the proportion of valid years in which each area met or exceeded the AISD benchmark.

Table F2

Pooled Student Achievement and School Progress Proportions (All Students)

MLS Code	MLS Name	StudentAchievement_ Prop	SchoolProgress Prop	N_Years
0101	Bivins	1.0000	0.0000	5
0212	Puckett	1.0000	1.0000	5
0301	Fairgrounds	0.2000	0.0000	5
0310	Stockyards	0.2000	0.0000	5

Note. Values represent the proportion of years (2018–2022) in which each tract-MLS met or exceeded AISD (All Students) benchmarks for Student Achievement and School Progress domains. For example, a value of 1.0000 indicates that the benchmark was met in all five years, whereas a value of 0.2000 indicates that the benchmark was met once out of five possible years.

Step 3 – Year-Level and Pooled Results (Economically Disadvantaged)

The Economically Disadvantaged subgroup was processed using the same methodology but benchmarked against AISD subgroup averages (see Tables F3 and F4). Year-level comparisons for this subgroup followed the identical procedure used for Table F1, with SPSS applying binary comparisons to determine whether tract-MLS values met or exceeded the AISD subgroup benchmark for each year. Table F4 presents the pooled proportions by averaging these year-level flags, creating a tract-level indicator of consistency across all five years.

Table F3

Year-Level Benchmark Comparisons (Economically Disadvantaged)

Row	MLS	School Year	Student Achievement (SA)	AISD SA (year) Benchmark	SA Flag	School Progress (SP)	AISD SP (year) Benchmark	SP Flag
1	0101	2018	.4917	.4677	1	.6166	.6800	0

2	0212	2018	.6240	.4677	1	.6375	.6800	0
3	0301	2018	.4932	.4677	1	.6720	.6800	0
4	0310	2018	.4367	.4677	0	.6400	.6800	0
5	0101	2019	.5247	.4767	1	.6200	.6500	0
6	0212	2019	.5257	.4767	1	.6350	.6500	0
7	0301	2019	.4813	.4767	1	.6280	.6500	0
8	0310	2019	.4642	.4767	0	.6375	.6500	0
9	0101	2020	.7775	.7735	1	----	----	----
10	0212	2020	.7760	.7735	1	----	----	----
11	0301	2020	.8605	.7735	1	----	----	----
12	0310	2020	.8070	.7735	1	----	----	----
13	0101	2021	.4337	.4185	1	----	----	----
14	0212	2021	.4363	.4185	1	----	----	----
15	0301	2021	.3784	.4185	0	----	----	----
16	0310	2021	.4380	.4185	1	----	----	----
17	0101	2022	.4773	.4565	1	.6433	.6900	0
18	0212	2022	.4659	.4565	1	.6550	.6900	0
19	0301	2022	.4206	.4565	0	.6620	.6900	0
20	0310	2022	.4883	.4565	1	.6575	.6900	0
Total N	20	20	20	20	20	12	12	12

Note. Flags = 1 if tract-MLS ≥ AISD subgroup benchmark; 0 otherwise. "----" indicates years without reportable data. SA = Student Achievement; SP = School Progress. The structure of Table F3 is identical to Table F1.

Table F4

Pooled Student Achievement and School Progress (Economically Disadvantaged)

MLS Code	MLS Area	StudentAchievement_ Prop_Econ	SchoolProgress_ Prop_Econ	N_Years
0101	Bivins	1.0000	0.0000	5
0212	Puckett	1.0000	0.0000	5
0301	Fairgrounds	0.6000	0.0000	5
0310	Stockyards	0.6000	0.0000	5

Note. Values represent the proportion of years (2018–2022) in which each tract-MLS met or exceeded AISD benchmarks for Economically Disadvantaged students. A value of

1.0000 indicates attainment in all valid years, while a value such as 0.6000 reflects benchmark attainment in three out of five valid years. The structure of Table F4 is identical to Table F2.

Step 4 – Equity Screen and Subgroup Alignment

To assess whether performance extended to economically disadvantaged students, pooled proportions for All Students and Economically Disadvantaged were examined side by side for each domain (see Table F5). Values in Table F5 were drawn from the pooled results reported separately in Tables F2 and F4, allowing direct comparison of overall outcomes and equity context. This step applied the equity screen required under Gate B, examining whether subgroup outcomes aligned with overall performance across student populations. Gate B classifications reported in Chapter IV are based on the pooled All Students proportions for Student Achievement and School Progress, with Economically Disadvantaged results serving as the equity comparison to test whether performance was consistently shared across students.

Table F5

Final Pooled Proportions - All Students and Economically Disadvantaged

MLS Code	MLS Area	SA_Prop	SP_Prop	SA_Prop_Econ	SP_ Prop_Econ	N_Years
0101	Bivins	1.0000	0.0000	1.0000	0.0000	5
0212	Puckett	1.0000	1.0000	1.0000	0.0000	5
0301	Fairgrounds	0.2000	0.0000	0.6000	0.0000	5
0310	Stockyards	0.2000	0.0000	0.6000	0.0000	5

Note. Proportions reflect the share of years (2018–2022) in which tract-MLS areas met or exceeded AISD benchmarks for All Students and Economically Disadvantaged (ED) students. SA = Student Achievement; SP = School Progress. Gate B classifications rely on the pooled All Students proportions, with ED results providing equity context.

The ED assessment was conducted to determine whether academic gains extended beyond the aggregate and were shared across income groups. Results for Economically Disadvantaged students served as an equity screen, allowing assessment of distribution without altering pass status. Lower subgroup outcomes did not override benchmark attainment for All Students when both domains met AISD standards, consistent with the Gate B structure that identifies academic opportunity while maintaining alignment with equity considerations.

Appendix G:

Gate C: Crime (Safety Context)

Gate C: Crime (Safety Context)

Overview

This appendix documents the operationalization of Gate C, which evaluates neighborhood safety conditions using both violent and property crime indicators. Data were provided by the APD for calendar years 2018–2022 and represent offense counts summarized by tract and year after geocoding to 2020 Census tract GEOIDs.

Offense rates were calculated as pooled totals per 1,000 residents using population denominators from the ACS 2018–2022 5-year estimates. Five-year pooling was applied to stabilize tract-level rates, reduce year-to-year variation, and minimize the effects of COVID-19–related reporting anomalies and the 2020 Records Management System (RMS) transition. APD noted a minor mapping discrepancy of approximately 2% related to the RMS change in early 2020 and subsequent manual data cleaning beginning in 2021. Pooling offense counts across the 2018–2022 period mitigates the influence of this discrepancy and other short-term reporting irregularities, including potential COVID-19–related effects in 2020.

Rationale for Equal Weighting

Gate C follows the same structural logic as Gates A (poverty) and B (school performance) by assigning equal weighting across its component indicators. Although violent crime typically exerts stronger influence on residential perceptions and household mobility decisions, both violent and property offenses shape neighborhood stability and perceived safety. Equal weighting maintains structural symmetry across gates and avoids introducing differential weights not supported by tract-level empirical testing within this study. This approach maintains structural consistency across the gate framework while

avoiding the introduction of weighting assumptions not empirically tested within the study.

Rank Band and Tier Assignment

Tract-level pooled rates for violent and property crime were ranked in ascending order (lowest = Rank 1) using the RANK.EQ function in Microsoft Excel. Resulting ordinal ranks were grouped into categorical tiers according to the rank bands in Table G1, establishing relative safety classifications across the four-tract study area.

Table G1

Crime Rate Rank and Tier Classification for Gate C (Neighborhood Safety Context)

Rank	Tier	Interpretation
1	Low	Lowest relative crime rate (safest tract)
2–3	Moderate	Midrange values; neither lowest nor highest
4	High	Highest relative crime rate (least safe tract)

Note. These tiers represent relative standing within the four-tract sample rather than absolute thresholds. The Low / Moderate / High structure parallels the categorical framework used in Gates A and B, maintaining methodological symmetry across indicators.

Gate C Pass Scoring

After tiering both crime indicators, the violent and property crime tiers were combined symmetrically to generate the final GateC_Pass score (see Table G2).

Table G2

Gate C Scoring Structure Based on Combined Violent and Property Crime Tiers

Violent Tier	Property Tier	GateC_Pass	Interpretation
Low	Low	3	Low exposure across both indicators
Low	Moderate	2	One low, one moderate
Moderate	Low	2	Same, reversed
Moderate	Moderate	1	Moderate exposure across both
High	Any	0	Automatically does not pass Gate C (high violent crime exposure)
Any	High	0	Automatically does not pass Gate C (high property crime exposure)

Note. Equal weighting gives violent and property crime equal influence in determining Gate C outcomes. High exposure in either measure is sufficient to prevent passing, reflecting the conservative bias of the safety gate.

Tracts with violent or property crime rates in the high tier are classified as Not Pass. A Mixed classification is applied when one or both crime indicators fall within the moderate tier and neither indicator falls within the high tier; however, both indicators must fall within the low tier to receive a Pass classification. This intermediate category preserves distinctions between moderate and elevated crime exposure and avoids forcing tracts with mixed safety conditions into a binary pass–fail structure, allowing the analysis to reflect relative variation in neighborhood safety across the study area.

Gate C Results by Tract

The tabulation in Table G3 documents the intermediate results used to generate the Gate C classifications. Analytical interpretation of these outcomes appears in Chapter IV.

Table G3

Tract-Level Violent and Property Crime Rankings and Tier Outcomes for Gate C

GEOID	MLS Area	Violent Rate	Violent Rank	Violent Tier	Property Rate	Property Rank	Property Tier	GateC_Pass
48375011000	Fairgrounds	58.9800	3	Moderate	405.7649	4	High	0
48375011500	Bivins	48.2743	2	Moderate	208.8248	2	Moderate	1
48375012200	Stockyards	69.2717	4	High	232.9358	3	Moderate	0
48381021602	Puckett	10.3771	1	Low	96.1883	1	Low	3

Note. Violent and property offense rates represent pooled 2018–2022 offenses per 1,000 residents. Rates were ranked within the four-tract study area and converted to ordinal tiers using the rank bands defined in Table G1. The violent and property tiers were then combined according to the scoring structure in Table G2 to generate each tract's GateC_Pass score.

Appendix H:

RQ2: Availability of Two-Bedroom Units

RQ2: Availability of Two-Bedroom Units

Appendix H provides the supporting tabulations used to evaluate the availability of two-bedroom rental units under alternative payment standard thresholds for RQ2. Table H1 presents the SPSS CROSSTABS output summarizing the number and percentage of multifamily and single-family listings in the Puckett tract with gross rents at or below the FMR benchmarks and the Amarillo Housing Authority payment standard with utility allowance.

Table H1

Two-Bedroom Unit Availability by Payment Threshold

Structure type	n	≤ 100% FMR (n, %)	≤ 110% FMR (n, %)	≤ 120% FMR (n, %)	≤ AHA PS + UA (n, %)
Multifamily	30	20 (66.7%)	26 (86.7%)	28 (93.3%)	26 (86.7%)
Single-family	30	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Note. Entries reflect SPSS CROSSTABS output for two-bedroom listings in the Puckett tract (MLS 0212). Values show the number and percentage of units within each structure type with gross rent at or below each threshold. Percentages correspond to those reported in Chapter IV, Table 23, and were used to construct Figure 3.

Appendix I:

Tract-MLS to ZIP Code Containment (RES_RATIO) Reference

Tract-MLS to ZIP Code Containment (RES_RATIO) Reference

Appendix I provides the tract-MLS to ZIP Code containment values derived from the HUD–USPS ZIP Code Crosswalk used in the SAFMR alignment analysis. Table I1 reports the RES_RATIO values identifying the proportion of residential addresses within each census tract associated with each intersecting ZIP Code.

Table I1

Tract–ZIP Code Residential Containment (RES_RATIO) Values

Census_Tract	ZIP_Code	RES_RATIO
011000	79102	0.0508
011000	79104	0.9491
011500	79102	0.7924
011500	79101	0.2075
012200	79107	1.0000
012200	79104	0.0000
021602	79109	1.0000

Note. Data are drawn from the HUD–USPS ZIP Code Crosswalk (Q2 2025), TRACT_ZIP table, RES_RATIO field and reported exactly as provided. These RES_RATIO values were used to operationalize SAFMR-based exception payment standard alignment for Stockyards (0310) and Puckett (0212). The table reports the full tract-MLS to ZIP Code containment values applied in Chapter IV, quantifying the proportion of residential addresses within each tract associated with each intersecting ZIP Code and confirming the containment results summarized in Table 24.

Appendix J:

RQ3: SAFMR-Based Exception Payment Standards Scenario

RQ3: SAFMR-Based Exception Payment Standards Scenario

Appendix J provides the supporting descriptive statistics used to evaluate the SAFMR-based exception payment standard scenario under RQ3. Table J1 reports the mean rent gaps between observed gross rents and the FMR, PSUA, and SAFMR benchmarks for two-bedroom units by MLS area and structure type.

Table J1

Mean Rent Gaps Relative to FMR, PSUA, and SAFMR by MLS Area and Structure Type

MLS Area	Structure type	n	Mean gap to FMR ($)	SD (FMR)	Mean gap to PSUA ($)	SD (PSUA)	Mean gap to SAFMR ($)	SD (SAFMR)
Puckett (0212)	MF	15	43.40	69.25	−113.33	66.49	1.40	69.25
	SF	6	523.67	95.71	242.00	98.74	478.00	96.44
Stockyards (0310)	MF	5	−296.00	65.48	−385.50	48.39	−228.00	65.48
	SF	3	74.00	117.24	−159.50	4.95	134.67	109.00

Note. MF = Multifamily; SF = Single-family. Values come from SPSS *Descriptives* output for the two-bedroom rent-gap variables (Gap_FMR_2bd, Gap_PSUA_2bd, Gap_SAFMR_2bd). The table reports mean differences between gross rent and each benchmark (FMR, PSUA, and SAFMR) for the last 12 months, grouped by MLS area and structure type. These summary statistics provide the mean gap values referenced in Table 27 and used to interpret threshold alignment under RQ3.

Appendix K:

RQ3: Availability of Two-Bedroom Units

RQ3: Availability of Two-Bedroom Units

This appendix provides the full SPSS CROSSTABS output summary supporting the availability analysis presented in Chapter IV. Percentages reflect the share of two-bedroom listings within each structure type and each MLS area that fell at or below the payment standard or threshold during the most recent twelve-month observation period. Thresholds correspond to 100%, 110%, and 120% of the metropolitan FMR and ZIP Code-level SAFMR, as well as the AHA's PSUA ($PSUA_2bd \approx 110\%$ FMR). $PSUA_2bd$ was included as a comparative threshold rather than a stand-alone ceiling, allowing direct comparison with metropolitan FMR and ZIP-level SAFMR thresholds for RQ3. Table K1 presents the corresponding CROSSTABS output used in the analysis.

Table K1

Availability of Two-Bedroom Units Under FMR, PSUA, and SAFMR Thresholds - Puckett High-Opportunity Tract (Last 12 Months)

Structure type	≤ 100% FMR	≤ 110% FMR	≤ 120% FMR	≤ $PSUA_2bd$	≤ 100% SAFMR	≤ 110% SAFMR	≤ 120% SAFMR
Multifamily	53.3%	86.7%	100.0%	86.7%	66.7%	86.7%	100.0%
Single-family	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Note. Entries are row percentages from SPSS *CROSSTABS*, representing the share of two-bedroom listings within each structure type with gross rent at or below the specified threshold. $PSUA_2bd$ = AHA two-bedroom Payment Standard + Utility Allowance (RQ3 period).

Table K2 presents the corresponding availability results for the Stockyards comparison tract, reporting the percentage of two-bedroom listings within each structure

type that fall at or below the FMR, $PSUA_2bd$, and SAFMR thresholds during the twelve-month observation period.

Table K2

Availability of Two-Bedroom Units Under FMR, PSUA, and SAFMR Thresholds - Stockyards Comparison Tract (Last 12 Months)

Structure type	≤ 100% FMR	≤ 110% FMR	≤ 120% FMR	≤ $PSUA_2bd$	≤ 100% SAFMR	≤ 110% SAFMR	≤ 120% SAFMR
Multifamily	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Single-family	33.3%	66.7%	100.0%	100.0%	0.0%	33.3%	100.0%

Note. Entries are row percentages from SPSS CROSSTABS, showing the share of two-bedroom listings at or below each ceiling. $PSUA_2bd$ = AHA Payment Standard + Utility Allowance. FMR = metropolitan Fair Market Rent; SAFMR = ZIP Code-level Small Area FMR.

Appendix L:

Pre-RUE Tract-MLS Containment Results (NOAF Worksheets)

Completions of Potter County Pre-RUE Worksheets:

NOAF Worksheet (Pre-RUE): Tract 010100

Census Tract (Anchor): 010100

MLS Area(s) involved: Belmar (0204)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☑ No ☐
   o If Yes → proceed to Step 5
   o If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☑
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category: Full

Diagnostic Code: F2

Final Qualifier: Belmar (0204) extends south into Tract 020100; adjacent tract has no estimated HCV households, and no inward extensions apply: Full (F2).

NOAF Worksheet (Pre-RUE): Tract 010400

Census Tract (Anchor): 010400

MLS Area(s) involved: Wolflin (0201)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☑ No ☐
   o If Yes → proceed to Step 5
   o If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☑
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category: Full

Diagnostic Code: F2

Final Qualifier: Wolflin (0201) extends south into Tract 020400; adjacent tract has no estimated HCV households, and no inward extensions apply: Full (F2).

NOAF Worksheet (Pre-RUE): Tract 010700

Census Tract (Anchor): 010700

MLS Area(s) involved: Lawndale (0401), Ross Post Office (0400)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☑ No ☐
   o If Yes → proceed to Step 5
   o If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☑
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category: Full

Diagnostic Code: F2

Final Qualifier: Lawndale (0401) is the dominant MLS area and it extends outward from Tract 010700 into adjacent Tract 020600, where no HCV households are estimated; Ross Post Office (0400) extends inward without residential use: Full (F2).

NOAF Worksheet (Pre-RUE): Tract 011000

Census Tract (Anchor): 011000

MLS Area(s) involved: Fairgrounds (0301)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☑
   o If Yes → proceed to Step 5
   o If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   (No inward extension applies.)
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category: Full

Diagnostic Code: F2

Final Qualifier: Fairgrounds (0301) extends outward into Tract 012200 without residential use; no inward extensions apply: Full (F2).

NOAF Worksheet (Pre-RUE): Tract 011500

Census Tract (Anchor): 011500

MLS Area(s) involved: Bivins (0101)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☑
   (The outward extension into Tract 015400 has no residential use.)
   o If Yes → proceed to Step 5
   o If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   (No inward extension applies.)
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category: Full

Diagnostic Code: F2

Final Qualifier: Bivins (0101) extends outward into Tract 015400 without residential use; no inward extensions apply: Full (F2).

NOAF Worksheet (Pre-RUE): Tract 012200

Census Tract (Anchor): 012200

MLS Area(s) involved: Stockyards (0310), Fairgrounds (0301)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☑
   o If Yes → proceed to Step 5
   o If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category: Full

Diagnostic Code: F2

Final Qualifier: Stockyards (0310) is the dominant MLS area; Fairgrounds (0301) extends inward without residential use; no outward residential extension: Full (F2).

Completions of Randall County Pre-RUE Worksheets:

NOAF Worksheet (Pre-RUE): Tract 020200

Census Tract (Anchor): 020200

MLS Area(s) involved: Olsen (0203)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☑ No ☐
   o If Yes → proceed to Step 5
   o If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☑
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category: Full

Diagnostic Code: F2

Final Qualifier: Olsen (0203) extends outward into Tract 010200, but the adjacent tract

has no HCV households and no inward extensions exist: Full (F2).

NOAF Worksheet (Pre-RUE): Tract 021602

Census Tract (Anchor): 021602

MLS Area(s) involved: Puckett (0212)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☑ No ☐
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☐
   o If Yes → proceed to Step 5
   o If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☐
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category: Full

Diagnostic Code: F0

Final Qualifier: Puckett (0212) is fully contained within Tract 021602 with residential

use confirmed within tract boundaries: Full (F0).

NOAF Worksheet (Pre-RUE): Tract 021610

Census Tract (Anchor): 021610

MLS Area(s) involved: Westover (0240), Hollywood/Scotsman (0430)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☑
   o If Yes → proceed to Step 5
   o If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☑ No ☐
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☑
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category: Full

Diagnostic Code: F3

Final Qualifier: Westover (0240) is dominant. Hollywood/Scotsman (0430) extends

inward from Tract 021500 (no HCV households); Westover (0240) extends outward without residential use: Full (F3).

Appendix M:

RUE Tract-MLS Containment Results (NOAF Worksheets)

Potter County RUE Worksheets:

NOAF Worksheet (RUE): Tract 010100

Census Tract (Anchor): 010100

MLS Area(s) involved: Belmar (0204)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☑ No ☐
   • If Yes → Partial (P0) — STOP
   • If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☐
   • If Yes → Partial (P0) — STOP

Results

Containment Category: Partial

Diagnostic Code: P0

Final Qualifier: Belmar (0204) extends outward with residential use into Tract 020100; per rule, outward RU triggers Partial at Step 3: Partial (P0).

NOAF Worksheet (RUE): Tract 010400

Census Tract (Anchor): 010400

MLS Area(s) involved: Wolflin (0201)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☑ No ☐
   • If Yes → Partial (P0) — STOP
   • If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☐
   • If Yes → Partial (P0) — STOP

Results

Containment Category: Partial

Diagnostic Code: P0

Final Qualifier: Wolflin (0201) extends outward with residential use into Tract 020400; per rule, outward RU triggers Partial at Step 3: Partial (P0).

NOAF Worksheet (RUE): Tract 010700

Census Tract (Anchor): 010700

MLS Area(s) involved: Lawndale (0401), Ross Post Office (0400)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   (Lawndale (0401) extends outward; Ross Post Office (0400) has an inward edge without residential use.)
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☑ No ☐

• If Yes → Partial (P0) — STOP
• If No → proceed to Step 4

4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☐
   • If Yes → Partial (P0) — STOP

Results

Containment Category: Partial

Diagnostic Code: P0

Final Qualifier: Lawndale (0401) extends outward with residential use into Tract 020600, triggering Partial (P0) at Step 3. Ross Post Office (0400) extends inward without residential use; classification remains: Partial (P0).

NOAF Worksheet (RUE): Tract 011000

Census Tract (Anchor): 011000

MLS Area(s) involved: Fairgrounds (0301)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☑
   • If Yes → Partial (P0) — STOP
   • If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   • If Yes → Partial (P0) — STOP
   • If No → Full (F2) — STOP

Results

Containment Category: Full

Diagnostic Code: F2

Final Qualifier: Fairgrounds (0301) extends outward into Tract 012200 without residential use; no inward extensions apply: Full (F2).

NOAF Worksheet (RUE): Tract 011500

Census Tract (Anchor): 011500

MLS Area(s) involved: Bivins (0101)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☑
   • If Yes → Partial (P0) — STOP
   • If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   (No inward extension applies.)
   • If Yes → Partial (P0) — STOP
   • If No → Full (F2) — STOP

Results

Containment Category: Full

Diagnostic Code: F2

Final Qualifier: Bivins (0101) extends outward into Tract 015400 without residential use; no inward extensions with residential use: Full (F2).

NOAF Worksheet (RUE): Tract 012200

Census Tract (Anchor): 012200

MLS Area(s) involved: Stockyards (0310), Fairgrounds (0301)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☑
   • If Yes → Partial (P0) — STOP
   • If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☑
   • If Yes → Partial (P0) — STOP
   • If No → Full (F2) — STOP

Results
Containment Category: Full
Diagnostic Code: F2
Final Qualifier: Stockyards (0310) is the residential MLS within the anchor tract; Fairgrounds (0301) extends inward without residential use; no outward residential extension: Full (F2).

Completions of Randall County RUE Worksheets:

NOAF Worksheet (RUE): Tract 020200

Census Tract (Anchor): 020200

MLS Area(s) involved: Olsen (0203)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2

2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☑ No ☐
   • If Yes → Partial (P0) — STOP
   • If No → proceed to Step 4
4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☐
   • If Yes → Partial (P0) — STOP
   • If No → Full (F2) — STOP

Results

Containment Category: Partial

Diagnostic Code: P0

Final Qualifier: Olsen (0203) extends outward with residential use into Tract 010200; per RUE rule, excluded from opportunity scoring: Partial (P0).

NOAF Worksheet (RUE): Tract 021602

Census Tract (Anchor): 021602

MLS Area(s) involved: Puckett (0212)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   • If Yes → Out of Scope (O1) — STOP
   • If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☑ No ☐
   • If Yes, and there is one MLS area → Full (F0) — STOP
   • If Yes, and there are two or more MLS areas → Full (F1) — STOP
   • If No → proceed to Step 3
3. Outward extension check
   • Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☐
   • If Yes → Partial (P0) — STOP
   • If No → proceed to Step 4

4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☐
   • If Yes → Partial (P0) — STOP
   • If No → Full (F2) — STOP

Results

Containment Category: Full

Diagnostic Code: F0

Final Qualifier: Puckett (0212) is fully contained within Tract 021602 with residential use: Full (F0).

NOAF Worksheet (RUE): Tract 021610

Census Tract (Anchor): 021610

MLS Area(s) involved: Westover (0240), Hollywood/Scotsman (0430)

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☑
   If Yes → Out of Scope (O1) — STOP
   If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☑
   If Yes, and there is one MLS area → Full (F0) — STOP
   If Yes, and there are two or more MLS areas → Full (F1) — STOP
   If No → proceed to Step 3
3. Outward extension check
   Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☑
   • If Yes → Partial (P0) — STOP
   • If No → proceed to Step 4
4. Inward extension check
   Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☑ No ☐
   • If Yes → Partial (P0) — STOP
   • If No → Full (F2) — STOP

Results

Containment Category: Partial

Diagnostic Code: P0

Final Qualifier: Hollywood/Scotsman (0430) extends inward with residential use from

Tract 021500, triggering Partial (P0); outward Westover (0240) sliver identified as residential-use-excluded: Partial (P0).

Appendix N:

Neighborhood Opportunity Attribution Framework Guidebook

Neighborhood Opportunity Attribution Framework Guidebook

Purpose and Overview

The Neighborhood Opportunity Attribution Framework (NOAF) provides a structured, rule-based method for classifying the spatial relationship between census tracts and Multiple Listing Service (MLS) neighborhood boundaries. It attributes high-opportunity indicators at the census tract scale, interprets them at the neighborhood scale (using MLS areas as proxies), and aligns these results with ZIP Code geographies for policy relevance under the Small Area Fair Market Rent (SAFMR) methodology.

Where prior research often relies on tracts or ZIP Codes without explicit decision rules, the NOAF integrates parcel-level verification, standard classifications, and a locked outward-first sequence that ensures analytical rigor, replicability, and traceability. This structure is particularly important in jurisdictions where MLS boundaries exist only as raster or PDF images requiring manual georeferencing.

Core Components

1. **Classification**. Census tracts are evaluated against MLS-defined neighborhood boundaries to determine containment status (Full, Partial, or Out of Scope). Codes (F0–F3, P0, P1, O1) are assigned through a standardized outward-first decision sequence.
2. **Attribution**. High-opportunity indicators, poverty, educational performance, and crime, are attributed to the anchor tract containing verified Housing Choice Voucher (HCV) households. Full containment allows these indicators to be interpreted directly for the corresponding MLS neighborhood(s) without cross-tract distortion.

3. **Replication**. The NOAF is operationalized with stepwise protocols, standardized phrasing, fixed tolerances, and explicit handling of ambiguities. Decisions are recorded using a Containment Category, Diagnostic Code, and Final Qualifier, providing a transparent audit trail that allows other analysts working with the same data and rules to reproduce the classifications.
4. **Alignment**. Only tract-MLS area relationships that are fully contained and fall entirely within a single ZIP Code advance to SAFMR scenario modeling.

Data Inputs and Evidentiary Standards

- **Voucher presence:** Publicly available Housing Choice Voucher (HCV) datasets or equivalent administrative records identifying voucher counts by census tract or similar small-area geography.
- **Tract or small-area boundaries:** Authoritative boundary files from national statistical agencies (e.g., U.S. Census TIGER/Line shapefiles or equivalent national boundary datasets).
- **Residential land use:** Local parcel, appraisal, or zoning datasets delineating residential parcels or building footprints.
- **Neighborhood boundaries:** MLS or comparable locally defined neighborhood or planning-area maps available as raster, PDF, or vector files suitable for georeferencing.
- **Education indicators:** Publicly accessible school-performance data at the campus or district level from state or local education agencies.

- **Crime indicators:** Local or regional law-enforcement data at the incident or aggregated level, preferably in formats consistent with National Incident-Based Reporting System (NIBRS) or Uniform Crime Reporting (UCR) standards.

Data Handling Protocol

1. Load boundary files (e.g., tracts or equivalent units) into a geographic information system (GIS) and assign a consistent coordinate reference system suitable for the study area.
2. Georeference neighborhood or MLS maps using multiple control points to achieve sub-pixel or minimal RMS error and retain the world file and georeferencing report for verification.
3. Verify residential-use presence by overlaying georeferenced neighborhood boundaries with parcel or land-use layers and aerial imagery. Record a Has_RU flag (1 = residential use present, 0 = no residential use) when any residential use is evident within the tract-MLS area.
4. Join housing-program data (e.g., tract-level Housing Choice Voucher [HCV] counts) to the spatial layer and create a *Has_HCV* indicator identifying areas containing voucher households.
5. Document all coordinate systems, georeferencing error values, and residential-use determinations within project metadata or worksheet fields to maintain transparency and facilitate reproducibility.

Pre-RUE Procedural Framework (Spatial + HCV Adjacency)

The pre-RUE decision sequence follows a locked outward-first path.

Step 1: Jurisdiction Check

If any residential-use parcel lies outside the study jurisdiction → classify as O1 → (STOP).

Step 2: Containment Check

• One MLS area fully contained → F0 (STOP).

• Two or more MLS areas fully contained → F1 (STOP).

Step 3: Outward Extension Check

If outward residential-use extension exists → Step 5. Otherwise → Step 4.

Step 4: Inward Extension Check

If inward residential-use extension exists → Step 6. If not → F2 (STOP).

Step 5: Outward HCV Test

• Adjacent tract Has_HCV = True → P1 (STOP).

• Adjacent tract Has_HCV = False → return to Step 4.

Step 6: Inward HCV Test

• Originating tract Has_HCV = True → P1 (STOP).

• Originating tract Has_HCV = False → F3 (STOP).

RUE Procedural Framework (Residential-Use Exclusion)

The RUE sequence mirrors pre-RUE but omits all HCV adjacency checks.

Step 1: Jurisdiction Check → O1 if outside.

Step 2: Containment Check → F0 or F1.

Step 3: Outward Extension Check → P0 if residential-use extension.

Step 4: Inward Extension Check → P0 if residential-use extension, else F2.

Pre-RUE and RUE: Sequential Roles and When Each Is Required

The NOAF process uses Pre-Residential-Use Exclusion (Pre-RUE) and Residential-Use Exclusion (RUE) in a strict sequence because they answer different questions about tract-MLS relationships and cannot substitute for one another. Pre-RUE must occur first because it tests whether an MLS area imports or exports HCV households across tract boundaries, which carries policy implications for mobility and adjacency effects. If this occurs, tract-level indicators cannot be assigned with confidence. Pre-RUE therefore protects the anchor tract from HCV influence originating outside its boundaries before any indicator analysis begins.

Once Pre-RUE resolves the HCV adjacency question, RUE evaluates whether residential-use space itself crosses tract boundaries. This step carries tract-level data implications because indicator assignments require residential areas to be geographically contained within the tract being analyzed. RUE does not repeat the HCV test, as that determination is complete. Instead, it confirms whether the MLS area can be treated as spatially valid for tract-level indicator assignment.

Pre-RUE may be used alone when the objective is limited to testing HCV adjacency across boundaries; in those cases, residential geometry is unnecessary. However, when tract-level indicators are applied, both protocols are required: Pre-RUE isolates HCV adjacency, while RUE verifies geometric containment. Used sequentially, they preserve analytical clarity, protect indicator validity, and maintain the spatial precision necessary for small-area analysis.

Containment Taxonomy Overview

The Containment Taxonomy summarizes the diagnostic outcomes produced through the Pre-RUE and RUE procedures. Multiple Full codes (F0 through F3) are necessary because an MLS area can satisfy Full Containment under several distinct combinations of spatial configuration and HCV adjacency conditions. These include situations where all MLS areas lie entirely within the anchor tract, where multiple contained MLS areas coexist, or where outward or inward extensions occur only into tracts without HCV households. These distinctions clarify the specific circumstances under which tract-level indicators may be applied with precision.

Similarly, the Partial codes (P1 and P0) differentiate analytically important types of boundary crossings. P1 reflects residential-use extension into a tract that contains HCV households, identified during Pre-RUE. P0 reflects residential-use extension across a tract boundary regardless of HCV status, identified during RUE. The distinction matters because each condition signals a different limitation on using tract-level indicators: P1 indicates cross-boundary HCV adjacency that prevents precise attribution, while P0 identifies geometric extension that compromises containment even in the absence of HCV adjacency.

Together, these diagnostic codes form a unified interpretive structure that links each containment outcome to the underlying spatial and adjacency conditions that determine whether tract-level indicators can be applied reliably to a given tract-MLS area.

Containment Taxonomy

Diagnostic Code	Category	Description
F0	Full	Single MLS area fully contained
F1	Full	Multiple MLS areas fully contained
F2	Full	Any outward and/or inward extensions that do not place HCV households outside the anchor tract (i.e., extensions are either non-residential or residential only into tracts without HCV households)
F3	Full (Pre-RUE only)	Inward residential-use extension from an originating tract that does not contain HCV households
P0	Partial (RUE)	Residential-use extension outward or inward (RUE, HCV status not tested)
P1	Partial (Pre-RUE)	Residential-use extension outward or inward into a tract that contains HCV households
O1	Out of Scope	Outside study jurisdiction

NOAF Worksheet Template - (PRE-RUE)

Each worksheet applies a locked, outward-first decision sequence. Step 1 tests whether any portion of the MLS area's residential-use geography lies outside the study jurisdiction; if yes, the tract is classified O1 and the worksheet terminates. If Step 1 is no, Step 2 evaluates whether all residential-use MLS areas are fully contained in the anchor tract; a yes outcome yields F0 for a single MLS area or F1 for two or more. If Step 2 is no, Step 3 tests for outward extensions with verified residential use. A yes at Step 3 triggers Step 5, which evaluates whether the adjacent tract contains HCV households; a yes outcome assigns P1 and the worksheet terminates, while a no outcome proceeds to

Step 4. If Step 3 is no, the process proceeds to Step 4, which tests for inward extensions with verified residential use. A no at Step 4 yields F2 when preceded either by no outward residential-use extension or by outward residential-use extension into a tract without HCV households. A yes at Step 4 triggers Step 6 to test HCV in the originating tract; a yes outcome assigns P1, and a no outcome assigns F3. Each worksheet provides a diagnostic code (F0–F3, P1, or O1) and a Final Qualifier that states the residential-use condition, the HCV condition in the adjacent or originating tract, and the stop rule:

- F0 = single MLS contained
- F1 = multiple MLS contained
- F2 = outward and/or inward extensions that do not place HCV households outside the anchor tract (extensions are either non-residential or into tracts without HCV households)
- F3 = inward residential-use extensions from an originating tract that does not contain HCV households
- P1 = outward or inward residential-use extensions where the adjacent or originating tract contains HCV households
- O1 = outside jurisdiction

Census Tract (Anchor):

MLS Area(s) involved:

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☐
   - If Yes → Out of Scope (O1) — STOP
   - If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☐
   - If Yes, and there is one MLS area → Full (F0) — STOP
   - If Yes, and there are two or more MLS areas → Full (F1) — STOP
   - If No → proceed to Step 3
3. Outward extension check
   - Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☐

o If Yes → proceed to Step 5
o If No → proceed to Step 4

4. Inward extension check
   • Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☐
   o If Yes → proceed to Step 6
   o If No → Full (F2) — STOP
5. Outward extension HCV test
   • For any such extension outward, does the adjacent tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → return to Step 4
6. Inward extension HCV test
   • For any such extension inward, does the originating tract contain HCV households? Yes ☐ No ☐
   o If Yes → Partial (P1) — STOP
   o If No → Full (F3) — STOP

Results

Containment Category:

Diagnostic Code:

Final Qualifier:

NOAF Worksheet Template - (RUE)

The RUE sequence mirrors the pre-RUE process in the worksheets (RUE) but removes the HCV adjacency test. Step 1 identifies outside-jurisdiction geography (O1). Step 2 assigns F0 or F1 for full containment. If not, Step 3 checks for outward residential-use extensions; a yes assigns P0. If Step 3 is no, Step 4 checks for inward residential-use extensions; a yes assigns P0, and a no assigns F2.

- F0 = single MLS contained
- F1 = multiple MLS contained
- F2 = no residential-use extension (outward or inward)

- P0 = outward or inward residential-use extensions (partial containment)
- O1 = outside jurisdiction (same in both)

NOAF Worksheet (RUE)

Census Tract (Anchor):

MLS Area(s) involved:

Rule checks (evaluate in order)

1. Outside study jurisdiction present? Yes ☐ No ☐
   If Yes → Out of Scope (O1) — STOP
   If No → proceed to Step 2
2. Are all MLS areas fully contained in this tract? Yes ☐ No ☐
   If Yes, and there is one MLS area → Full (F0) — STOP
   If Yes, and there are two or more MLS areas → Full (F1) — STOP
   If No → proceed to Step 3
3. Outward extension check
   Does any MLS area extend outward from this tract into an adjacent tract with verified residential use? Yes ☐ No ☐
   - If Yes → Partial (P0) — STOP
   - If No → proceed to Step 4
4. Inward extension check
   Does any MLS area extend inward into this tract from an adjacent tract with verified residential use? Yes ☐ No ☐
   - If Yes → Partial (P0) — STOP
   - If No → Full (F2) — STOP

Results

Containment Category:

Diagnostic Code:

Final Qualifier:

Gateway Assessment of Tract-level Environments Framework

(A Complementary Analytic Structure to NOAF)

The Gateway Assessment of Tract-Level Environments (GATE) Framework serves as an internal decision architecture within the Neighborhood Opportunity Attribution Framework (NOAF). It applies a structured, rule-based sequence for evaluating neighborhood opportunity across tract–Multiple Listing Service (MLS) areas that have already met spatial containment requirements. Each gate represents a distinct dimension of neighborhood context and is applied uniformly across all eligible areas. NOAF establishes spatial alignment and verifies tract–MLS area containment, while the GATE Framework applies opportunity classification using these validated spatial units.

After assessing each domain, the outcomes are integrated to form a cumulative opportunity profile suitable for comparative analysis, classification, or policy evaluation. The GATE Framework incorporates equity by emphasizing poverty conditions in Gate A and applying an equity check through the Economically Disadvantaged subgroup in Gate B. Gate C uses violent and property crime indicators, which further support equity-based interpretation by clarifying whether safety conditions align with environments expected to support opportunity for Housing Choice Voucher (HCV) households.

Gate A – Economic Context

Poverty levels are evaluated using tract-level American Community Survey (ACS) five-year estimates. Tract-MLS areas are classified using established poverty thresholds, with results retained for integration with subsequent domains.

Gate B – Educational Context

Educational conditions are assessed at the campus scale using the Texas

Education Agency (TEA) Texas Academic Performance Report (TAPR) indicators. District benchmarks for All Students are used to determine classification, with Economically Disadvantaged subgroup results reviewed for context. Gate B results are then retained for integration with economic and safety domains.

Gate C – Safety Context:

Safety conditions are assessed using tract-level violent and property crime rates derived from the National Incident-Based Reporting System (NIBRS) offense data. Rates are pooled across a five-year period and classified using a tiered structure, with higher-rate tiers indicating elevated safety risk. Gate C outcomes are retained and integrated with economic and educational findings to form the cumulative opportunity profile.

Gate structure logic

The GATE Framework applies each indicator independently, enabling consistent evaluation of economic, educational, and safety conditions across all tract-MLS areas. Gate outcomes are subsequently integrated into a multidimensional profile, allowing researchers to interpret cumulative opportunity conditions with methodological transparency and spatial precision.

Application Guidance

To apply the Gate Framework:

1. Verify spatial containment using the NOAF procedures. Only tract-MLS areas meeting Full Containment criteria advance to indicator assessment.
2. Apply Gate A (economic context) using ACS five-year poverty estimates. Classifications are retained for integration.

3. Apply Gate B (educational context) using TAPR indicators benchmarked against district averages. Classifications are also retained for integration.
4. Apply Gate C (safety context) using tract-level violent and property crime rates derived from pooled NIBRS data. Results are retained as part of the cumulative profile.
5. Record individual gate outcomes for each tract-MLS area and preserve them for multidimensional assessment.
6. Integrate cumulative gate results to establish neighborhood opportunity classifications that may inform comparative analysis, neighborhood stratification, or policy simulation, including SAFMR applications.

Integration with NOAF:

The GATE Framework aligns with the NOAF through a structured sequence:

Spatial Containment (NOAF): Establishes eligibility through tract-MLS area verification.

Indicator Assessment (GATE): Applies Gate A–C independently across all eligible areas.

Result Integration: Produces a cumulative opportunity profile suitable for spatial evaluation, classification, or policy simulation.

NOAF Key Definitions

Adjacent Tract
A census tract that shares a boundary with the anchor tract and is connected to it by an outward or inward MLS extension.

Alignment
The process of determining whether a tract-MLS area meets all required spatial, jurisdictional, and ZIP Code conditions for advancing to subsequent analytical phases. Alignment confirms that a tract-MLS area is fully contained within the study boundaries, falls entirely within a single ZIP Code, and satisfies the criteria needed for applying tract-level indicators and any downstream policy analyses.

Anchor Tract
The census tract being evaluated in a NOAF worksheet. All extension tests, containment decisions, and indicator assignments are assessed relative to this tract.

Attribution
The assignment of tract-level indicators (e.g., poverty, school performance, crime) to an MLS area when containment conditions are satisfied.

Census Tract
A small, relatively permanent statistical subdivision of a county used to collect and tabulate population and housing data.

Classification
The process of determining the appropriate containment category (Full, Partial, or Out of Scope) using the Pre-RUE and RUE procedural sequences.

Containment Category
A determination of whether an MLS area within an anchor tract is Fully Contained, Partially Contained, or Out of Scope for tract-level indicator assignment.

Containment Taxonomy
The set of diagnostic codes (F0–F3, P0, P1, O1) assigned through Pre-RUE or RUE. Each code reflects a unique combination of adjacency, residential-use, and jurisdictional conditions encountered in the outward-first decision sequence.

Cross-Tract MLS Extension
Any MLS area that spans a boundary between the anchor tract and an adjacent tract.

- Outward extension (majority of MLS area in anchor tract): Most of the MLS area lies within the anchor tract, and a smaller portion extends into an adjacent tract.
- Inward extension (minority of MLS area in anchor tract): Most of the MLS area lies within an adjacent tract, and a smaller portion extends across the boundary into the anchor tract.

Diagnostic Code
A standardized symbol (F0–F3, P0, P1, O1) assigned after completing the Pre-RUE or RUE sequence. The code reflects the exact combination of:

- whether the MLS area crosses tract boundaries,
- whether the crossing includes residential use,
- whether the adjacent tract contains HCV households (Pre-RUE only), and
- whether the MLS area lies fully within the jurisdiction.

Final Qualifier
A written summary describing the type of MLS extension, the residential-use condition, the HCV condition (if applicable), and the final rule under which the diagnostic code was assigned.

Full Containment
A status indicating that the anchor tract can be analyzed as a self-contained unit for tract-level indicator assignment. Full Containment is achieved when:

- all MLS areas are fully inside the anchor tract (F0 or F1), or
- any outward extensions enter only tracts without HCV households and no qualifying inward extensions exist (F2), or
- inward extensions originate only from tracts without HCV households (F3).

Full Containment ensures that MLS area boundaries do not import HCV households from adjacent tracts.

Has_RU Flag
A binary indicator used in NOAF worksheets to document whether a *tract-MLS area* contains identifiable residential land use within the anchor tract. Has_RU = 1 indicates residential use is present; Has_RU = 0 indicates no residential use was observed. The flag supports consistent application of Pre-RUE and RUE procedures by distinguishing tract-MLS areas with residential presence from those that are nonresidential.

Inward Extension
Occurs when an MLS area is primarily located in an adjacent tract but extends across the boundary into the anchor tract. The inward portion is evaluated based on the HCV status of the originating tract (Pre-RUE).

Jurisdiction
The geographic limits of the study area within which containment decisions must occur.

Multiple Listing Service (MLS) Area
A locally defined real estate area used by Realtors to organize neighborhood-level listings. MLS areas are often provided in non-tabular formats (e.g., PDF, raster) requiring georeferencing.

NOAF
The Neighborhood Opportunity Attribution Framework, a systematic approach for

evaluating the spatial alignment of MLS neighborhoods and census tracts for the purpose of assigning tract-level high-opportunity indicators.

Out of Scope (code O1)
A status applied when any residential-use portion of the MLS area lies outside the defined study jurisdiction.

Outward Extension
Occurs when an MLS area is primarily located within the anchor tract but extends into an adjacent tract. The outward portion is evaluated based on the HCV status of the adjacent tract (Pre-RUE).

Partial Containment
A status indicating that the anchor tract cannot be treated as a self-contained unit for tract-level indicator assignment. Partial Containment is assigned when:

- residential-use extensions cross into an adjacent tract that contains HCV households (P1, Pre-RUE), or
- any residential-use extension crosses a tract boundary regardless of HCV status (P0, RUE).

Partial Containment identifies situations where an MLS area's residential-use footprint crosses tract boundaries in ways that compromise spatial precision. In these cases, the MLS area cannot be analyzed using tract-level indicators without distortion because the boundary configuration mixes residential-use area across tracts.

Pre-Residential-Use Exclusion (Pre-RUE)
The first procedural test in the NOAF sequence, used solely to determine whether an MLS area imports or exports HCV households across tract boundaries involving the anchor tract. Pre-RUE evaluates only the HCV status of the tract receiving the extension and carries policy implications because it isolates adjacency-based household transfer. If verified HCV households are present in the adjacent tract, the result is Partial Containment (P1). If they are absent, the MLS area may advance toward Full Containment, as no cross-boundary HCV transfer would affect indicator attribution.

Replication
The ability of another analyst to reproduce the spatial classifications by applying the same outward-first sequence, rules, thresholds, and Final Qualifier conventions.

Residential-Use Exclusion (RUE)
The second procedural test, applied only after Pre-RUE resolves the HCV adjacency question. RUE evaluates whether any portion of an MLS area's residential-use footprint crosses tract boundaries, which carries tract-level data implications because indicator assignments must rely on residential areas that are geographically contained. Any inward or outward residential-use extension into another tract results in Partial Containment (P0), even when no HCV households are involved. RUE therefore ensures spatial precision by preventing tract-level indicators from being applied to residential space that spans multiple tracts.

This definitions section concludes the NOAF Guidebook and provides a common vocabulary for applying the procedures, classifications, and alignment rules described above. These definitions support consistent interpretation of the framework across replication, review, and policy analysis.