

Planning Assistance Report

Polytechnic/Wesleyan Urban Village Transit-Oriented Development Implementation Group Project



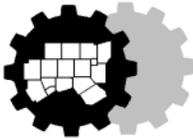
**NCTCOG Transportation Department Staff
February 2008**

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The North Central Texas Council of Governments is a voluntary association of cities, counties, school districts, and special districts which was established in January 1966 to assist local governments in **planning** for common needs, **cooperating** for mutual benefit, and **coordinating** for sound regional development.

It serves a 16-county metropolitan region centered around the two urban centers of Dallas and Fort Worth. Currently the Council has **233 members**, including 16 counties, 165 cities, 23 independent school districts, and 29 special districts. The area of the region is approximately **12,800 square miles**, which is larger than nine states, and the population of the region is over **6.4 million**, which is larger than 35 states.

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Prepared in cooperation with the Texas Department of Transportation and the U. S. Department of Transportation, Federal Highway Administration, and Federal Transit Administration.

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ABSTRACT

TITLE: Polytechnic/Wesleyan Urban Village
Transit-Oriented Development
Implementation Group Project
Planning Assistance Report

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Planning Analysis for the Polytechnic/Wesleyan
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ABSTRACT: This planning assistance report provides a Housing
Market Analysis and a Transit Contingency Planning
Analysis of the Polytechnic/Wesleyan Urban Village
Transit-Oriented Development (TOD) area, which is
defined as the area within a half mile radius of the
Texas Wesleyan University (TWU) main campus
located at 1201 Wesleyan Street in Fort Worth,
Texas.

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Executive Summary

This planning assistance report provides a Housing Market Analysis and a Transit Contingency Planning Analysis of the Polytechnic/Wesleyan Urban Village Transit-Oriented Development (TOD) area, which is defined as the area within a half mile radius of the Texas Wesleyan University (TWU) main campus located at 1201 Wesleyan Street in Fort Worth, TX. The same half-mile radius is used for both the Housing Market Analysis and the Transit Contingency Planning Analysis for consistency and clarity.

Housing Market Analysis:

This portion of the report examined the current community profile, the existing housing supply, and the existing and potential future housing demand.

Findings from the analysis reveal that large numbers of scattered vacant sites are present in the market area that could provide potential infill housing opportunities. The supply of quality rental housing in the market area is very low when compared to the potential rental housing demand generated by the student population at TWU and neighborhood residents, though the age group distribution of the residents in the market area indicates that a very low percentage of the TWU student population lived in the market area in 2000. About 90 percent of the housing stock in the area was built prior to 1970 and disrepair is evident in many homes.

Recommendations include work to capitalize on the student housing market through new housing development and increase the supply of rental housing and multifamily housing. This area is in need of a restoration of the community's basic attributes and an enhancement of community image and identity. Additionally, a strategy of infill housing on vacant lots and the replacement of housing by demolishing older units should be pursued.

Transit Contingency Planning Analysis:

This portion of the report examined potential transit options, transit-oriented development opportunities, and existing pedestrian conditions and zoning regulations.

Findings from the analysis reveal that a variety of potential transit options exist for the Polytechnic/Wesleyan Urban Village TOD Area, including commuter rail, bus rapid transit, and expanded regular bus service. There is a substantial quantity of undeveloped or underutilized land in the area along key transit corridors. Pedestrian improvements along key corridors are needed in the area and will assist in attracting high-quality development and provide the walkable environment that supports transit and ground-level retail operations.

Recommendations include planning in advance for any and all transit options that may affect the Polytechnic/Wesleyan Urban Village TOD Area to maximize the land use-transportation connection. There should be an emphasis on promoting quality mixed-use developments on currently undeveloped or underutilized land along key transit corridors and an increase in residential density which may promote high quality transit-oriented development and support transit operations. Additionally, a pedestrian corridor concept (“Wesleyan Walk”) through the TWU campus could provide a cohesive focal point for the university and the surrounding neighborhood and zoning changes in advance of transit-oriented development will streamline the development process and allow high-quality projects to be built by right.

Introduction

The Polytechnic/Wesleyan Urban Village TOD Project is part of the North Central Texas Council of Governments (NCTCOG) Transit-Oriented Development Implementation Group. Planning assistance for the Transit-Oriented Development Implementation Group is intended to support a regional effort to analyze, market, and implement TOD. The TOD Implementation Group developed from the results of the 2005 NCTCOG Sustainable Development Call for Projects. Projects in this group are eligible to receive planning assistance free of charge from NCTCOG Transportation Department Staff. Examples of planning assistance to be addressed under the TOD Implementation Group include: local housing market analysis, commercial uses market analysis, station area development/access capital plan, Tax Increment Financing (TIF), Public Improvement District (PID), assessment, development code recommendations, and urban design guidelines.

This Planning Assistance Report contains two parts: a Housing Market Analysis and a Transit Contingency Planning Analysis. The Housing Market Analysis answers specific questions related to current housing market in the half-mile radius surrounding the Texas Wesleyan University (TWU) main campus (defined as the Polytechnic/Wesleyan Urban Village Transit-Oriented Development (TOD) area). A half-mile radius was chosen because of the walkability of this distance—most people can walk a half-mile comfortably in ten minutes¹, and walkability is essential to successful transit-oriented development. The TWU campus was chosen as a focal point because of its prominence as a destination for many people traveling to the Polytechnic/Wesleyan Urban Village area. The goal of the housing market analysis is to determine how existing housing stock fits with net demand for housing by type and price in the half-mile radius surrounding the TWU property. The Transit Contingency Planning Analysis examines potential options for transit and transit-oriented development in the Polytechnic/Wesleyan Urban Village TOD area. In addition, a ‘TOD Audit’ was completed for this project. The Audit helps to identify how the Polytechnic/Wesleyan

Urban Village TOD area fits characteristics of successful transit-oriented development and outlines the potential that the area has for transit-oriented development.

Part I: Housing Market Analysis

Introduction:

This Housing Market Analysis was prepared to provide planning assistance to the City of Fort Worth to answer specific questions related to current housing market in the half-mile radius surrounding the Texas Wesleyan University (TWU) main campus. The goal of this housing market analysis is to determine how existing housing stock fits with net demand for housing by type and price in the Polytechnic/Wesleyan Urban Village TOD area.

The Housing Market Analysis contains five components:

- A. Community Profiles: This section is a review of demographic, income, and employment data for the market area.
- B. Housing Supply: This section describes housing stock by type, tenure, occupancy, age, price range, and rent range and provides a picture of the current housing conditions within the market area.
- C. Housing Demand: This section provides household and employment projections for the area to determine the housing demand by 2030.
- D. Conclusions: Based on the analysis from the previous sections, noteworthy findings are highlighted.
- E. Recommendations: Preliminary recommendations are provided to meet the housing demand within the market area.

In each section, the estimates for the market area are compared to the city-wide estimates to compare and contrast to the general trends in the larger geographic area. Data was gathered from the 1990 and 2000 U.S. Census, the North Central Texas Council of Governments (NCTCOG) 2030 Demographic Forecast, and several other sources. The description is supported with tables and maps provided as reference materials. Most of the data presented in the tables and maps are directly referenced in

the text. There may be some cases where additional information was included for the reader's benefit, though not specifically noted in the text.

The estimates for the market area are summarized from the census block, block group, and NCTCOG's Traffic Survey Zones (TSZ) estimates. NCTCOG's TSZ estimates are used to summarize household, population, and employment projections for the market area between 2000 to 2030. These boundaries do not coincide with each other and also extend beyond half-mile radius of the market area. Hence, the estimates for the market area show more than the actual figures for the area.

The U.S. Census provides certain basic attributes (such as population and housing units) for full population while other complex attributes (such as year structure built and units in structure) are only provided for sample data. Hence, the totals for complex data attributes may not match the totals for basic attributes. In such cases, the source provided for each complex census attribute data table in the report, has a suffix "sample data". For example, Table 1.4 shows a total of 2,126 households while Table 1.5 shows a total of 2,048 households in the market area. The income data provided in Table 1.5 is available only for sample households and does not match the total in Table 1.4.

The attached maps present data by blocks or block groups with an overlay of the TWU property and the market area of half-mile radius. The maps for the Housing Market Analysis (HMA) are referred to throughout this report as HMA Map 1.1, HMA Map 1.2, etc., and are separate from the maps in the Transit Contingency Planning Analysis (TCPA), which are referred to as TCPA Map 1.1, TCPA Map 1.2, etc.

A. Community Profiles

1.1. Demographics

The demographic analysis of the Polytechnic/Wesleyan Urban Village market area concentrates on the magnitude and composition of the population and changes that occurred between 1990 and 2000. The census block estimates summarized in Table

1.1A show that the total population of the market area was 5,323 in 2000. About 49 percent of the population of the market area was White and 21.4 percent was African-American. Table 1.1B shows that 67.8 percent of population in the market area was Hispanic in 2000.

Table 1.1A
Total Population by Race for the Market Area, 2000

Race	Market Area Population	
	#	%
White	2,614	49.1%
African-American	1,141	21.4%
American Indian and Eskimo	49	0.9%
Asian or Pacific Islander	67	1.3%
Other race	1,452	27.3%
Total	5,323	100.0%

Source: US Census 2000 Block Estimates

Table 1.1B
Total Population by Ethnicity for the Market Area, 2000

Ethnicity	Market Area Population	
	#	%
Hispanic	3,611	67.8%
Non-Hispanic	1,712	32.2%
Total	5,323	100.0%

Source: US Census 2000 Block Estimates

The 1990 census estimates are not available at block level. The census block group estimates are used to compare 1990 and 2000 figures in the market area. According to the census block group estimates shown in Table 1.2A, the White population in the market area increased by 22.6 percent and the African-American population decreased by 24.7 percent between 1990 and 2000. Table 1.2B, shows that the population of Hispanics increased significantly between 1990 and 2000 by 147.5 percent.

Table 1.2A
Total Population by race for the Market Area, 1990-2000

Race	1990		2000		1990-2000 Change	
	#	%	#	%	#	%
White	3,030	46.2%	3,716	48.0%	686	22.6%
African American	2,231	33.9%	1,680	21.7%	-551	-24.7%
American Indian and Alaskan Native	30	0.5%	73	0.9%	43	143.3%
Asian and Pacific Islander	184	2.8%	160	2.1%	-24	-13.0%
Other Race	1,088	16.6%	2,108	27.3%	1,020	93.8%
Total population	6,563	100.0%	7,737	100.0%	1,174	17.9%

Source: US Census 1990 and 2000 Block Group Estimates

Table 1.2B
Total Population by Ethnicity for the Market Area, 2000

Ethnicity	1990		2000		1990-2000 Change	
	#	%	#	%	#	%
Hispanic	1,769	27.0%	4,379	56.6%	2,610	147.5%
Non-Hispanic	4,794	73.0%	3,358	43.4%	-1,436	-30.0%
Total	6,563	100.0%	7,737	100.0%	1,174	17.9%

Source: US Census 1990 and 2000 Block Group Estimates

The Census Bureau does not recognize Hispanic as a race, but rather as an ethnicity. As a comparison, Fort Worth had 59.7 percent Whites, 20.3 percent African-Americans, and 29.8 percent Hispanics in 2000.

NCTCOG's 2030 Demographic Forecast TSZ estimates are used to calculate the 2005 population estimates for the market area. According to the 2030 Demographic Forecast TSZ estimates, the population of the market area increased from 9,912 in 2000 to 10,298 in 2005, by 3.9 percent.

For reference, HMA Map 1.1 provides population of the market area by block in 2000. HMA Maps 1.2 and 1.3, indicate spatial concentrations of Hispanic and African-Americans within the Market Area. These maps are created from the 2000 census block level estimates.

Table 1.3 shows the age distribution within the market area. Elderly population constituted 8.3 percent of the market area in 2000. Over 10 percent of the population of the market area were children in 2000. HMA Map 1.4, shows the median age by block in the market area.

Table 1.3
Age Distribution for the Market Area, 2000

Age	#	%
Under 5 years	779	10.1%
5 to 17	1,774	22.9%
18 to 24	1,113	14.4%
25 to 61	3,432	44.4%
62 and over	639	8.3%
Total	7,737	100.0%

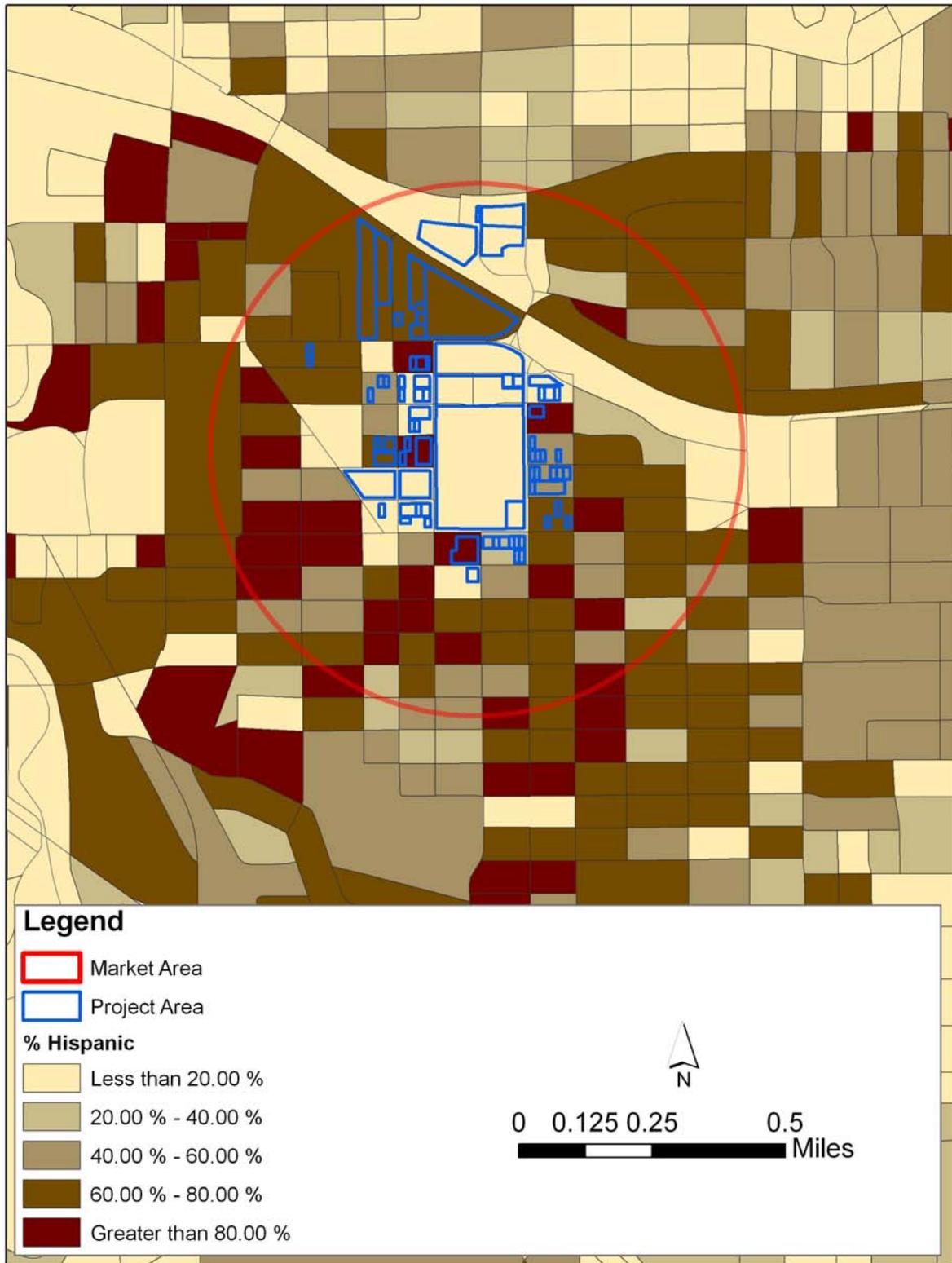
Source: US Census 2000 Block Group Estimates

HMA Map 1.1: Total Population by Census Block, 2000



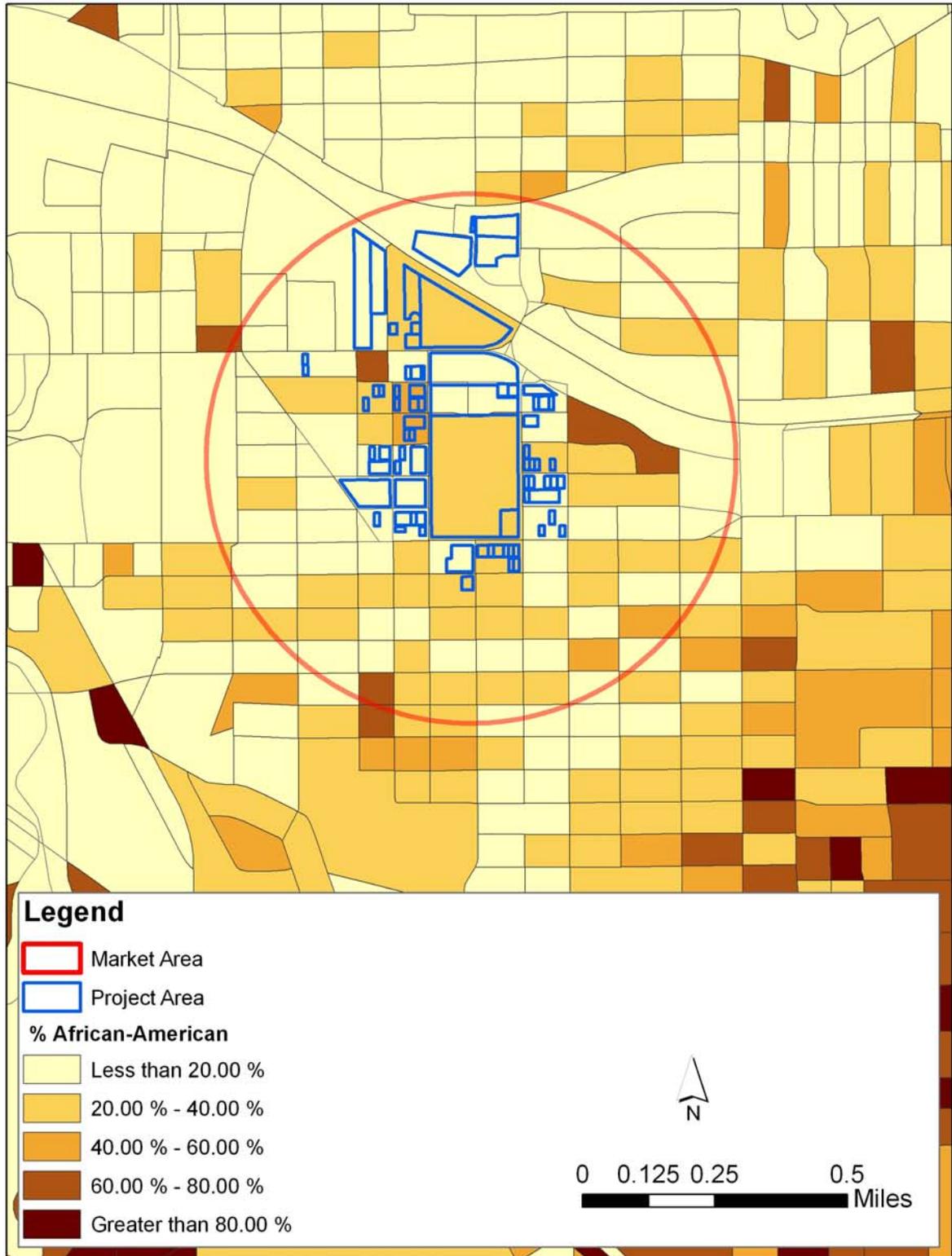
Source: U.S. Census 2000

HMA Map 1.2: Percent Hispanic by Census Block, 2000



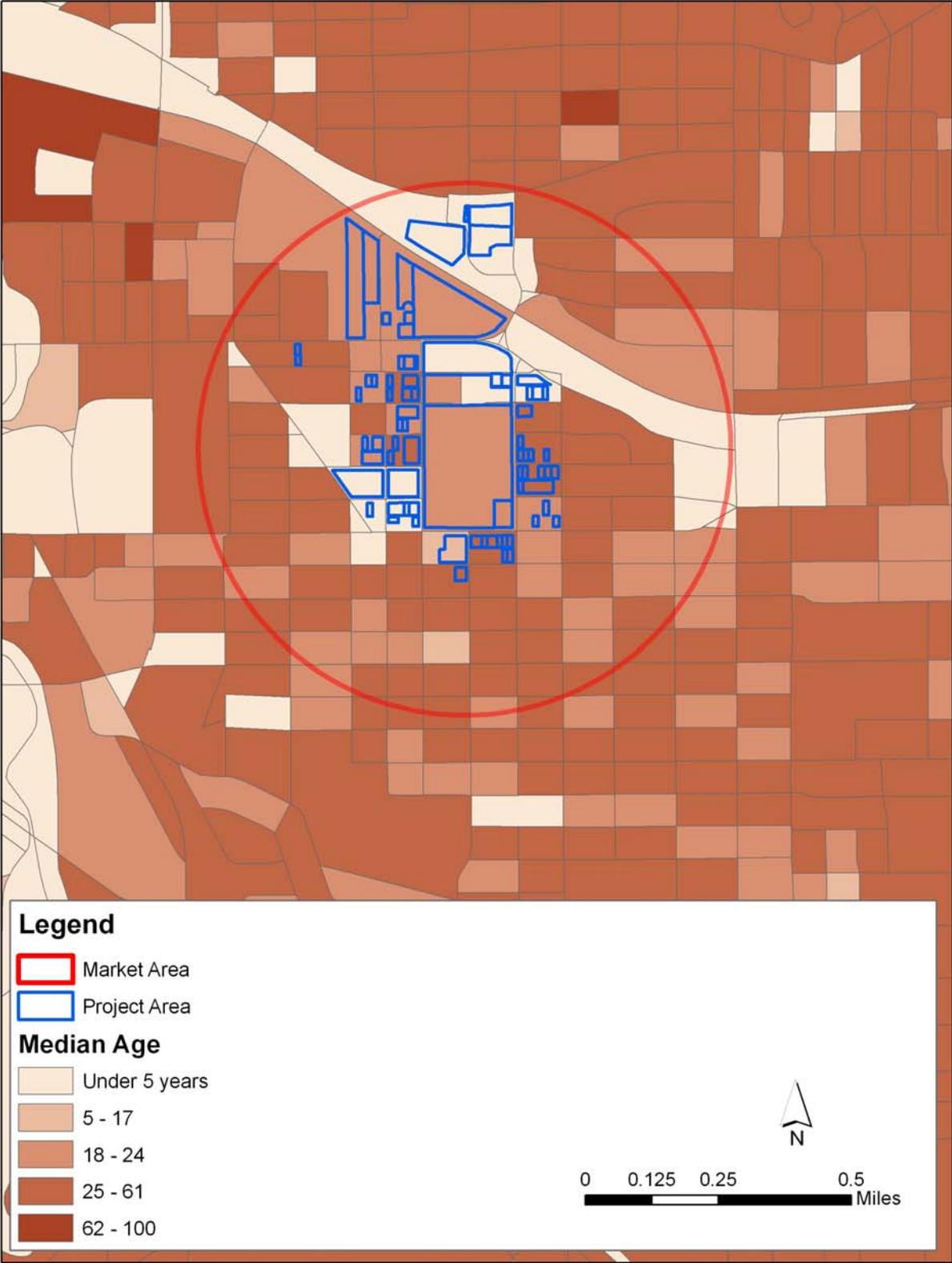
Source: U.S. Census 2000

HMA Map 1.3: Percent African-American by Census Block, 2000



Source: U.S. Census 2000

HMA Map 1.4: Median Age by Census Block, 2000



Source: U.S. Census 2000

Table 1.4 shows the household structure within the market area in 2000. The table divides total households into two primary categories, households with children and households without children. Each of the above categories is divided into two sub categories, family households and non-family households. Over 48 percent of the households in the market area were married couples and over 51 percent of the households had children. Over 26 percent of the total households in the market area were non-family households. About 31 percent of the households in the area were headed by females and 12.3 percent of the households were headed by single mothers.

Table 1.4
Household structure by race for The Market Area, 2000

Type of Households	#	%
Households with one or more people under 18 years:	1,093	51.4%
<i>Family households:</i>	1,083	50.9%
Married-couple family	724	34.1%
Other family:	359	16.9%
Male householder, no wife present	97	4.6%
Female householder, no husband present	262	12.3%
<i>Non-family households:</i>	10	0.5%
Male householder	7	0.3%
Female householder	3	0.1%
Households with no people under 18 years:	1,033	48.6%
<i>Family households:</i>	480	22.6%
Married-couple family	300	14.1%
Other family:	180	8.5%
Male householder, no wife present	62	2.9%
Female householder, no husband present	118	5.6%
<i>Non-family households:</i>	553	26.0%
Male householder	286	13.5%
Female householder	267	12.6%
Total households	2,126	100.0%

Source: US Census 2000

NCTCOG's 2030 Demographic Forecast provides household projections at TSZ level between the years 2000 to 2030 at five-year increments. The TSZ estimates for the market area show that there were 2,707 households in the market area in 2000 and 2,813 households in the market area in 2005. The number of households within the market area increased by 3.9 percent.

1.2. Income

Household income makes a significant impact on the housing affordability of residents in the market area. The data in Table 1.5 and Chart 1.1 shows the distribution of income across income classes in the market area. Chart 1.1 shows that the modal income class (the income class with the highest number of households) was the \$20,000 to \$40,000 range, with 34.5 percent of the households in this income range.

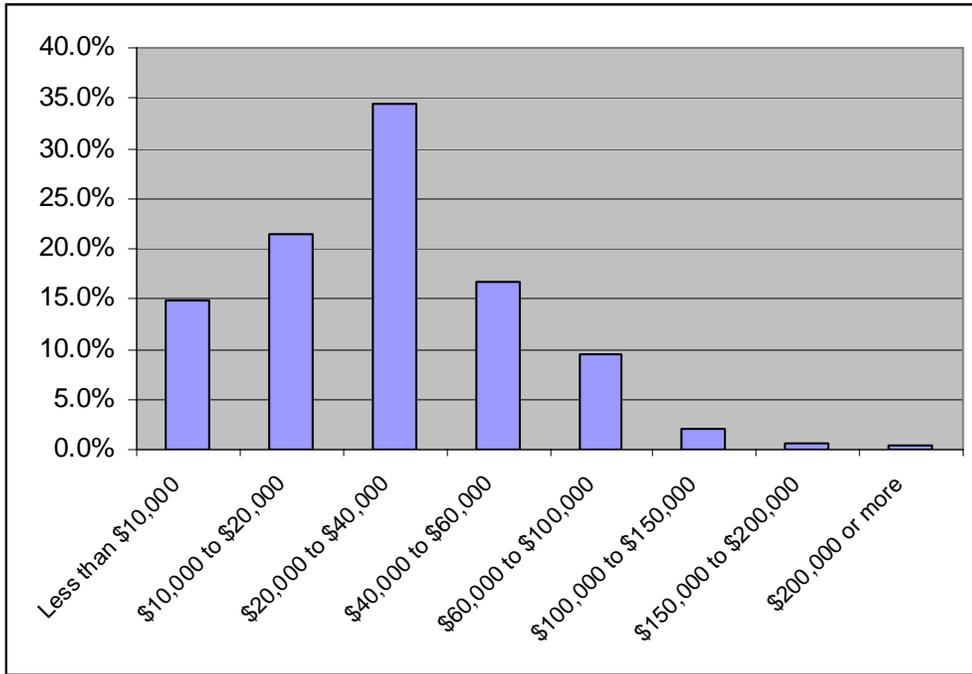
Over 36 percent of the households in the area reported less than \$20,000 income. Over three percent of the total households reported incomes more than \$100,000. The average median household income for the market area in 2000 was \$28,143. As a comparison, the median household income for the city was \$37,074 in 2000.

Table 1.5
Household Income in the Market Area, 2000

Income Range	Households	
	#	%
Less than \$10,000	303	14.8%
\$10,000 to \$20,000	438	21.4%
\$20,000 to \$40,000	707	34.5%
\$40,000 to \$60,000	340	16.6%
\$60,000 to \$100,000	196	9.6%
\$100,000 to \$150,000	43	2.1%
\$150,000 to \$200,000	14	0.7%
\$200,000 or more	7	0.3%
Total Households	2,048	100.0%

Source: US Census 2000 (Sample data)

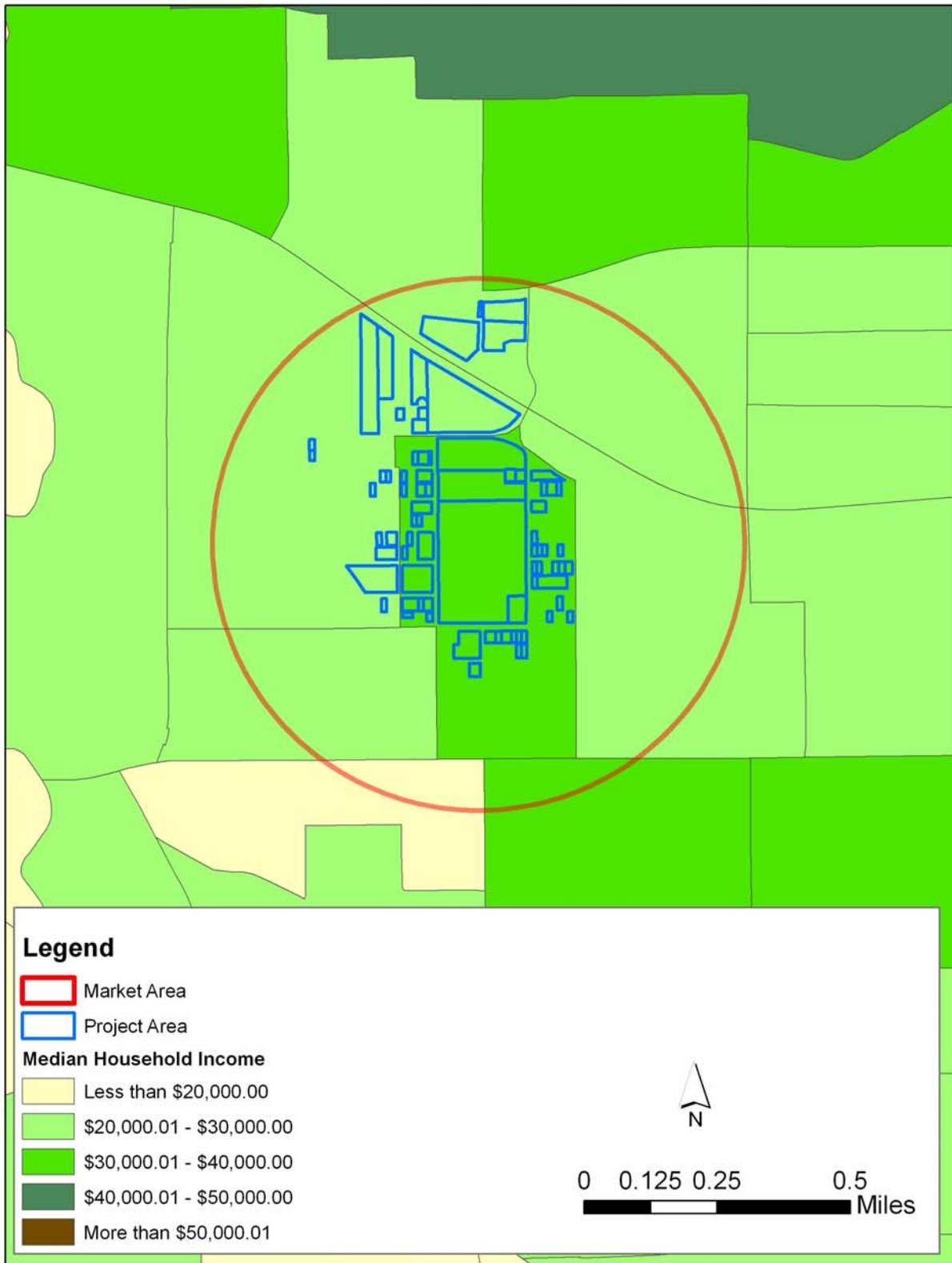
Chart 1.1
Percent of Households by Income Class for the Market Area, 2000



Source: US Census 2000

HMA Map 1.5 shows the median household income in the market area by census block group. The household income data is not available at census block level. The central block groups of the market area had incomes between \$30,000 to \$40,000 and peripheral block groups had incomes less than \$30,000.

HMA Map 1.5: Median Household Income by Census Block Group, 2000



Source: U.S. Census 2000

The poverty data in Table 1.6 shows the population and percentage of population in the market area that lived in poverty in 2000. The Census Bureau uses a set of income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically. For example, for a family size of four including two children, the income threshold was \$17,463 in 2000. All individuals in the families who meet the above family size and composition and earned below the income threshold were considered to be in poverty in 2000. The percentages 'below poverty level' are calculated out of the total population for each age group.

About 28 percent of the population in the market area lived in poverty in 2000. Over 37 percent of the children and 48.7 percent of the elderly in the market area lived below poverty level in 2000. As a comparison, the poverty rate for the city was 15.9 percent in 2000.

Table 1.6
Poverty Status for the Market Area, 2000

Age	Below Poverty Level	
	#	%
Under 5 years	292	37.1%
5 years	49	30.4%
6 to 11 years	270	29.1%
12 to 17 years	263	38.0%
18 to 64 years	1,040	24.4%
65 to 74 years	77	29.6%
75 years and over	45	19.1%
Total	2,036	27.8%

Source: US Census 2000

1.3. Employment

Employment opportunities and educational levels of the employees make a significant impact on housing affordability and the location choice of residents. The unemployment rate is defined as the percentage of civilian unemployed persons of the total civilian labor force. The data presented in Table 1.7 provides a portrait of the employment status and the unemployment rate in the market area. In the 2000,

15 percent of the persons age 16 and over reported being unemployed in the market area. As a comparison, the unemployment rate for the city was 5.9 percent in 2000.

Eighty five percent of the population in the area reported being employed. Looking at the educational attainment in the market area, 27.2 percent the persons over the age of 25 had less than a high school education. The percentage of high school graduates in the market area is comparable to the citywide high school graduation rate.

Table 1.7
Employment Status of the Market Area, 2000

Employment Status	#	%
In labor force:	3,076	
In Armed Forces	0	0.0%
Civilian:	3,076	100.0%
Employed	2,614	85.0%
Unemployed	462	15.0%
Not in labor force	2,213	
Total:	5,289	

Source: US Census 2000

HMA Map 1.6 shows 2000 unemployment rates in the market area by census block group.

HMA Map 1.6: Unemployment Rate by Census Block Group, 2000



Source: U.S. Census 2000

B. Housing Supply

2.1. Tenure and Occupancy

As presented in Table 2.1, there were 2,691 housing units in the market area in 1990 and 2,377 units in 2000. The total number of housing units in the market area decreased by 11.7 percent during the ten-year period. Of the total number of housing units in 2000, 53 percent were owner-occupied, 36.4 percent were renter-occupied, and the remaining 10.6 percent were vacant. The vacant units in the market area decreased by 55.4 percent between 1990 and 2000. The owner-occupied units in the market area increased from 1,054 units in 1990 to 1,260 units in 2000, a 19.5 percent increase. As a comparison, the percentage of owner-occupied units in the city was 51.7 percent in 2000. HMA Map 2.1 shows the distribution of occupancy rates in the market area.

Table 2.1
Tenure for Housing in the Market Area, 1990 and 2000

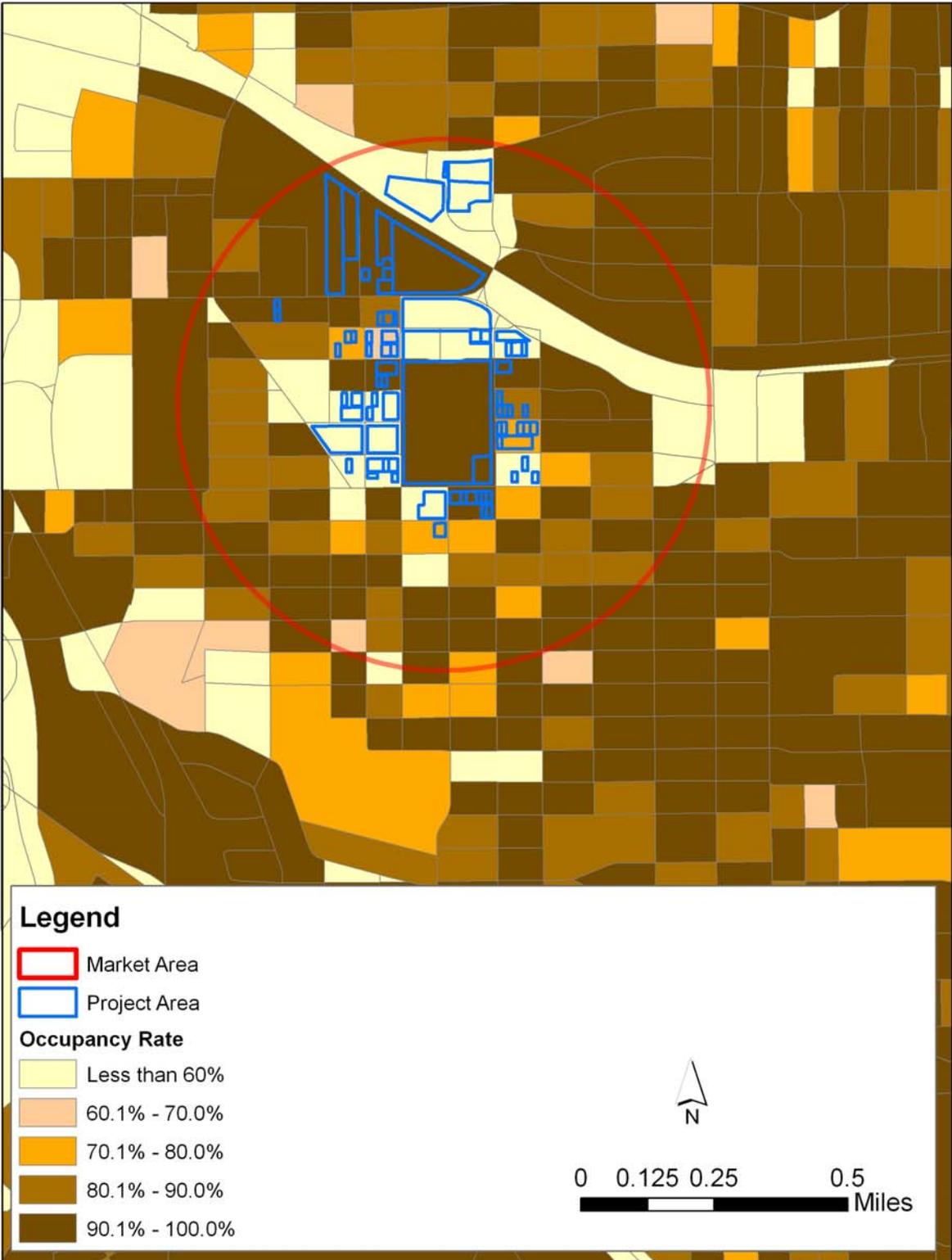
Tenure	1990		2000		1990-2000 Change	
	#	%	#	%	#	%
Owner-occupied	1,054	39.2%	1,260	53.0%	206	19.5%
Renter-occupied	1,074	39.9%	866	36.4%	-208	-19.4%
Total occupied (Owner + Renter)	2,128	79.1%	2,126	89.4%	-2	-0.1%
Vacant	563	20.9%	251	10.6%	-312	-55.4%
Total housing units	2,691	100.0%	2,377	100.0%	-314	-11.7%

Source: US Census 1990 and 2000

2.2. Housing Type

Table 2.2 shows that of all housing units in the market area in 2000, 81.2 percent were categorized as single-family detached, 4.1 percent as single-family attached, 8.2 percent contained two to four units, 5.6 percent as multifamily, and 3.6 percent as mobile home or other. The percentage of single-family housing of all the housing units in the market area increased by 8.3 percentage points between 1990 and 2000, but the total number of single-family units decreased by 36 units. The increase in the percentage of single-family units is due to the larger decreases in the overall number of units in other types of units. The percentage of duplex to quadra-plex

HMA Map 2.1: Occupancy Rate by Census Block, 2000



Source: U.S. Census 2000

units decreased in the area by 8.5 percentage points and multifamily units increased by 1.6 percentage points during the period.

Table 2.2
Housing Type for the Market Area, 1990 & 2000

Units in Structure	1990		2000		1990-2000 Change	
	#	%	#	%	#	%
Single-Family detached	1,920	72.2%	1,917	81.2%	-3	-0.2%
Single-Family attached	129	4.8%	96	4.1%	-33	-25.6%
2-4 units	446	16.8%	194	8.2%	-252	-56.5%
Multifamily	106	4.0%	133	5.6%	27	25.5%
Mobile home or Other	60	2.3%	21	0.9%	-39	-65.0%
Total	2,661	100.0%	2,361	100.0%	-300	-11.3%

Source: US Census 1990 & 2000 (Sample data)

Table 2.3 shows housing type by tenure within the market area in 2000. About 31 percent of single-family detached housing in the market area was renter-occupied in 2000.

Table 2.3
Housing Type by Tenure in the Market Area, 2000

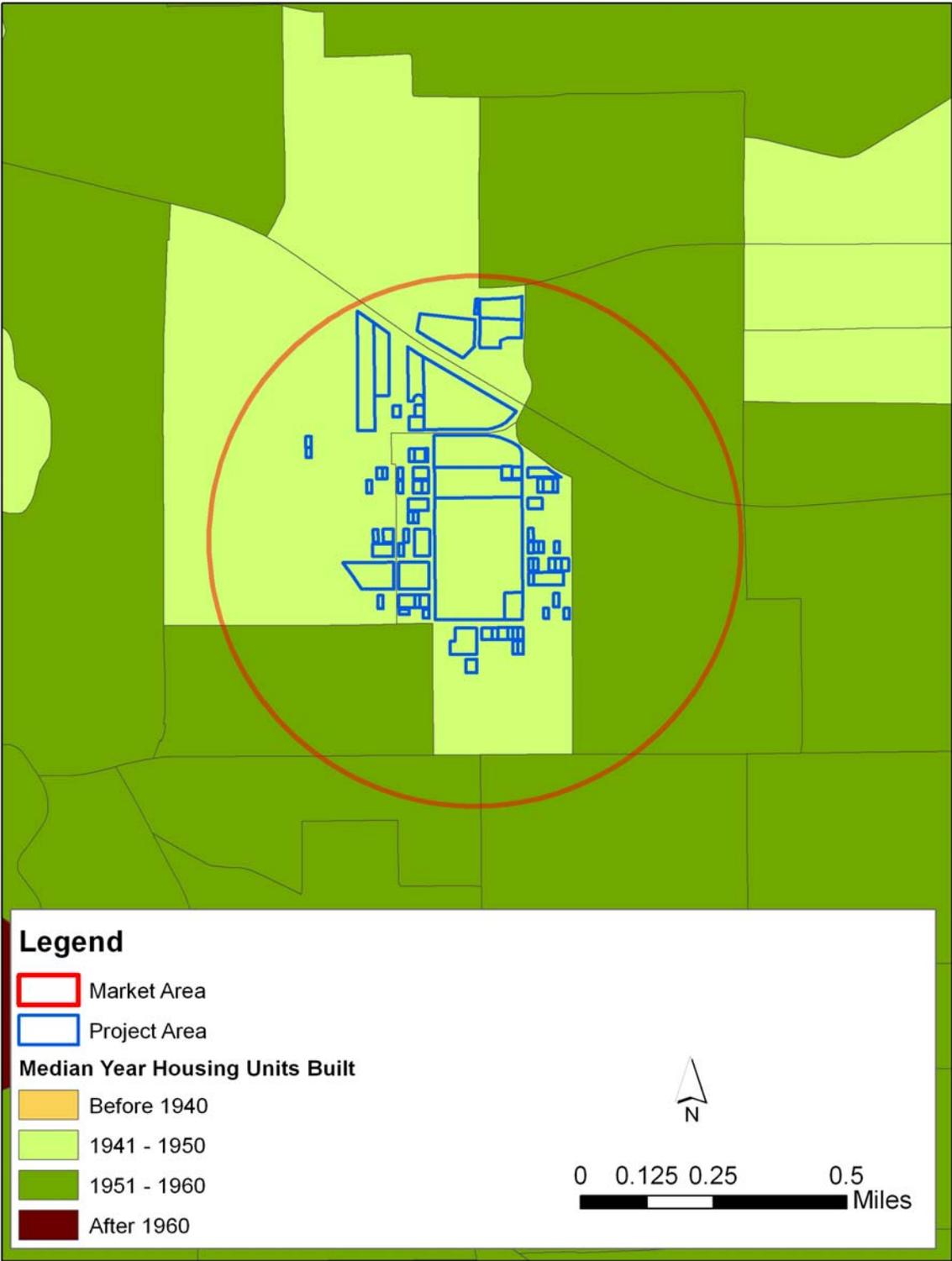
Housing Type	Owner-occupied		Renter-occupied		Total #
	#	%	#	%	
Single-family detached	1,234	69.5%	541	30.5%	1,775
Single-family attached	42	48.3%	45	51.7%	87
2 to 4 units	19	12.8%	130	87.2%	149
Multifamily	0	0.0%	109	100.0%	109
Mobile home and other	0	0.0%	16	100.0%	16

Source: US Census 2000 (Sample data)

2.3. Age of Housing Stock

Table 2.4 shows the age of the housing units as reported by the 2000 census. Over 77 percent of all housing units were built prior to 1960, 12.2 percent were built between 1960 and 1969, 5.7 percent were built between 1970 and 1979, and 5.0 percent were built after 1979. About 90 percent of the housing stock is more than 30 years old, built prior to 1970. These units may contain lead-based paint or likely to be in need of major repairs and maintenance. HMA Map 2.2 provides a geographic representation of the distribution of the oldest housing stock in the market area.

HMA Map 2.2: Median Year Built by Census Block Group



Source: U.S. Census 2000

Table 2.4
Age of Housing Stock in the Market Area, 2000

Year Structure Built	# of Units	% of Units
1939 or earlier	847	35.9%
1940 to 1949	553	23.4%
1950 to 1959	422	17.9%
1960 to 1969	287	12.2%
1970 to 1979	135	5.7%
1980 to 1984	55	2.3%
1985 to 1988	45	1.9%
1989 to March 1990	17	0.7%
Total	2,361	100.0%

Source: US Census 2000 (Sample data)



Older Dilapidated Housing Stock



Housing Stock in Major Repair



Dilapidated Home

2.4. Housing Value and Rent

The average median home value for the single-family houses in the market area was \$36,988 and the average median gross rent was \$498. Between 1990 and 2000, the median housing value in the area increased by \$3,188 from the 1990 figure of \$33,800. The median gross rent increased by \$132 from the 1990 figure of \$366. As a comparison, the median housing value in the city was \$71,100 and median gross rent was \$559 in 2000.

Table 2.5 shows the number of housing units by value range within the market area in 2000. Modal housing value range in the market area was \$20,000 to \$30,000 with 23.2 percent of the housing units in this value range. About 89 percent of the housing units in the market area were valued below \$70,000 in 2000. Less than two

percent of the housing units were valued more than \$100,000 in 2000. HMA Map 2.3 provides a geographic depiction of the distribution of housing values in the market area by census block group.

Table 2.5
Housing Value by Number of Units in the Market Area, 2000

Housing Value	# of Units	% of Units
Less than \$10,000	32	2.5%
\$10,000 to \$19,999	178	14.2%
\$20,000 to \$29,999	291	23.2%
\$30,000 to \$39,999	192	15.3%
\$40,000 to \$49,999	236	18.8%
\$50,000 to \$59,999	186	14.8%
\$60,000 to \$69,999	74	5.9%
\$70,000 to \$79,999	26	2.1%
\$80,000 to \$89,999	24	1.9%
\$90,000 to \$99,999	0	0.0%
\$100,000 or more	17	1.4%
Total units	1,256	100.0%

Source: US Census 2000 (Sample data)

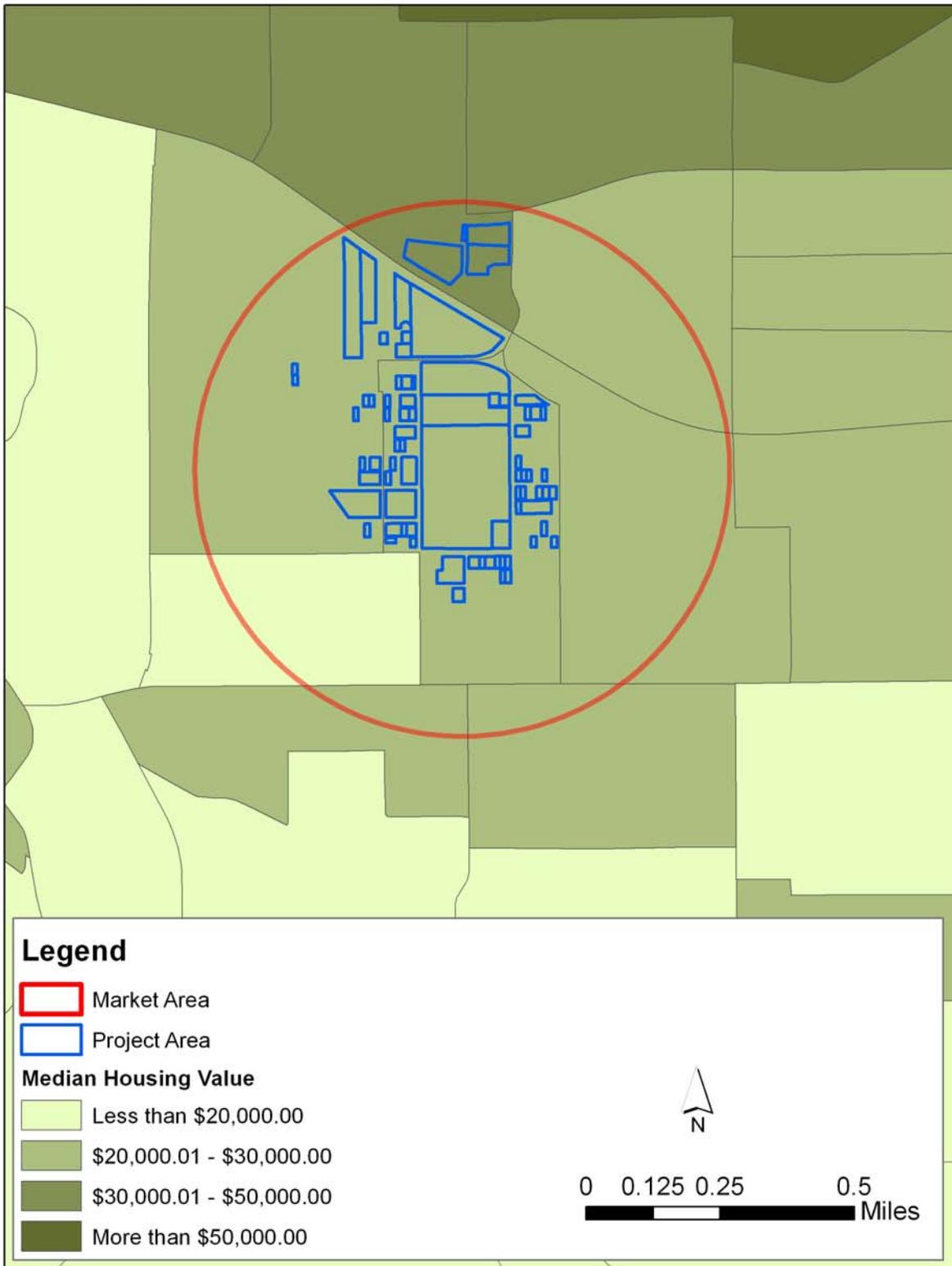
Table 2.6 shows the number of housing units by gross rent range within the market area in 2000. The modal rent range for efficiency, one-bedroom, two-bedroom and three or more bedroom units were \$300 to \$499. About 52 percent of efficiency units, 46.3 percent of one-bedroom units, 49.8 percent of two-bedroom units, and 39.0 percent of three or more bedroom units had rents in this range in 2000. HMA Map 2.4 provides a geographic depiction of the distribution of housing values and rents in the market area by census block group.

Table 2.6
Gross Rent by Number of Units in the Market Area, 2000

Gross Rent Range	Efficiency		1-Bed		2-Bed		3 or more Bed	
	# of Units	% of Units	# of Units	% of Units	# of Units	% of Units	# of Units	% of Units
<i>With cash rent:</i>	78	91.8%	197	98.0%	301	97.4%	239	97.2%
Less than \$200	0	0.0%	0	0.0%	4	1.3%	8	3.3%
\$200 to \$299	18	21.2%	10	5.0%	7	2.3%	14	5.7%
\$300 to \$499	44	51.8%	93	46.3%	154	49.8%	96	39.0%
\$500 to \$749	6	7.1%	64	31.8%	112	36.2%	71	28.9%
\$750 to \$999	0	0.0%	15	7.5%	12	3.9%	47	19.1%
\$1,000 or more	10	11.8%	15	7.5%	12	3.9%	3	1.2%
<i>No cash rent</i>	7	8.2%	4	2.0%	8	2.6%	7	2.8%
<i>Total</i>	85	100.0%	201	100.0%	309	100.0%	246	100.0%

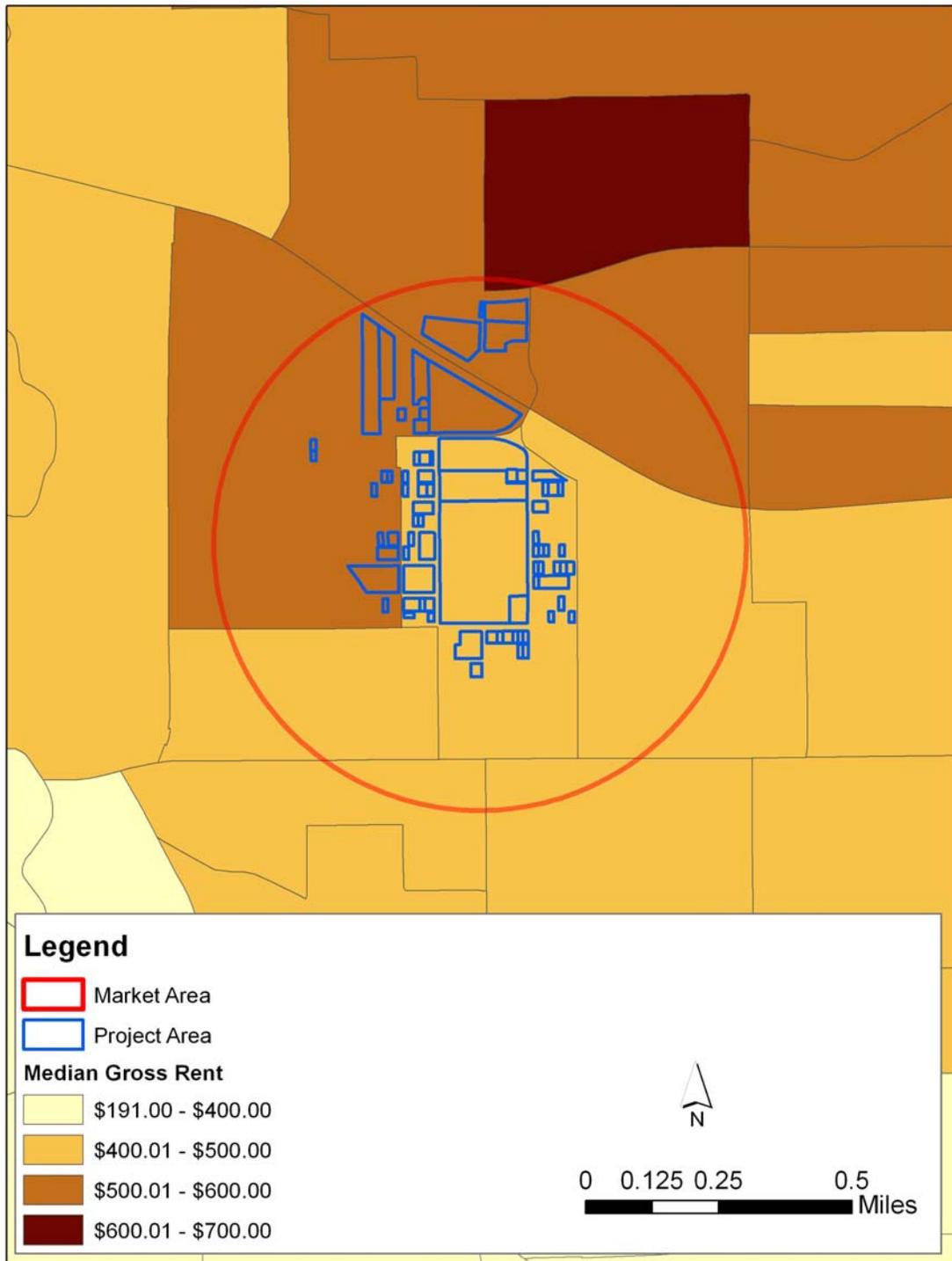
Source: US Census 2000 (Sample data)

HMA Map 2.3: Median Housing Value by Census Block Group, 2000



Source: U.S. Census 2000

HMA Map 2.4: Median Gross Rent by Census Block Group, 2000



Source: U.S. Census 2000

2.5. Current Housing Conditions

A site visit of the market area was conducted by NCTCOG staff on January 9, 2008. Though this is not a parcel level housing condition survey, it provides a picture of the general impression of the housing conditions within the neighborhood. A detailed building condition survey is recommended in this area at a later stage for an evaluation of structural conditions.

Based on observation, very few of the homes in this area are in good shape or in standard condition. Standard condition being defined as requiring absolutely no repair; paint, roof and wall are in good shape, no apparent sags, windows and doors fit well with the openings and no holes on the siding or roof. Many homes in the area need minor repairs such as touch-up of painted surfaces, missing bricks replaced, or spot repair of the roof. Also, some units are under rehabilitation and major repair work is showing some positive signs of reinvestment within the neighborhoods in the Polytechnic/Wesleyan Urban Village TOD area.

A large number of homes in this market area are likely to have structural problems, and maintenance issues and many homes need major repairs. Many homes in this area have structural problems such as foundation settlement, dips in the corners, sags in the roofs, or need re-roofing. Many others have maintenance problems such as holes in siding and brickwork and damaged doors and windows.



Standard Housing Condition



Rehabilitation Activity



Dilapidated Single-Family Housing

Some units are in dilapidated condition and are vacant. These units are deteriorated to an extent that rehabilitation of the unit may cost more than the value of the repaired home. These units typically have severe foundation problems, severely deteriorated roof, holes in siding, and ill fitting windows and doors. These units need to be demolished and vacant sites made available for future reinvestment.



Dilapidated Multifamily Housing

The market area contains a large number of vacant sites. Some resulting from recent demolitions while others had never been developed. A detailed analysis of developable vacant lots is provided in a later section.



Vacant Lots

2.6. Rental Housing and Current Rents

One apartment complex is noted in the market area, excluding the student housing. Sycamore Apartments is located at 900 S. Beach St. This multifamily development contains 36 one-bedroom units and the rents range from \$285-\$375.



Sycamore Apartments

TWU Student Housing

The TWU provides three student housing facilities within the market area, Wesleyan Village, Elizabeth Means Armstrong Hall, and Stella Russell Hall. The residence halls are approximately 75 percent occupied. The university has plans to open O.C. Arm Strong Hall for student residences based on the future demand. Currently, housing is only available for the single, traditional student population, though plans are underway to incorporate housing options for single mothers and families with children in the near future.

Wesleyan Village (2005)

The apartment-style residence hall houses approximately 260 students. Students have the choice of living in a four-bedroom, two-bathroom apartment shared by multiple students with private bedrooms and common living and dining areas, or an efficiency. Based on single or double occupancy, the rents range from \$850 to \$1,600 for summer semester and \$1,875 to \$4,000 for fall and spring semesters, including utilities and excluding the meal plans. The higher rental costs would be divided among multiple occupants and are rental prices per unit, not per occupant.



Wesleyan Village

Elizabeth Means Armstrong Hall (1957)

This residence hall is a two story co-ed residence hall for 75 students. Based on single or double occupancy, the rents range from \$575 for summer semester and \$1,445 to \$2,165 for fall and spring semesters, including utilities and excluding the meal plans.

Stella Russell Hall (1967)

This residence hall is a three story co-ed residence hall for 150 students. Based on single or double occupancy, the rents range from \$575 for summer semester and \$1,445 to \$2,165 for fall and spring semesters, including utilities and excluding the meal plans.



Elizabeth Means Armstrong Hall



Stella Russell Hall

C. Housing Demand

As shown in Table 3.1, the estimates provided by NCTCOG’s 2030 Forecast show marginal increase in the number of households, population, and employment in this area between 2000 and 2030. Between 2000 and 2030, the number of households are projected to increase by 118 to 2,825, 4.4 percent. The total population of the market area is projected to reach 10,316, an increase of 404 persons to 4.1 percent. The number of jobs within the market area is projected to increase by 302 to 4,286, a 7.6 percent increase in 30 years. HMA Map 3.1 illustrates the number of persons added to the area between 2000 and 2030 estimated by NCTCOG’s 2030 Forecast by TSZ.

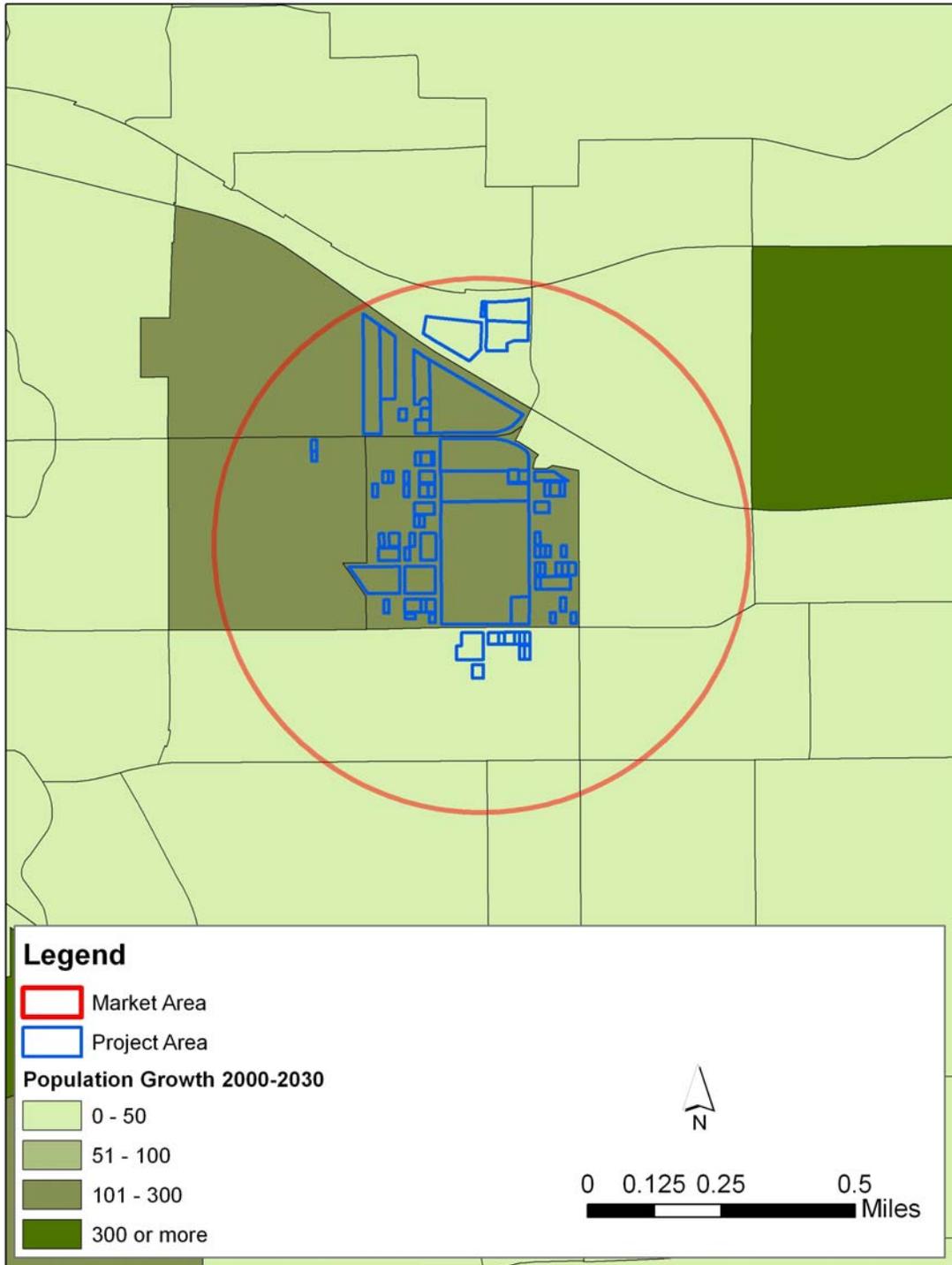
Table 3.1
Household, Population and Employment Projections 2000-2030

Year	Household	Population	Employment
2000	2,707	9,912	3,984
2005	2,813	10,298	4,286
2010	2,825	10,344	4,286
2015	2,825	10,316	4,286
2020	2,825	10,316	4,286
2025	2,825	10,316	4,286
2030	2,825	10,316	4,286

Source: NCTCOG 2030 Forecast Estimates

About 15 percent of the student population of TWU main campus currently lives on-campus. The 3,000 student population of TWU is distributed among three campuses, two campuses in Fort Worth and one campus in Burleson and only the main campus currently offers student housing. The majority of TWU students are non-traditional students, comprising of working adults who would typically live with their families. A number of those non-traditional students could live near the campus if affordable and quality rental housing were available within walking distance to the main campus. The decreasing number of units resulting from demolition, increasing occupancy rates, limited supply of rental housing, and student population provides a promising picture for the demand for multifamily and rental housing developments within the market area. Large tracts of vacant land owned by TWU, present within the neighborhood, and resulting from the demolition of older homes can provide an opportunity for the development of multifamily and rental housing in the market area to cater to the needs of students and residents within the area.

HMA Map 3.1: Population Growth 2000-2030



Source: NCTCOG 2030 Demographic Forecast

D. Conclusions

1. The market area contained a predominantly Hispanic population with about 68 percent Hispanics, over 20 percent African-American, and 49 percent Whites in 2000.
2. The age group distribution of the residents in the market area indicated that a very low percentage of the student population of TWU lived in the market area in 2000. This most likely relates to the fact that the majority of TWU students are non-traditional students comprising of working adults that live with their families in other areas.
3. Over eight percent of the residents of the market area were elderly persons in 2000 and about half of the elderly population lived in poverty in 2000. An elderly population earning very low incomes is often not able to maintain their homes and housing stock in the market area is falling into disrepair.
4. The residents of the market area earned very low income in 2000. About 36 percent of the households earned incomes less than \$20,000 and over 28 percent lived below the poverty level. Lower incomes result in a lack of maintenance and repairs to the homes in the market area.
5. The unemployment rate in the market area was approximately 16 percent, three times the unemployment rate of the city.
6. Vacant units in the area reduced by half in the market area between 1990 and 2000, which may be attributed to the decrease in the total number of units and demolitions that may have taken place during the period.

7. Homeownership rates in the market area increased by 10 percentage points and renter occupancy decreased by the same percentage between 1990 and 2000.
8. The supply of quality rental housing in the market area is very low when compared to the rental housing demand generated by the student population at TWU and the possible demand that could be generated by housing neighborhood residents. About 32 percent of single-family housing in the market area was renter-occupied in 2000. Increasing the supply of affordable multifamily housing in the market area could free these single-family housing units towards homeownership opportunities.
9. About 90 percent of the housing stock in the area was built prior to 1970. Though a building survey was not conducted, a visual observation of the neighborhood coupled with the 2000 housing data indicated that a high percentage of homes in this market area are likely to have structural problems and maintenance issues and many homes need either major repairs or are in dilapidated condition and should be demolished.
10. A large number of scattered vacant sites are present in the market area that provide infill housing opportunities. Also, some large contiguous sites are noted in the market area that provide opportunities for multifamily development.
11. The median housing value in the market area at \$36,988 is almost half of the overall city median value. The median rent in the market area was \$498 which is not significantly lower than the city figure in 2000. The comparable rents in the area indicate a higher demand for rental housing in the area.

E. Recommendations

1. Capitalize on the student housing market through new housing development.

A strong demand for new housing development in the market area can be generated from Texas Wesleyan University (TWU). The student population is a natural fit for a housing market if housing units could be made available in close proximity to the University. Majority of TWU students are non-traditional students, comprising of working adults who often live with their families. Only the main campus offers student housing. According to the estimates of TWU, living on-campus can save up to \$387 per month per student on non-rent expenses alone. Through the adaptive reuse of dilapidated buildings, the supply of affordable rental housing can be improved providing suitable housing options for families and single mothers in this area. This will increase and transform the area into a more viable live-work and institutional area. Both public investment and incentives will be needed to encourage such development. About 15 percent of the student population of TWU main campus currently lives on-campus.

In Austin, Texas, where there's a chronic student-housing shortage near the centrally located University of Texas (UT) campus, condos have been purchased for use by undergraduates for many years. Parents have determined in some instances it makes sense to purchase a condominium, which gives them the ability to write off certain costs as school expenses, including the property taxes. Depending on the cost of the condominium, it may be less expensive to put their student in a condo than in a dorm. Another benefit is the parking spaces that come with many Austin condos. Normally, UT



Student Condominiums, Austin, TX Example



Student Condominiums, Austin, TX Example

students pay about \$850 a semester to park their cars on campus, according to the University's Website. "Kiddie condos," as they are sometimes referred to in Austin, have bucked a recent downturn in Texas home values. Mid-\$100,000-range homes actually declined in value by about 10 percent in 2007 throughout Texas. In contrast, condos near the university continue to appreciate, with a two-bedroom rising from about \$135,000 to \$145,000 in 2005 - 2006.²

Cost effective redevelopment plans will have to be developed to make the conversion of the existing buildings to student housing. Some dilapidated multifamily, church, commercial buildings, and possible brownfield sites are present in the market area. In the case of adaptive reuse of commercial or institutional buildings, the cost to remove hazardous materials such as asbestos and the cost of renovation will likely require public subsidies to make the project financially feasible and to provide incentives that entice private developers to undertake such an initiative. The project financing could potentially be enhanced through the use of Brownfield Economic Development Grants and Section 108 loan guaranty financing provided by the City through the use of federal funds. Alternative means of funding infrastructure improvements might include consideration of a Tax Increment Finance (TIF) district or Public Improvement District (PID).

2. Increase the supply of rental housing and multifamily housing.

The supply of quality rental housing in the market area is very low when compared to the rental housing demand generated by the student population at TWU and the possible demand that could be generated by housing renter-occupied households in the neighborhood. About 32 percent of single-family housing in the market area was renter-occupied in 2000. Increasing the supply of affordable multifamily housing in the market area could free these single-family housing units towards homeownership opportunities.

A couple of multifamily housing properties are noted in the market area that are in dilapidated condition. The funding for the rehabilitation could come from Community Development Block Grant (CDBG) program and Section 108 loan guarantees. Section

108 provides communities with a source of financing for economic development, housing rehabilitation, public facilities, and large-scale physical development projects.

Some large contiguous sites are noted in the market area that provides opportunities for multifamily development. The land that is owned by TWU and not currently being used could be leased for housing development. The available low-cost land could provide incentives to provide student apartments at low rental rates. The location on campus would enable students to live close to classes.

3. Restore the community's basic attributes.

Housing data and a windshield observation of the market area indicated that a large number of homes need minor to major repairs. Litter and bulk trash is noted in various locations of the market area. Cleaning up the neighborhoods, picking up trash, paint jobs and minor repairs to homes can restore the community's basic attributes.

Form a Neighborhood Organization: The City of Fort Worth's Neighborhoods and Community Outreach Office provides information on the neighborhood associations in the area and also assists in forming a neighborhood association from scratch. Forming a neighborhood association is a starting point to share common issues and receive assistance from the City. Involvement of the market area residents into one of the existing neighborhood organizations or forming a new neighborhood organization in the area would create a forum for neighborhood residents to discuss common concerns. HMA Map 4.1 illustrates the neighborhood associations in and around the market area.

Partner in the Model Blocks Program: The Model Blocks Program is the City's revitalization effort aimed at "building strong neighborhoods, a safe community and sound economy". This program makes a visible impact by concentrating city activities in a predefined area utilizing Community Development Block Grant (CDBG) and HOME Investment Partnerships Program (HOME) funds. The Home Improvement Loan Program is a significant part of the program. Eighteen Model Blocks have been

established in the City in 14 years and Neighborhoods compete for the Model Blocks award.

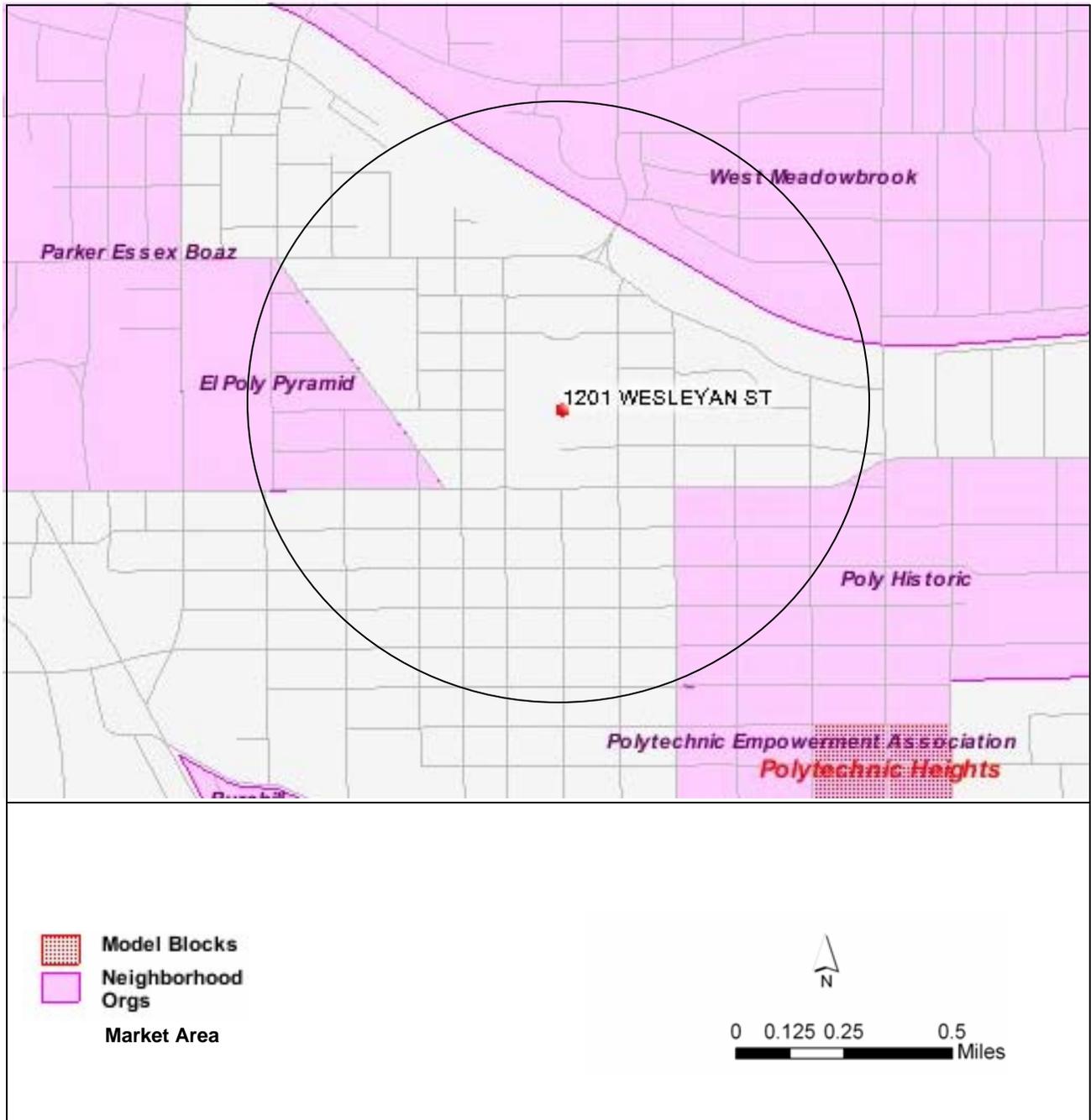
HMA Map 4.1 illustrates the Polytechnic Heights Model Block southeast of the area. The market area is within the CDBG Eligible Area and is eligible for Model Block Program funding, but to be a partner of this program, the area should have a neighborhood association.

Implement Self-Help Initiatives: Implement Self-Help Initiatives aimed at recruiting greater involvement from volunteers, community organizations, and businesses as a means of supplementing available financial resources for housing repair and neighborhood cleanups.

The City currently administers Join Code Rangers Program that provides a six-hour training course to citizens to identify and report code violations. Involvement of the neighborhood residents in this program would help various code enforcement issues in the market area to the Code Enforcement Department's attention.

- **Provide additional city sanitation service for bulk and brush pick-up** at no additional cost to residents at specified intervals and during organized clean-up campaigns to encourage the removal of junk and debris and to encourage yard maintenance.
- **Increase self-help initiatives such as "fix-up," "paint-up," or "clean-up" campaigns and "corporate repair projects"** where neighborhood residents, student organizations, religious institutions, community organizations, individuals, and corporations are encouraged to repair the homes of elderly, disabled, and indigent homeowners through organized volunteer efforts involving their members and City employees.

HMA Map 4.1: Neighborhood Associations and Model Block Area



Source: City of Fort Worth

- **Organize a “Compliance Store”** where home builders, building supply stores, merchants, and celebrities, such as radio and TV personalities, demonstrate simple, cost effective ways to make improvements to houses and donate building supplies for use in self-help projects. The supplies and storage facility for supplies could be provided to enrollees by building supply stores, contractors, and hardware stores.
- **Organize "adopt-a-block" and "adopt-an-intersection" campaigns** where neighborhood groups, residents, scout troops, student organizations, and businesses adopt key vistas and intersections to maintain and implement beautification projects, such as flower and shrub plantings and maintenance.



Voluntary Clean Up Program,
Indianapolis, IN Example



Voluntary Paint Up Program,
Weaverville, NC Example

4. Enhance community image and identity.

Adding trees to streetscape immediately adds beauty and color and helps in filtering pollution. A number of vacant lots are noted in the market area and many of them are not maintained by the property owners, have litter and degrade the image of neighborhoods in the market area.

The City of Fort Worth currently administers a free-tree planting program that is creating beautiful tree-lined streets in the city. Trees provided by the City must be planted in the parkway (the area between the sidewalk and the curb). Under the program, the

participants agree to plant the trees and water them for up to two years, or until they are established.

The City's Traffic Services Division helps in installing neighborhood identification markers on the top of street signs that enhance neighborhood identity.

The City's Neighborhood Development Program provides funding to neighborhood associations, community groups, non-profit groups, or private businesses to receive matching funds to develop neighborhood parks in their community. This program provides an opportunity to leverage private resources with city funds for park improvements.

Community gardens provide an opportunity for neighborhood residents to work together to increase the attractiveness of their neighborhood. Formats for community gardens range from attaching simple window boxes to homes along a street that reflect a common theme, to coordinating garden planting, or converting a vacant lot that may previously have been an eyesore in the neighborhood into a flower or vegetable garden tended by members of the community.



Community Garden, City of Winnipeg,
MD Example



Community Garden, Jacksonville, FL Example

5. Infill housing on vacant lots and replace housing by demolishing older units.

A number of vacant lots and dilapidated housing units are noted in the area. Infill housing development on vacant lots can take vacant residential properties and return them to productive use through the construction of a new home. The market area also contains many dilapidated units which should be demolished to make the vacant lots available for new development. Private builders, Community Development Corporations (CDC), and the Housing Authority can take active part in infill development. One source of funding, in addition to City Housing and Community Development Program funding, is offered by the Federal Home Loan Bank (FHLB) which operates the Affordable Housing Program. This program could provide needed funds for principle reduction, down-payment and closing cost assistance, acquisition, and land assemble of vacant properties in support of new housing development on vacant lots in the market area. A Member Financial Institution must submit an application to the Federal Home Loan Bank on behalf of the City or an eligible nonprofit entity that will be responsible for administering the program funds. The Financial Institution disburses the funds in accordance with the FHLB guidelines. The program awards funds on a competitive basis, subject to a selection criteria based on various program benefit measures.

Part II: Transit Contingency Planning Analysis

Introduction:

This Transit Contingency Planning Analysis was prepared to provide planning assistance to the City of Fort Worth. The goal of this transit contingency planning analysis is to examine potential options for transit and transit-oriented development in the Polytechnic/Wesleyan Urban Village TOD area, which is defined as the half-mile radius surrounding the Texas Wesleyan University main campus. This document is solely intended as planning guidance—it is not a guarantee that any of the transit options discussed will be implemented. The process to implement public transit is a lengthy one—options must initially be included in the region’s mobility plan, an alternatives study must be conducted, a federal environmental process must be initiated, and funding must be identified. This document does not outline a process for transit decision making; its only purpose is to lay out an assortment of options for transit in the Polytechnic/Wesleyan Urban Village TOD area. As the transit authority for Tarrant County, the Fort Worth Transportation Authority is ultimately responsible for transit planning and decision making in the project area.

The Transit Contingency Planning Analysis contains five components:

- A. Transit Options: This section provides background information on transit options that could be implemented in the Polytechnic/Wesleyan Urban Village TOD Area, which include but are not limited to commuter rail, bus rapid transit, and regular bus service.
- B. Transit-Oriented Development Opportunities: This section describes key zones and specific parcels in the Polytechnic/Wesleyan Urban Village TOD Area that could be developed into high-quality transit-oriented developments.
- C. Pedestrian and Zoning Improvements: This section provides specific recommendations for pedestrian and zoning improvements in the

Polytechnic/Wesleyan Urban Village TOD Area that would promote connectivity and allow high-quality development by right.

- D. Conclusions: Based on the analysis from the previous sections, conclusions are provided.
- E. Recommendations: Based on the analysis from the previous sections, recommendations are provided to help plan for transit-oriented development in the Polytechnic/Wesleyan Urban Village TOD Area.

The maps for the Transit Contingency Planning Analysis (TCPA) are referred to throughout this report as TCPA Map 1.1, TCPA Map 1.2, etc., and are separate from the maps in the Housing Market Analysis (HMA), which are referred to as HMA Map 1.1, HMA Map 1.2, etc.

A. Transit Options

This section will explain the various transit technologies that could be used in the Polytechnic/Wesleyan Urban Village TOD Area, including commuter rail, bus rapid transit, and regular bus service. It is important to note that these technologies are not the only transit technologies that may be considered for the Polytechnic/Wesleyan Urban Village TOD area. Light rail and modern streetcar technology are alternative technologies not analyzed in this report. Corridor focus is on the Union Pacific Mainline, Lancaster, Vickery, and Rosedale corridors, which all run East-West through the area.

What is Commuter Rail¹?

Commuter Rail functions on an electric or diesel propelled railway for urban passenger train service consisting of local short distance travel operating between a central city and adjacent suburbs. Service is operated on a regular basis by or under contract with a transit operator for the purpose of transporting passengers within or between urbanized areas and outlying areas. A commuter rail (CR) car is a commuter rail mode passenger car - either an un-powered passenger coach that is pulled or pushed by one or more locomotives, or a self-propelled passenger car that has an onboard power source or

that draws power from overhead electric wires (i.e., METRA commuter rail train in Chicago). A locomotive is a power unit vehicle that does not carry passengers that is used to pull or push commuter rail passenger coaches.

In general, commuter trains are built to heavy rail standards, differing from light rail or rapid transit systems by: being larger; having (in most cases) a lower frequency of service; having scheduled services (i.e. trains run at specific times rather than at specific intervals); serving lower-density areas, typically by connecting suburbs to the city centre; sharing track or right-of-way with intercity or freight trains. A benefit of commuter rail is its ability to coexist with freight or intercity services in the same right-of-way, drastically reducing system construction costs. Systems are frequently built with dedicated tracks within that right-of-way to prevent delays.

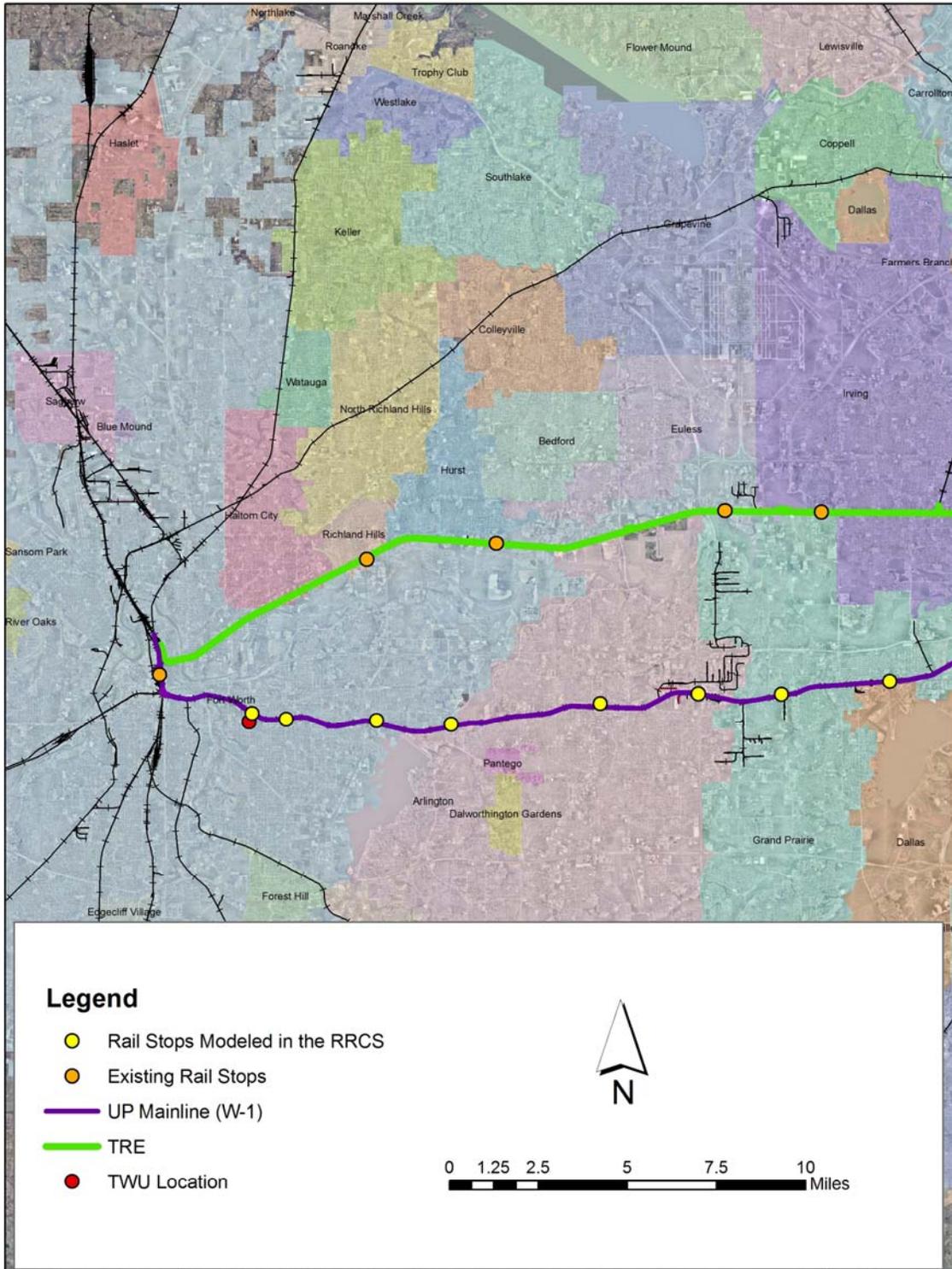
1.1 Commuter Rail on the existing Union Pacific Mainline

1.1.1 Corridor Description³:

NCTCOG, in partnership with local transit authorities, began work on a comprehensive Regional Rail Corridor Study (RRCS) in May 2003. The study focused on eight passenger rail corridors throughout the Dallas-Fort Worth Metropolitan Area, as defined in Mobility 2025: The Metropolitan Transportation Plan, 2004 Update¹². The RRCS effort included a review, inventory, and assessment of the transit needs throughout the eight rail corridor areas. The overall goal was to provide sound data and recommendations to decision makers regarding the region's transit needs. Study results refined recommendations for the Metropolitan Transportation Plan, guided decisions regarding regional rail staging and implementation, and outlined financial and institutional structures for consideration by regional policy makers.

Rail Corridor W-1 was one of eight freight rail corridors in the Dallas-Fort Worth area studied for the feasibility of implementing commuter rail, light rail, or other forms of transit services. Corridor W-1 is a Union Pacific line that extends 37 miles from the T&P Terminal in Downtown Fort Worth to Union Station in downtown Dallas (see TCPA Map 1.1).

TCPA Map 1.1: Trinity Railway Express and Union Pacific Mainline Corridors



Source: NCTCOG RRCS Study, 2005

The W-1 corridor (Union Pacific Mainline) between downtown Fort Worth and downtown Dallas is a Class I rail line that carries a high volume of freight rail traffic, currently carrying approximately 30 trains per day. The Union Pacific Railroad owns all of the right-of-way along the corridor. The railroad right-of-way is typically 100 feet in width. The Burlington Northern Santa Fe has trackage rights for shared use of the mainline under agreement with the Union Pacific Railroad. The mainline is double tracked throughout the entire corridor, with Centralized Train Control (CTC) signaling and a maximum operating speed of 60 mph.

The W-1 Regional Rail Alternative would provide regional rail passenger service along the UP Mainline between downtown Fort Worth and downtown Dallas. A third continuous parallel track would be added to the existing double track within the corridor. Passing tracks would be required at stations and other convenient locations. Train control and signal systems would be upgraded. The existing bridges and culverts may have to be extended, replaced, or rebuilt to accommodate the parallel third track. Highway/railroad at-grade crossings with minimal crossing protection but high volumes of automotive traffic will have to be improved with the installation of warning devices such as lights, bells, and gates. Approximately nine regional rail passenger stations would be constructed along the W-1 Corridor between Dallas Union Station and the Fort Worth Intermodal Transportation Center. A special-events station could also be constructed to serve the Rangers Ballpark in Arlington, Six Flags Over Texas, and the future Cowboy Stadium in Arlington.

The Regional Rail Corridor Study projected 430 daily boardings at a TWU commuter rail station in the year 2030.

1.1.2 Potential Locations for Commuter Rail Stations along the UP Mainline Corridor:

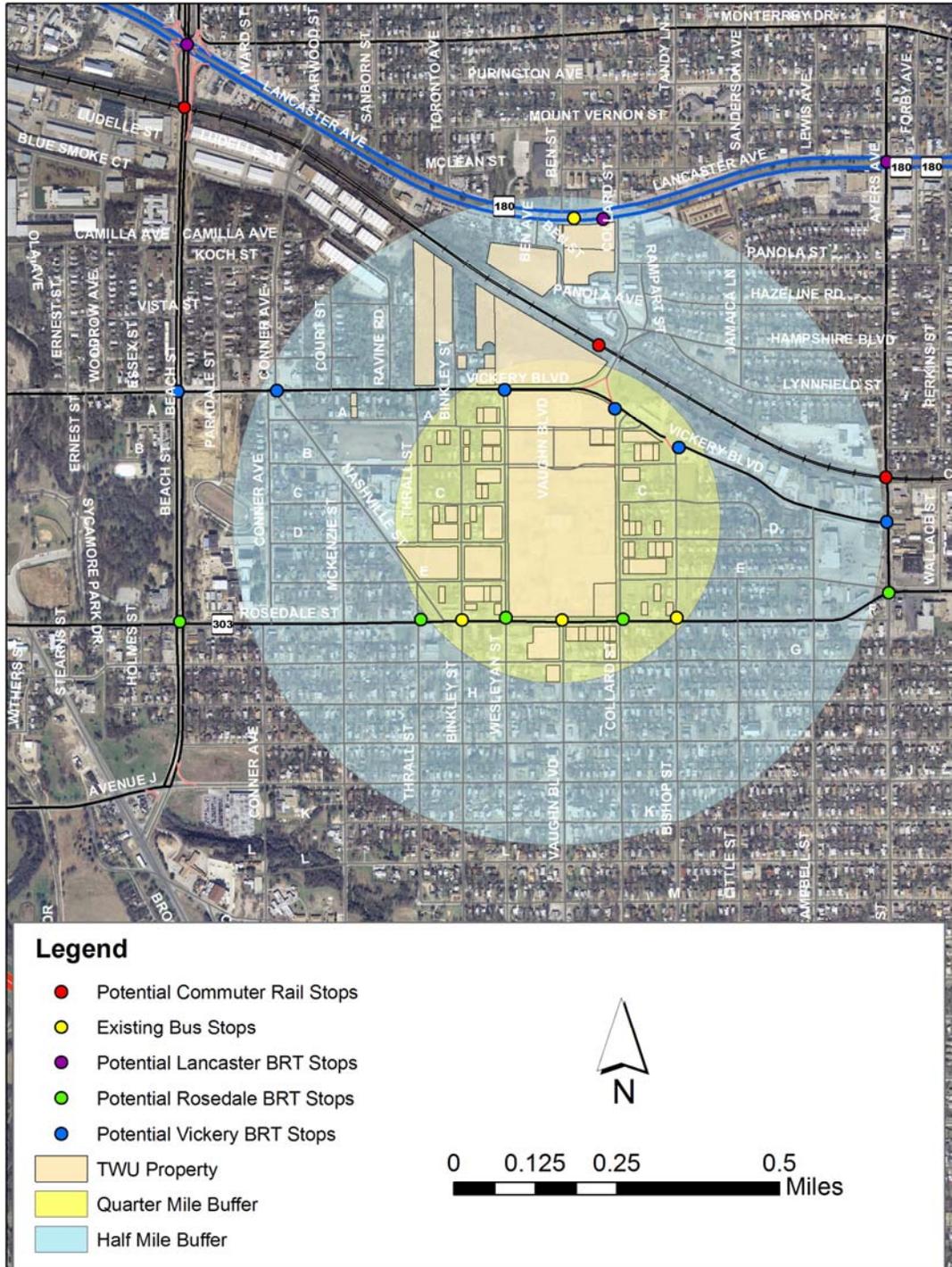
As identified in the Regional Rail Corridor Study, the Union Pacific Mainline commuter rail corridor would ideally have a stop at TWU. The nearest stop to the west of that

location that was identified in the study would be at the Fort Worth Intermodal Transportation Center, approximately 4 miles away. The Fort Worth Intermodal Transportation Center would also provide linkages for daily riders on the Trinity Railway Express (TRE) commuter rail line. The nearest stop to the east of TWU that was modeled in the study would be near the intersection of Oakland and Hawlet streets, approximately 1 mile away. It is possible, however, that a station could be placed near the intersection of Beach Street and the UP Mainline, or at Ayers Street and the UP Mainline, depending on the results of an alternatives analysis. However, these locations would not be as advantageous to the Polytechnic/Wesleyan Urban Village TOD area as a station placed very close to campus. While the amount of land needed for a given commuter rail station varies because of parking needs, on average stations require between 3 and 7 acres. The majority of the acreage at a commuter rail station is taken up by parking. In this analysis, the focus is on property owned by TWU. Neither the City of Fort Worth nor the Fort Worth Transportation Authority owns any parcels of substantial size in this area to warrant analysis of potential for station locations or transit-oriented development. Currently, there is available land for a station near TWU in two separate places (see TCPA Map 1.2).

1. Land owned by TWU north of the corridor tracks along Panola Avenue (legal description of the parcel is: Kuykendalls Consolidated Subdivision, Block 3A, Lot B). This parcel is approximately 3.82 acres in size. This location is within half a mile of the center of the TWU campus.
2. Land owned by TWU south of the corridor tracks at the intersection of Vickery and Collard Streets (legal description of these parcels is: John Ringer Survey A 1287, TR 8 and the L. Wilma Davis Addition Block 2 Lot 1). These parcels total approximately 10.7 acres in size. This location is within a quarter mile of the TWU campus.

Due to the size and location south of the tracks and directly next to campus, the parcels near Vickery and Collard Streets are the preferred location for a commuter rail station.

TCPA Map 1.2: Potential Transit Stop Locations in the Polytechnic/Wesleyan Urban Village TOD Area



Source: NCTCOG

What is Bus Rapid Transit (BRT)⁴?

BRT is an innovative, high capacity, lower cost public transit solution that can significantly improve urban mobility. This permanent, integrated system uses buses or specialized vehicles on roadways or dedicated lanes to quickly and efficiently transport passengers to their destinations, while offering the flexibility to meet transit demand. BRT systems can easily be customized to community needs and incorporate state-of-the-art, low-cost technologies that result in more passengers and less congestion.

Bus Rapid Transit Systems often include the following features:

- Bus only, grade-separated (or at-grade exclusive) right-of-way: the main feature of a BRT system is having dedicated bus lanes which operate separately from all other traffic modes. This allows buses to operate at a very high level of reliability since only professional drivers are allowed on the busway.
- Comprehensive Coverage: In addition to using dedicated busways, BRT systems can also take advantage of existing roadways in cities that already have a comprehensive road network for private automobiles.
- Serves a diverse market with high-frequency all day service: A BRT network with comprehensive coverage can serve a diverse market by moving people from their current location to their destination with high frequency and reliability while maintaining a high level of customer experience. As with any transit system, if any of these benefits are taken out of the equation, or do not provide better service than other modes of transit, the network will not be able to serve as diverse a market or offer high-frequency service without heavy subsidy.
- Off-bus fare collection: Conventional on-board collection of fares slows the boarding process, particularly when a variety of fares is collected for different destinations or classes of passengers. Collection of fares at the bus stop using a ticket machine helps expedite the boarding process.
- Level boarding: Many BRT systems use low-floor buses (or high level platforms with high-floor buses) to speed up passenger boardings and enhance accessibility.

1.2 Bus Rapid Transit along Lancaster

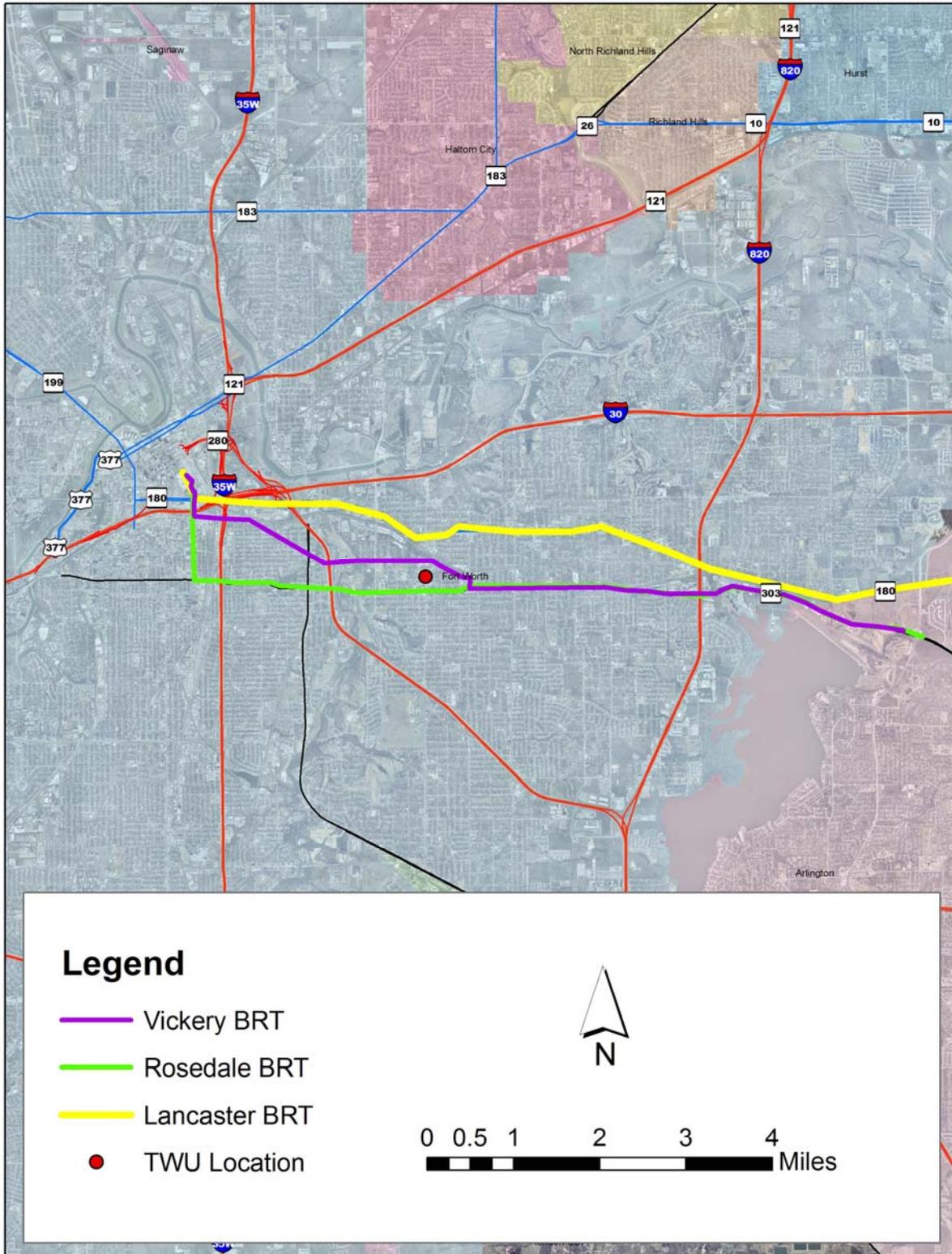
1.2.1 Corridor Description³:

Bus Rapid Transit (BRT) along Lancaster was studied as an alternative to commuter rail in the Regional Rail Corridor Study. BRT would provide express bus service operating along a fixed guideway located within the right-of-way of SH-180 (Lancaster) between downtown Dallas and downtown Fort Worth. The BRT service would operate within the roadway in mixed traffic approaching downtown Dallas and approaching downtown Fort Worth. Short segments of the BRT line might also be operated within the roadway in mixed traffic within downtown Grand Prairie and Arlington. Approximately 22 BRT passenger stations would be constructed along the W-1 Corridor between the downtown Dallas DART Transfer Center and the Intermodal Transportation Center in downtown Fort Worth (see TCPA Map 1.3). BRT service of this type would require inter-jurisdictional cooperation between Dallas Area Rapid Transit (DART) and the Fort Worth Transportation Authority (FWTA).

1.2.2 Potential Locations for BRT Stops/Stations along Lancaster:

BRT along Lancaster was studied as an alternative in the Regional Rail Corridor Study, and a stop was identified in the study near TWU. The nearest stop west of TWU that was modeled in the study would potentially be near the intersection of Riverside and Lancaster, approximately 1.5 miles away. The nearest stop east of TWU that was modeled in the study would potentially be near the intersection of Oakland and Hawlet streets, approximately 1 mile away. Other potential stops, depending on an alternatives analysis, might be at Lancaster and Beach Streets, or Lancaster and Ayers Streets, though these locations would not be as advantageous to the Polytechnic/Wesleyan Urban Village TOD area as a stop placed closer to campus. This alternative, if chosen, may generate a need for the Fort Worth Transit Authority to implement designated north/south bus or shuttle routes to connect these stops to the TWU campus.

TCPA Map 1.3: Potential Bus Rapid Transit Routes in the Polytechnic/Wesleyan Urban Village TOD Area



Source: NCTCOG

The amount of land needed for a BRT station varies due to less need for parking at stations. BRT stations/stops can be very small (as in a regular bus stop), or can function more as a park and ride. There is one location along Lancaster that would be ideal as a BRT station (see TCPA Map 1.2):

1. Land owned by the City of Fort Worth at the corner of Collard and Lancaster, on the south side of Lancaster (legal description: Kuykendalls Consolidated Subdivision, Block 1A), and the adjacent parcel, owned by Texas Wesleyan University (legal description: Kuykendalls Consolidated Subdivision, Block 2A). These parcels total approximately 4.2 acres in size. This site is within a half mile of the center of the TWU campus. Collard Street provides access to the campus.

1.3 Bus Rapid Transit along Rosedale

1.3.1 Corridor Description:

Bus Rapid Transit would provide express bus service operating along a fixed guideway located within the right-of-way of Rosedale Street. Origin of service would most likely be at the Intermodal Transportation Center in downtown Fort Worth (see TCPA Map 1.3). Bus Rapid Transit along Rosedale is analyzed in this report as just a possibility—there are no current plans from the Fort Worth Transportation Authority to pursue BRT along this corridor.

1.3.2 Potential Locations for BRT Stops along Rosedale:

Determination of the end of the route or the number of stations along the route is beyond the scope of this report; however, it would be possible that stations could be located at Rosedale and Beach Streets or Rosedale and Ayers Streets, depending on alternatives analysis. These locations would not be as advantageous to the Polytechnic/Wesleyan Urban Village TOD area as a location closer to campus (see

TCPA Map 1.2). There are three potential locations for a BRT stop along Rosedale, close to campus (see TCPA Map 1.2):

1. At the intersection of Wesleyan and Rosedale Streets, on the north side of Rosedale. Since there is no available vacant land at this location, this stop would not be a park and ride stop, but rather a pick-up/drop-off point. There is adequate room for a BRT stop along Rosedale Street if it is of the pick-up/drop-off variety. This location is less than a quarter mile from the center of the TWU campus.
2. At the intersection of Collard and Rosedale Streets, on the north side of Rosedale. This location has the same limitations and characteristics as the Wesleyan/Rosedale intersection location, and it is less than a quarter mile from the center of the TWU campus.
3. At the intersection of Rosedale and Thrall Streets, on the north side of Rosedale. There is a triangular parcel of vacant land at this site that could be used for an enhanced station and possibly a small amount of parking, (legal description of the parcel is Polytechnic Heights Addition, Block 15, Lot 7). This parcel is approximately .21 acres in size. This location is approximately one quarter mile from the center of the TWU campus.

1.4 Bus Rapid Transit Along Vickery

1.4.1 Corridor Description:

Bus Rapid Transit would provide express bus service operating along a fixed guideway located within the right-of-way of Vickery Street. Origin of service would most likely be at the Intermodal Transportation Center in downtown Fort Worth. Bus Rapid Transit along Vickery is analyzed in this report as just a possibility—there are no current plans from the Fort Worth Transportation Authority to pursue BRT along this corridor.

1.4.2 Potential Locations for BRT Stops/Stations along Vickery:

Determination of the end of the route or the number of stations along the route is beyond the scope of this report; however, it would be possible that stations could be located at Vickery and Beach Streets or Vickery and Ayers Streets, depending on alternatives analysis. These locations would not be as advantageous to the Polytechnic/Wesleyan Urban Village TOD area as a location closer to campus (see TCPA Map 1.2). There are two potential locations for a BRT stop along Vickery (see TCPA Map 1.2):

1. At the intersection of Wesleyan and Vickery, on the south side of Vickery. There is some available land to develop an enhanced station; or, if the station was placed on the north side of Vickery, it could be developed in conjunction with housing to become a true TOD. This location is within a quarter mile of the center of the TWU campus, (legal description of the parcels on the north side of Vickery is John Ringer Survey A 1287, TR 8 and the L. Wilma Davis Addition Block 2 Lot 1). These parcels total approximately 10.7 acres in size. On the south side of Vickery there are two parcels, (legal description of the parcels is the Juan Armendaris Survey, A 1773, TR 6B and TR 6C01, and the John Ringer Survey, A 1287 TR 8A01). These parcels total approximately .55 acres in size.
2. At the intersection of Vickery and Collard streets, on the south side of Vickery and the west side of Collard. TWU owns land at this location that could be developed into an enhanced BRT station and possibly a small amount of housing (legal description is Texas Wesleyan Addition, Block A, Lot 1). This location is within a quarter mile of the center of the TWU campus. The undeveloped section of this large parcel totals approximately .54 acres in size.

1.5 Existing Transit Options

Currently there are two regular bus routes that serve the Polytechnic/Wesleyan Urban Village TOD Area with stops that are within one half mile of the center of campus. The

East Rosedale line (Route 4) contains a stop at Rosedale and Bishop near campus, which is within one quarter mile of the center of campus. The Ramey/Vickery line (Route 9) has stops at Rosedale and Binkley Streets, and Rosedale and Vaughn Streets, both within a quarter mile of the center of campus. The next closest existing bus stop is along East Lancaster (Route 2E) at Collard Street, which is within a half mile of campus (see T CPA Map 1.2). Texas Wesleyan University does not have a campus shuttle or circulator system.



Bus Stop at Rosedale and Vaughn



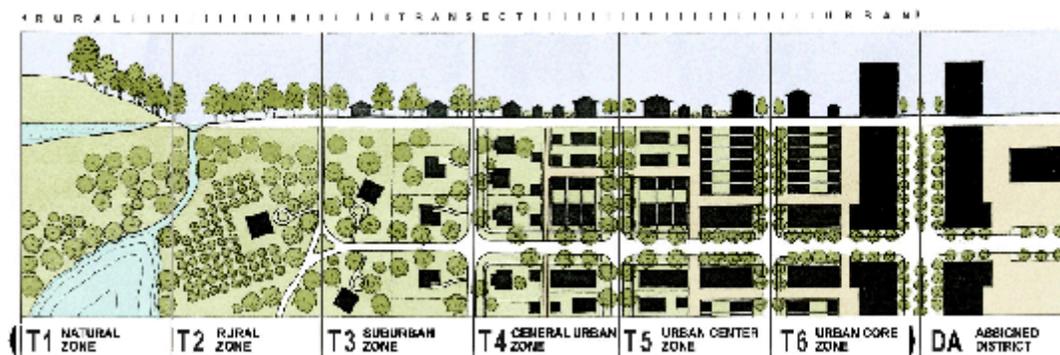
Bus Stop at Rosedale and Binkley

In light of the various transit options surrounding the Polytechnic/Wesleyan Urban Village TOD Area, it is important to plan for transit-oriented development that will enhance quality of life and community cohesion for the neighborhood. A discussion of opportunities for transit-oriented development follows in Part B.

B. Transit-Oriented Development Opportunities

2.1 Polytechnic/Wesleyan Urban Village TOD Area and the Urban-to-Rural Transect⁵

The Urban-to-Rural Transect is a categorization system that organizes all elements of the urban environment on a scale from rural to urban (see diagram below). The Transect has six zones, moving from rural to urban, and one special district zone. The transect allows planners, developers, city staff, and elected officials to organize the built environment and make sound decisions about development and public transit.



The Polytechnic/Wesleyan Urban Village TOD Area falls in between the T4 and T5 zones. The T4 zone (General Urban) has a dense and primarily residential urban fabric. Mixed-use is usually confined to certain corner locations. This zone has a wide range of building types, e.g., single family houses, townhouses, and rowhouses. Setbacks and street tree settings are variable. Streets typically define medium-sized blocks. Typical residential density for a T4 zone is between 4 and 12 units per acre. The T-5 zone (Urban Center) is the equivalent of a main street area. This zone includes mixed-use building types that accommodate retail, offices and dwellings, including rowhouses and apartments. This zone is a tight network of streets and blocks with wide sidewalks, steady street tree planting and buildings set close to the frontages. Typical residential density for a T5 zone is between 6 and 24 units per acre. Currently, the Polytechnic/Wesleyan Urban Village TOD Area has a residential density of approximately 2.2 units per acre, below the stated typical density for a T4-T5 area. This

is due to long-standing blight and disinvestment in the area. However, the basic built form and organization of the area corresponds to the T4/T5 zone description.

The most important goal for the Polytechnic/Wesleyan Urban Village TOD Area is to increase residential densities—this will help support area retail, office, commercial, and entertainment developments (such as restaurants, pharmacies, grocery stores, etc.), create a sense of community, and provide a base for ridership in advance of transit implementation. The basic urban fabric and present infrastructure in this area could support densities between 50-100 units per acre, which are ideal for the success of retail and transit operations.

2.2 TOD Zones in the Polytechnic/Wesleyan Urban Village TOD Area

This analysis identifies four major zones for TOD in the Polytechnic/Wesleyan Urban Village TOD Area (see TCPA Map 2.1), in order to concentrate focus on areas that connect potential transit stops to concentrations of potential high residential density.

1. Vickery-Lancaster TOD Zone: This zone is centered along Vickery Blvd. and includes property to the north of Vickery and south of the UP Mainline, extending north to Lancaster to include property at the intersection of Collard and Lancaster. It also includes property on the northern end of the TWU campus south of Vickery. This zone has the largest amount of vacant, developable, and underutilized land; and is adjacent to the UP Mainline corridor. It would be a key zone for commuter rail TOD implementation. This zone could handle a significant increase in residential density that would then provide a base for retail operations in the area.

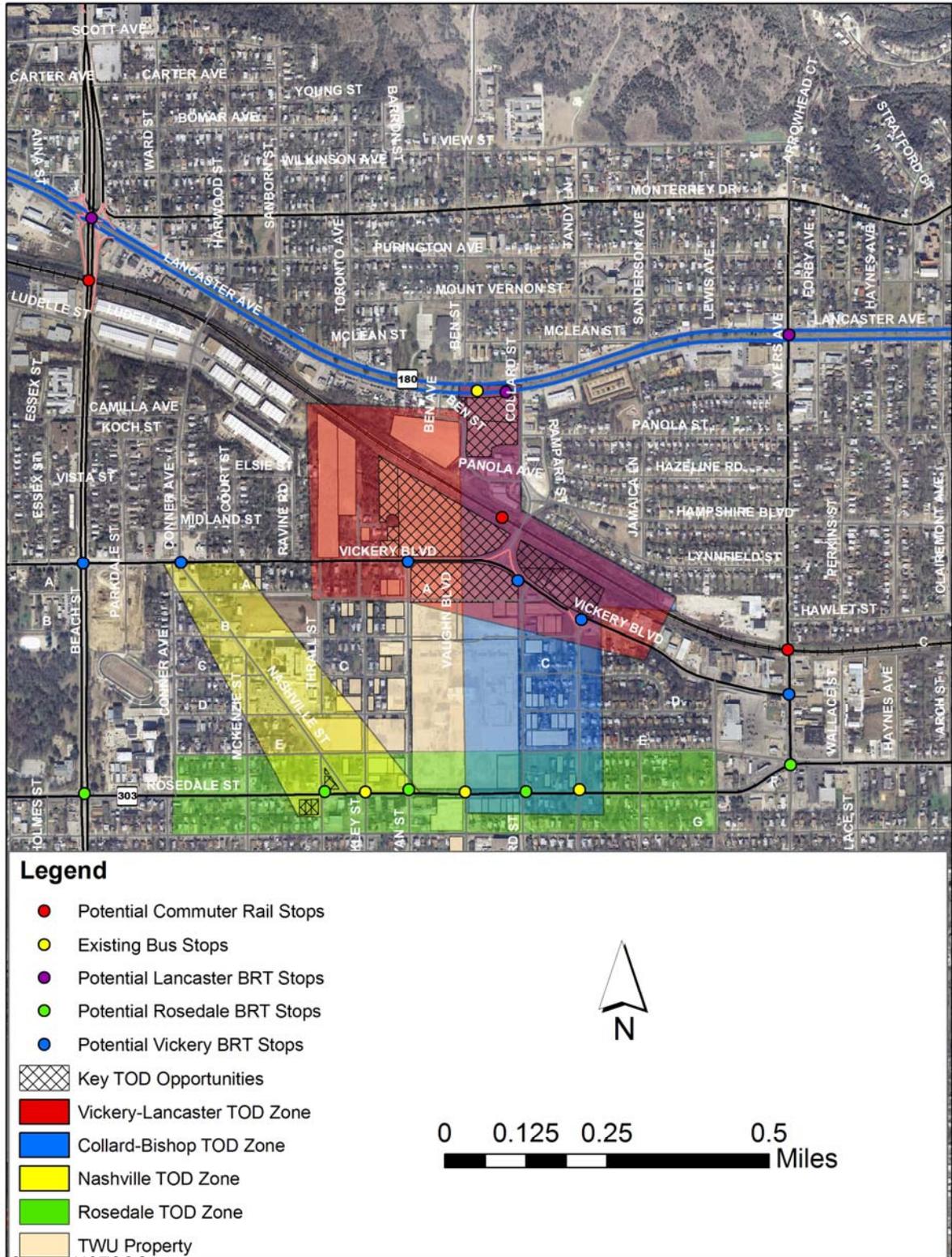
2. Collard-Bishop TOD Zone: This zone is centered along Collard Street, stretching from Lancaster at the north end to Rosedale at the south end, and extending east toward the center of the TWU campus and west to include Bishop Street. This zone is key for both commuter rail and BRT TOD implementation. At the north end, it contains a fair amount of vacant land adjacent to both Lancaster Street and to the

UP Mainline. On the south end, it connects to potential BRT stops on Rosedale. The zone runs along the eastern side of the TWU campus, and could be developed into a pedestrian promenade that links commuter rail and/or BRT north of campus to BRT or regular bus service south of campus. The promenade could become a focal point for the TWU campus.

3. Nashville TOD Zone: This zone is centered along Nashville Street, stretching from Vickery Street in the north to Rosedale Street in the south, and extending a few blocks off of Nashville both east and west. This zone is key for BRT TOD implementation. It connects potential BRT stops on Vickery to regular bus service along Rosedale, and/or vice versa. There is some vacant and developable land along Nashville, and much of the land is underutilized. Nashville could be a pedestrian area that links the TWU campus to the surrounding historic Polytechnic Heights neighborhood, blending the two communities.

4. Rosedale TOD Zone: This zone is centered along Rosedale Street, stretching from Conner Avenue on the west end to Campbell Street on the east end. This zone is key for BRT TOD implementation, and also provides a terminus for all three of the other TOD zones. Rosedale currently has potential to be redeveloped into a 'main street' that links the TWU campus to the surrounding Polytechnic Heights community with pedestrian amenities and mixed use/retail development opportunities. Rosedale also has potential to become a true gateway to the TWU campus and a focal point of campus and community life. These themes were noted in the City of Fort Worth's Urban Villages initiative. The City has identified East Rosedale in the Polytechnic/Polytechnic/Wesleyan Urban Village TOD Area as a key area for reinvestment and enhancement as an urban university environment.

TCPA Map 2.1: Transit-Oriented Development Zones in the Polytechnic/Wesleyan Urban Village TOD Area



Source: NCTCOG

2.3 Key Parcels for TOD in the Polytechnic/Wesleyan Urban Village TOD Area

In addition to identifying zones for transit-oriented development, this analysis identifies specific parcels that are currently underdeveloped or underutilized within those zones (see TCPA Map 2.2). These parcels would be ideal locations for mixed-use transit-oriented development, due to their size, location, and current ownership. Also, examples of regional TODs that are similar in size to the key parcels in the Polytechnic/Wesleyan Urban Village TOD Area have been provided for comparison. Please refer to Appendix 1 for more information on these parcels.

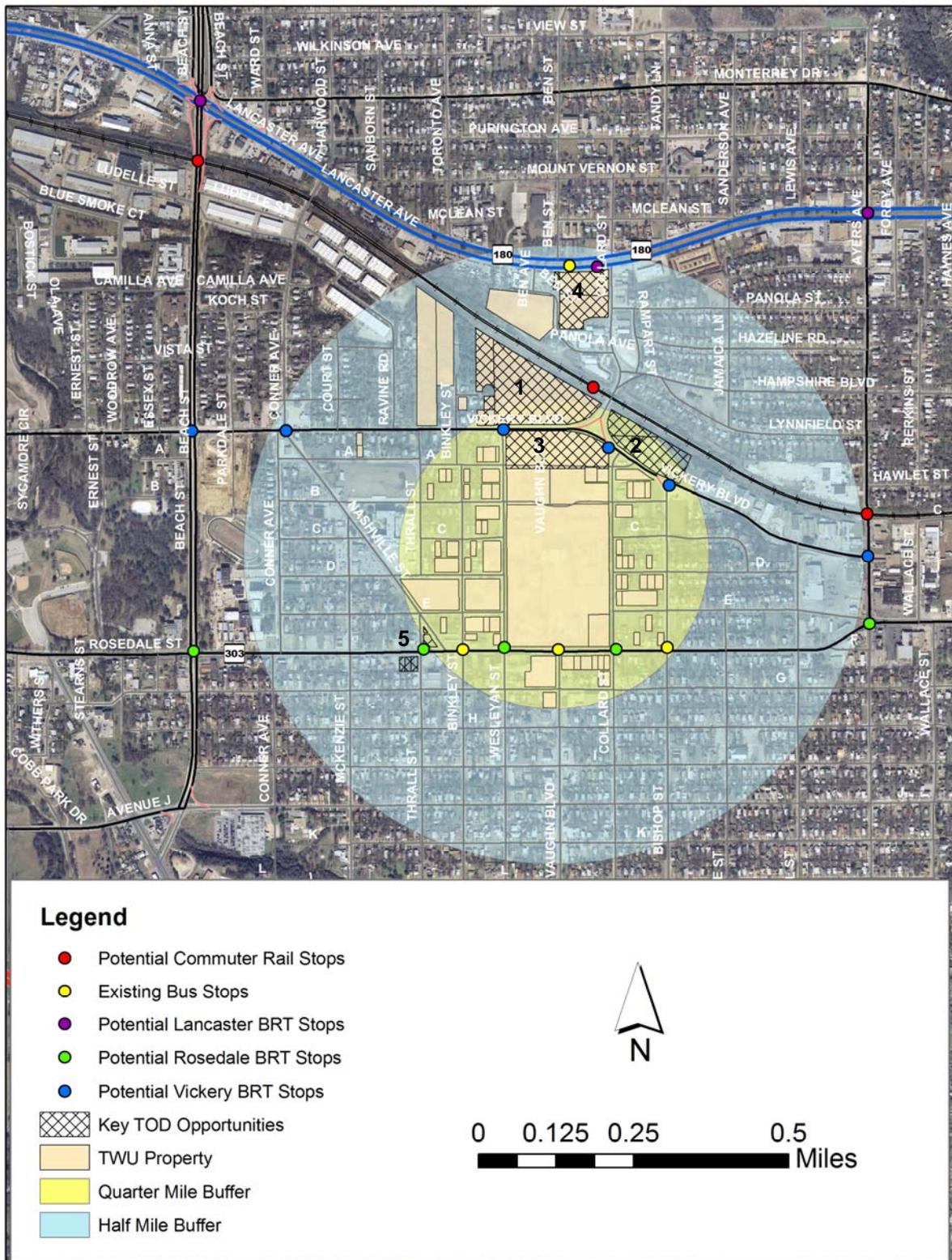
1. The largest and best area for a TOD is at the intersection of Vickery Blvd. and Collard St. (north of Vickery and west of Collard), along the UP Mainline Corridor. This group of parcels is owned by Texas Wesleyan University (legal description of these parcels is: John Ringer Survey A 1287, TR 8 and the L. Wilma Davis Addition Block 2 Lot 1), and they total approximately 10.7 acres in size. This location is within a quarter mile of the center of the TWU campus.

The size of this property could be compared to that of Mockingbird Station in Dallas (which is 10 acres). Mockingbird Station has 211 residential units, 250,000 square feet of office space, and 201,000 square feet of retail and entertainment space. Most of the structures are 4-8 stories tall. Parking is structured and underground, with minimal surface parking. According to SmartCode guidelines⁴, approximately 1,870 parking spaces would be needed for such a development.



Mockingbird Station, Dallas, Texas

TCPA 2.2: Key Parcels for Transit-Oriented Development in the Polytechnic/Wesleyan Urban Village TOD Area



Source: NCTCOG

2. The second best area for development of a TOD is at the intersection of Vickery Blvd and Collard St, on the east side of Collard and north of Vickery. These parcels are owned by individuals and an energy company (legal description: Hallbrook Addition, Block DR, Lots 29 through 37 and John Ringer survey, A 1287 TR 9). Together these parcels total 3.8 acres, and are within a quarter mile of the center of the TWU campus.

The size of this property could be compared to that of the Downtown Plano TOD (which is 3.3 acres). The Downtown Plano TOD has 463 residential units and 40,000 square feet of retail space. Most of the structures are 3 stories tall. Parking is in an enveloped garage, with minimal surface parking. According to SmartCode guidelines, approximately 855 parking spaces would be needed for such a development.



Downtown Plano Station, Plano, Texas

3. Another area for TOD is the parcel south of Vickery in between Wesleyan and Collard streets. Currently, TWU owns this property (legal description of the parcel is Texas Wesleyan Addition, Block A, Lot 1) and has developed a small amount of student housing on the western portion of the parcel, but the eastern portion remains undeveloped. The size of the undeveloped portion of the parcel is approximately .54 acres.

Due to the relatively small size of this parcel portion, a small 3-story development (possibly 25-30 units) of additional student housing with potential for ground-floor retail (under 10,000 square feet) would be ideal at this site. Minimal additional

surface parking should be included. According to SmartCode guidelines, approximately 85 parking spaces would be needed for such a development.

4. Another ideal location for a TOD would be at the intersection of Lancaster and Collard Streets. Currently Texas Wesleyan owns both developable parcels (legal description: Kuykendalls Consolidated Subdivision, Blocks 1A and 2A). These parcels combined total approximately 4.2 acres in size.

Again, this property could be compared to the size of the Downtown Plano TOD. 3-4 story buildings, approximately 500 residential units, and up to 40,000 square feet of retail/office space would be appropriate for an area this size. Structured/enveloped parking combined with minimal surface parking would be appropriate. According to SmartCode guidelines, approximately 910 parking spaces would be needed for such a development.

5. Finally, TOD could be implemented at the intersection of Rosedale and Thrall Streets, both north and south of Rosedale. These parcels are owned by both the City and by the Polytechnic Community Development Corporation (legal description: Polytechnic Heights addition, block 31, lot 1-2, and Polytechnic Heights addition, block 15, lot 7). These parcels total approximately .65 acres, but they are not all contiguous. Development at this location would tie in with the revitalization of the Rosedale historic storefronts and recommendations from the Polytechnic/Wesleyan Urban Village master plan.

Due to the small size of the available parcels, a small mixed-use development (3 stories, 30-40 residential units, 10,000 square feet of retail) would be appropriate at this site. Minimal surface parking behind the structures would be necessary. According to SmartCode guidelines, approximately 100 parking spaces would be needed for such a development.

C. Pedestrian and Zoning Improvements

3.1 Pedestrian Improvements in the Polytechnic/Wesleyan Urban Village TOD Area

Infrastructure and pedestrian improvements often provide a key incentive for new, high-quality developments to locate in an area. Pedestrian amenities are of central importance to the creation of a viable TOD area. Quality of life and neighborhood cohesion are greatly improved with the introduction of quality pedestrian amenities. While an entire neighborhood can benefit from increased pedestrian connectivity in all areas, selecting a few key 'pedestrian corridors' can help guide development and create public gathering spaces that are important to creating a sense of community. Below is a current example of the condition of pedestrian amenities at Collard Street and the UP Mainline overpass, which clearly shows an uninviting and treacherous pedestrian environment, even though a walkway under the overpass exists.

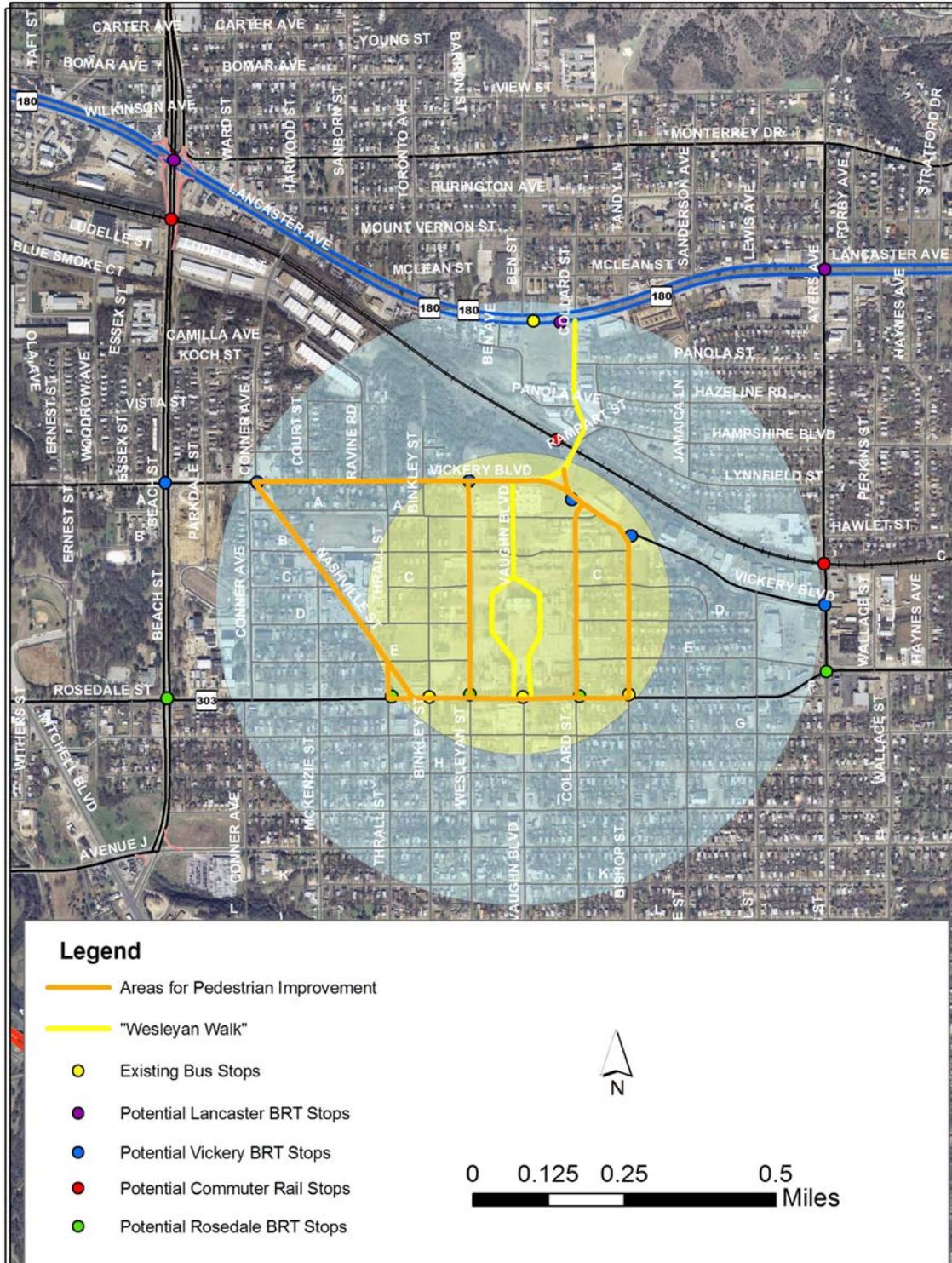


In contrast, the image below shows an inviting environment that is oriented to the pedestrian and facilitates foot traffic through the Legacy Town Center area in Plano, Texas.



The current basic infrastructure and urban fabric of the Polytechnic/Wesleyan Urban Village TOD Area would allow such an environment to flourish if appropriate residential densities are achieved. TCPA Map 3.1 shows important pedestrian corridors that would form the basis for walkable, mixed-use TODs in the Polytechnic/Wesleyan Urban Village TOD Area. They were selected to provide greatest access to both transit opportunities and the surrounding neighborhood.

TCPA Map 3.1: Pedestrian Improvements Needed in the Polytechnic/Wesleyan Urban Village TOD Area



Source: NCTCOG

For the areas shown in orange on TCPA Map 3.1, ideal improvements would include:

1. Uniform sidewalks with a minimum 5-foot width
2. Street trees and landscaping
3. Street furniture (bicycle racks, benches, trash receptacles, etc.)
4. Lighting fixtures scaled to pedestrians

Pedestrian improvements should also include consideration of on-street bicycling enhancements. The City of Fort Worth Transportation and Public Works Department is leading a citywide Bicycle Transportation Study, under which one of the areas of emphasis is enhancing bicycling access to university campuses and urban villages, via on- or off-street bicycling connections.

3.2 “Wesleyan Walk”

A separate concept that combines elements of placemaking and branding for the neighborhood and university is that of the “Wesleyan Walk”. This is shown in yellow on TCPA Map 3.1. “Wesleyan Walk” would connect a bus or BRT stop on Lancaster to potential commuter rail near Vickery and Collard, and would wind its way through the heart of the TWU campus, terminating on Rosedale, where it would link to bus and/or BRT stops on the southern side of campus. “Wesleyan Walk” could become a focal point for the campus and would connect transit options north of campus to transit options on the south side of campus. This level of connectivity would facilitate ridership for all transit options in the area. Both the campus and the surrounding neighborhood would benefit from the cohesion such a pedestrian mall would provide. Ideally, “Wesleyan Walk” would include the following:

1. Uniform sidewalks with a minimum 5-foot width along Collard and Vickery
2. Uniform sidewalks with a minimum 5-foot width on the interior of campus
3. Special paving materials to heighten visibility and focus attention on the centrality of “Wesleyan Walk” to the campus

4. Street furniture (bicycle racks, benches, trash receptacles, etc.)
5. Lighting fixtures scaled to pedestrians

The depiction of “Wesleyan Walk” shown in TCPA Map 3.1 is for illustrative purposes only. A detailed site assessment would be necessary to determine an exact footprint through campus.

3.3 Zoning Improvements for the Polytechnic/Wesleyan Urban Village TOD Area⁶:

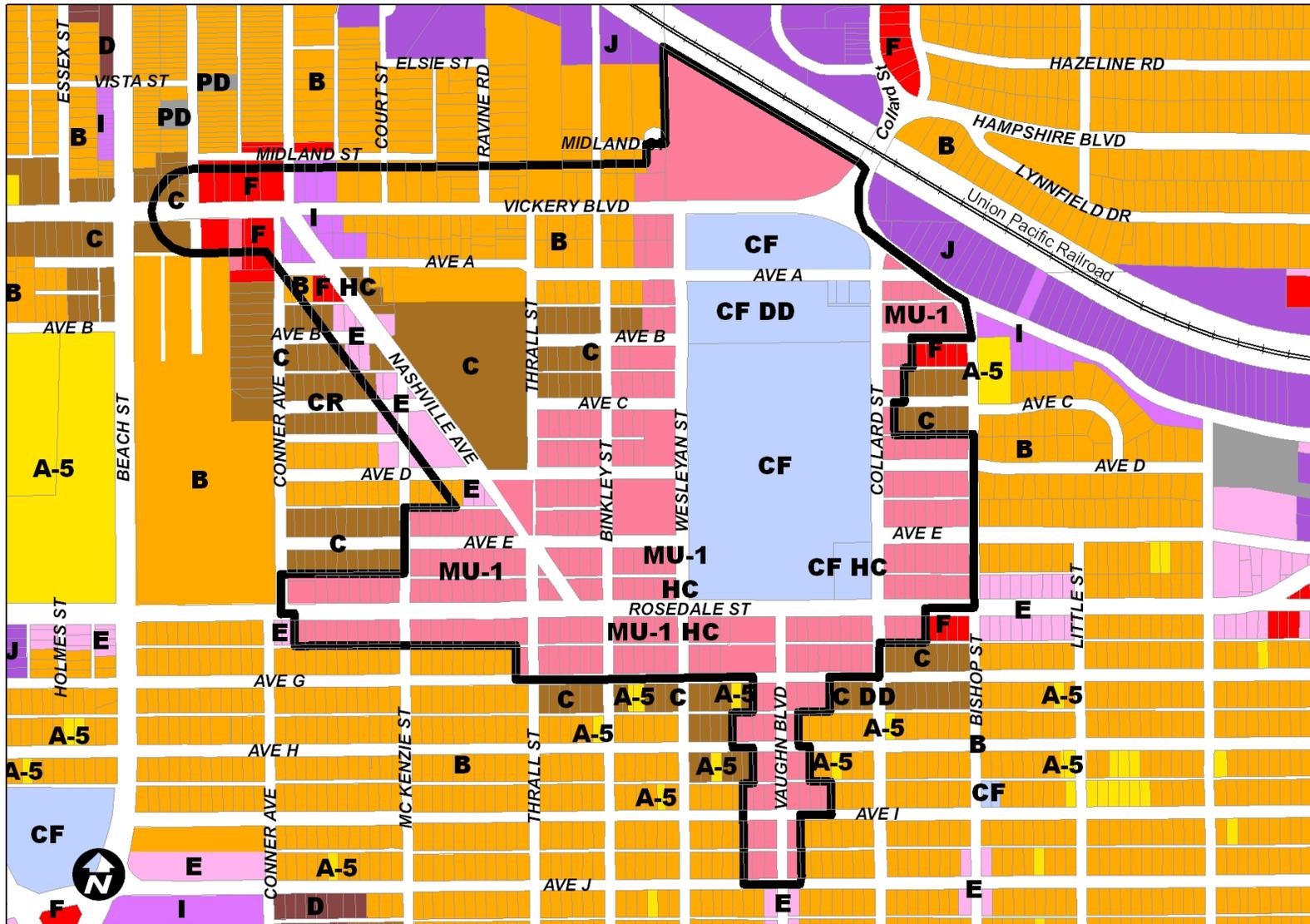
In the Polytechnic/Wesleyan Urban Village area, as defined by the City of Fort Worth, there are several zoning designations (see TCPA Map 3.2). These include:

1. Industrial—Medium
2. Residential, Less than 5,000 square feet
3. Commercial--General
4. Residential, Medium Density Multi-Family
5. Mixed Use 1
6. Community Facilities
7. Commercial—Neighborhood

Currently, these designations limit the maximum residential densities. Increasing residential density in the area is the key improvement necessary to spark high quality, mixed use development and to support a vibrant pedestrian environment, retail services, and transit operations. For this area, the Mixed Use-1 designation is the most generous in terms of residential density—it allows up to 60 units per acre. However, the urban fabric in this area could support densities higher than 60 units per acre and it is underutilized in its current state. It is recommended that the entire Polytechnic/Wesleyan Urban Village be rezoned to Mixed Use-2. This would allow for an unlimited number of residential units per acre for mixed-use projects that include office, eating and entertainment, and/or retail and service uses that constitute at least 10 percent of gross floor area. Mixed-Use 2 is the most flexible zoning designation and

would maximize opportunities to meet the transit-oriented development potential in the Polytechnic/Wesleyan Urban Village TOD Area.

TCPA Map 3.2: Existing Zoning in the Polytechnic/Wesleyan Urban Village TOD Area



Source: City of Fort Worth

D. Conclusions

1. A variety of potential transit options exist for the Polytechnic/Wesleyan Urban Village TOD Area, including commuter rail, bus rapid transit, and expanded regular bus service.
2. The existing urban fabric of the Polytechnic/Wesleyan Urban Village TOD Area fits into a T4-T5 zone on the urban-to-rural transect. This environment can support higher residential densities than are currently present in the area.
3. There is a substantial quantity of undeveloped or underutilized land in the area along key transit corridors.
4. Pedestrian amenities are lacking or are in disrepair in the Polytechnic/Wesleyan Urban Village TOD Area. Corridors nearest campus (including Rosedale and Wesleyan streets) currently have the best pedestrian facilities in the area.
5. Current zoning for much of the Polytechnic/Wesleyan Urban Village TOD Area falls into one of seven categories: Industrial—Medium, Residential—Less than 5,000 sq. ft., Commercial—General, Residential—Medium Density Multi-Family, Mixed Use-1, Community Facilities, and Commercial—Neighborhood. The current maximum density allowed by right in the area is 60 units per acre.

E. Recommendations

- 1. Plan in advance for any and all transit options that may affect the Polytechnic/Wesleyan Urban Village Transit-Oriented Development (TOD) Area to maximize the land use-transportation connection and associated TOD opportunities.**

To promote good TOD, cities need to develop conceptual land use plans, development schemes, streetscape and design guidelines, priority infrastructure investments, and financial strategies. Appropriate planning and guidelines will allow developers to know what is expected for the area. However, design guidelines should be flexible enough to allow for variations in buildings allowing for creativity, originality, and affordability. Guidelines that are overly prescriptive may be cost prohibitive, thereby stalling development.

Station area plans work best for encouraging TOD when significant development opportunities exist (for example, on large parking lots or other large areas of underutilized or vacant land). They are less useful for single buildings or projects of a more limited scope. Station area plans should be done early in the process to provide maximum benefit to all parties and be specific enough to create certainty for developers and community members alike. In some cases, plans are advanced enough to create “by-right” zoning possibilities that greatly expedite the time from project conception to the start of construction.

Certain elements of the station area plan may be proscriptive, such as prohibitions on auto-oriented retail, or prescriptive, such as a provision that at least 50 percent of the ground floor space be devoted to retail. Other elements may be permissive, i.e., the developer has the option but is not required to provide a feature. The challenge lies in finding a balance between required and optional elements so that the development is truly transit-oriented but developers are not discouraged from building at all⁷.

2. Promote quality mixed use developments on currently undeveloped or underutilized land along key transit corridors through the use of development incentives.

Putting development incentives in place in advance of transit will help to promote and guide development along potential transit corridors in the Polytechnic/Wesleyan Urban Village TOD Area. Incentives include things like Tax Increment Financing (TIF) districts and location efficient mortgages. Currently, the Polytechnic/Wesleyan Urban Village TOD Area is part of a Neighborhood Empowerment Zone (NEZ), which allows incentives for qualified mixed-use, residential, commercial and industrial projects. Incentives include, but are not necessarily limited to, municipal property tax abatement, development fee waivers, and release of city liens.

However, the Polytechnic/Wesleyan Urban Village TOD Area is not currently part of a TIF district. TIF funds are generated by the increase in property and/or sales taxes within a specific district. The TIF is calculated off of a baseline year and can be generated by both new development and the enhanced assessed value of existing properties as a result of improvements around them.

For several reasons, a TIF district can be especially important to a TOD. Because of the high cost of creating new infrastructure, TIF can provide critical financial support. Also, site assembly is especially important for infill TOD because many already urbanized areas have fractured land ownership in and around station areas. Many developers are unable to handle the holding costs of long- or even medium-term site assembly and entitlement. For a public agency, or an invested private sector partner like Texas Wesleyan University, the power to assemble land can give the organization greater leverage over what type of development will actually occur around the transit corridor or station area. Public agencies can provide TIF funds for private sector land assembly. By providing lower-cost financing, the public agency can demand both mixed-use and mixed-

income TOD by specifying that land assembly funds are only available for those purposes.

TIF investment is also crucial to creating affordability. In some cases, the authority to create a TIF district is coupled with an obligation to create and/or preserve affordable housing. In California, for example, redevelopment agencies—the principal vehicle for TIF—are required to spend at least 20 percent of the tax increment in any project area on creating or preserving housing affordable to low- and moderate-income households. Furthermore, at least 15 percent of housing in the area overall must be affordable⁷.

City governments can also market Location Efficient Mortgages in TOD areas. In a Location Efficient Mortgage, lenders recognize the potential savings of a more accessible housing location when assessing a household's borrowing ability. Lenders will consider transportation and housing costs together, so vehicle cost savings are treated as additional income that can be spent on a mortgage. This gives homebuyers an added incentive to choose location efficient residences, and tends to encourage more infill development as opposed to more automobile-dependent development at the urban periphery. Location Efficient Mortgages tend to benefit lower-income households by providing financial savings and improving affordable transport and housing options⁸.

Location Efficient Mortgages are implemented by residential mortgage lenders, often with the support and encouragement of government agencies such as Fannie Mae. Lenders use a model to determine which locations have lower transportation costs, and therefore can qualify for higher mortgage payments. The following factors can be considered in such models⁹:

1. Proximity to high quality Transit Service (such as a rail transit station or a bus line with frequent service).
2. Pedestrian and cycling amenities.
3. Number of public services within convenient walking distance (schools, shops, parks, medical services, pharmacies, etc.).

4. Carshare services within convenient walking distance.
5. Parking Management (unbundled parking, so residents who do not own an automobile are not forced to pay for parking).

3. Increase residential density to promote high quality transit-oriented development and support transit operations.

On the urban-to-rural transect, the Polytechnic/Wesleyan Urban Village TOD Area falls somewhere between the T-4 (General Urban) and T-5 (Urban Center) zones. Typical residential densities for these zones range from 4 to 24 units per acre; the current residential density in the Polytechnic/Wesleyan Urban Village TOD Area is 2.2 units per acre. An increase in residential density will be essential to the success of area transit operations and transit-oriented development.

Increased density allows developers to take advantage of greater economies of scale. Allowing higher densities near transit gives more people easy access to transit from their home or work, encouraging transit use. Creating compact, pedestrian-friendly neighborhoods can also help support neighborhood-serving local businesses. Generally, a density of at least 10 units per acre is necessary to support light-rail transit⁹.



Pearl District, Portland, Oregon

Providing bonuses to developers can help attract more density to the area. Density bonuses allow developers to build more units than would normally be allowed in a zoning district in exchange for preserving and enhancing designated resources or providing other public benefits. Communities have successfully used density

bonuses as incentives for the protection of important open spaces and for the provision of affordable housing⁴. Currently, the Fort Worth zoning ordinance offers a density bonus of 20 units per acre in their Mixed Use-1 (MU-1) zones if the project includes office, eating and entertainment, and/or retail sales and service uses that constitute at least 10 percent of gross floor area. Much of the Polytechnic/Wesleyan Urban Village TOD Area is zoned MU-1.

The City of Fort Worth could pursue more aggressive density bonuses that provide incentives to create affordable housing. For example, the City of Los Angeles grants a 35% affordable housing density bonus, by right, for developments within 1,500 feet of a major transit stop⁹.

4. Provide a cohesive focal point for the university and surrounding neighborhood with a pedestrian corridor concept (“Wesleyan Walk”) through the TWU campus.

Quality pedestrian amenities with a high level of connectivity are a hallmark of successful TOD projects. Connected sidewalks, attractive walking environments, and pedestrian crosswalks in compact settlements encourage alternative modes of transportation, decrease reliance on existing transportation infrastructure, give residents travel options, and improve livability¹⁰.

The Davis Square TOD in Somerville, Massachusetts is an example of how local government focused on pedestrian amenities to help create a successful TOD. To encourage pedestrian activity and discourage auto usage in the square, the City convinced the Massachusetts Bay Transportation Authority (MBTA) to provide commuter parking at the station. Further traffic calming measures such neck-downs, pedestrian safety islands, clearly marked brick crosswalks, signage, and pedestrian signalization all help to reduce the speed of traffic flow and improve pedestrian safety. Benches, trash receptacles, street lighting, plantings, public art, sidewalk materials, and public spaces all enhance the pedestrian experience. The MBTA

provides extensive facilities for bicycle storage at the station entrances. Surveys conducted in the late 1980s found that the majority of Red Line users accessed the MBTA by foot, with only 13 percent using automobiles to arrive at the station. Further, while planners projected that only 3,000 riders per day would use the Davis Square Red Line station, daily ridership currently exceeds 10,000¹².



Davis Square Streetscape.
Davis Square, Somerville, Massachusetts

- 5. Change zoning in advance of transit-oriented development to help expedite the development process and allow high-quality projects to be built by right. A special TOD Zoning District designation, with no upper limit on residential density, could be considered by the City.**

Some government agencies have created “floating” zoning classifications for TODs. These “transit district” or “transit village” classifications are not limited to a specific location but instead can be applied more generally to ensure projects or plans near transit meet certain criteria like mixed uses or pedestrian orientation. A floating TOD zone allows a city to apply a zoning overlay when the opportunity arises rather than pre-zoning a site before the market is ready—which can cause land speculation and higher costs or difficulties for existing property owners.

Incentive-based zoning provides developers with rewards, like density or floor-area bonuses, for meeting certain housing objectives. Many localities and some states offer incentives as part of their joint development or TOD program activities. Incentive-based zoning can work over a very broad area such as a bus corridor.

Incentives typically require less up-front planning work than a station area plan and they can be more effective in a political environment in which policymakers are apprehensive about requiring either mixed-income or mixed-use due to constituent opposition.

For example, the City of Austin, Texas uses an expedited permitting process to promote TOD. Although not technically zoning, expedited permitting is akin to a zoning incentive in that it is a tool that accelerates a development through the entitlement process in return for meeting certain use or design considerations. In Austin, the SMART (Safe, Mixed-Income, Accessible, Reasonably-Priced, Transit-Oriented) Housing program provides development fee waivers and expedited permit reviews to projects with affordable homes. In this case, affordability is defined as affordable to households earning 80 percent or less of area median income. Since its inception in 2000, the program has produced over 4,000 single-family and multi-family units, including nearly 3,000 reasonably-priced units. Another 7,000 are in the pipeline⁷. As shown in the table below, the City provides varying levels of fee waivers based on the portion of units in a building that are reasonably-priced:

If a builder makes this portion of units in its building reasonably-priced:	The City of Austin provides fee waivers of:
10%	25%
20%	50%
30%	75%
40%	100%

Appendix A: Supplemental Information on Key TOD Parcels

ID	ADDRESS	OWNER NAME	YEAR BUILT	IMPROVED VALUE	LAND VALUE	TOTAL VALUE
22970-2A-A	600 S COLLARD ST	TEXAS WESLEYAN UNIVERSITY	0	\$0	\$9,718	\$9,718
22990-11	3140 E LANCASTER AVE	TEXAS WESLEYAN UNIVERSITY	0	\$0	\$2,664	\$2,664
22990-12	3144 E LANCASTER AVE	TEXAS WESLEYAN UNIVERSITY	0	\$0	\$3,627	\$3,627
22970-1A-13R	3232 E LANCASTER AVE	TEXAS WESLEYAN UNIVERSITY	1999	\$15,600	\$64,981	\$80,581
9470-1-3A	3012 MIDLAND ST	TEXAS WESLEYAN UNIVERSITY	0	\$0	\$1,000	\$1,000
9470-2-1	3700 MIDLAND ST	TEXAS WESLEYAN UNIVERSITY	0	\$0	\$5,010	\$5,010
32750-31-3-10	2834 E ROSEDALE ST	POLYTECHNIC COMMUNITY DEV CORP	0	\$0	\$3,540	\$3,540
32750-31-2-10	2838 E ROSEDALE ST	POLYTECHNIC COMMUNITY DEV CORP	0	\$0	\$3,600	\$3,600
32750-31-1-10	2842 E ROSEDALE ST	POLYTECHNIC COMMUNITY DEV CORP	0	\$0	\$3,660	\$3,660
32750-15-7-60	2901 E ROSEDALE ST	STREET	0	\$0	\$12,500	\$12,500
A1287-8	3100 E VICKERY BLVD	TEXAS WESLEYAN UNIVERSITY	0	\$0	\$17,880	\$17,880
A1287-9	3300 E VICKERY BLVD	THRIFT DIST ENERGY INC	0	\$0	\$29,282	\$29,282
16770-DR-39B	3301 E VICKERY BLVD	THRIFT DIST ENERGY INC	1955	\$49,935	\$6,525	\$56,460
16770-DR-29	3307 E VICKERY BLVD	AUSTIN, JIM & THEODIS WARE	1961	\$106,661	\$31,339	\$138,000
16770-DR-38	3307 E VICKERY BLVD	AUSTIN, JIM & THEODIS WARE	0	\$0	\$5,832	\$5,832
9470-1-1	3900 E VICKERY BLVD	TEXAS WESLEYAN UNIVERSITY	0	\$0	\$3,600	\$3,600
41669-A-1	817 WESLEYAN ST	TEXAS WESLEYAN UNIVERSITY	0	\$0	\$144,246	\$144,246

Appendix B: NCTCOG TOD Audit

1. Is the zoning for the area mixed use? What is the density?

- In the market area, existing zoning is a mix of Industrial, Neighborhood and General Commercial, Residential, Residential Multifamily, Community Facilities, Planned Development and Mixed Use Growth Center.
- In the proposed urban village area, MU-1 (Low intensity Mixed Use) zoning is the predominant zoning type.
- It is recommended that zoning be changed from MU-1 to MU-2 (High intensity Mixed Use) in the market area.
- According to the City of Fort Worth Zoning Code, MU-1 and MU-2 zoning requirements are as follows:
 - Residential development can include detached single-family, attached single-family, two-family, and multifamily.
 - Commercial development can include retail, restaurants, banks, offices, health care facilities, and other uses.
 - In addition to the above, MU-2 zoning allows for hotels, large retail stores, mini-warehouses and low intensity industrial and light manufacturing uses (excludes outdoor storage).
 - The maximum residential density for MU-1 single use projects are 40 units per acre or 18 units per acre for townhomes.
 - The maximum residential density for MU-1 mixed use projects is 60 units per acre. Mixed use buildings must include at least 20% residential and 10% office, restaurant, and/or retail use, as measured by gross floor area, to qualify for the density bonus. The density bonus allows for a greater number of units per acre as long as buildings incorporate a mix of uses.
 - The maximum residential density for MU-2 single use projects are 60 units per acre or 24 units per acre for townhomes.
 - The maximum residential density of MU-2 mixed use projects is unlimited. The density bonus qualifier for MU-1 mixed use applies to MU-2 as well.

2. Is the household population (based on our forecast) at a sufficient density to support transit?
- The 2030 Household Projection based on the 2030 Demographic Forecast for the TWU Market area is 2,825. The TWU Market area equals to 1,229 acres, which would equate to 2.3 households per acre.
 - Reconnecting America, a national non-profit organization that works to integrate transportation systems and the communities they serve, has documented a wide range of dwelling units per acre (dua) that are sufficient to support TOD. Some existing land use patterns that have incorporated commuter rail have a range of 6.76 dua in Charlotte, NC to 39.13 dua in Portland, OR.
 - If the entire market area were rezoned to MU-2, residential density could be increased substantially to allow for sufficient density to support a transit station.
3. Does the zoning for the area allow auto-dependent uses by right?
- The Fort Worth Community Development Council identifies a two block area on East Rosedale Street that consists of 2 buildings that are occupied, Poly Grill and Burge Hardware, neither of which have a drive through design.
 - The city of Fort Worth's MU-1 zoning standards specify certain drive-through design requirements to ensure compatibility with a pedestrian-oriented environment. Conventional drive-through uses are less desirable due to a lack of compatibility with a pedestrian-oriented environment and are inconsistent with the intent of the mixed-use zoning standards.
 - MU-1 Drive-Through Design Standards are as follows:
 - Location of windows and stacking lanes shall be located to the rear of the building
 - Location of driveways shall not be within the front yard setback between the building front and the street
 - The design and location of the facility shall not impede vehicular traffic flow and shall not impede pedestrian movement and safety.

- Screening elements, such as landscaping, shall be used to minimize the visual impacts of the drive through facility.
 - Consistency with other district-specific design guidelines or standards.
 - A site inspection revealed that auto-dependent uses, such as drive thru restaurants, banks, grocery stores and other establishments were not available.
4. Does the area have planned hike and bike trail connections, adequate sidewalks and other pedestrian amenities?
- Currently, there are no existing hike and bike trails.
 - According to the Fort Worth Planning and Development Department, there are plans for bike trails N-S on Beach and Collard and E-W on Vickery.
 - Based on site inspection, sidewalk conditions are badly in need of leveling and repair.
5. Is there a variety of land uses in the immediate area, or is the area mixed use?
- Currently, most of the land uses in the area are residential with a few vacant commercial storefronts along Rosedale and a few light industrial outside the .5 mile study boundary.
6. Is the planned street grid density at least 20 centerline miles over total square miles, or at least 10 miles of streets for an area of .5 square miles?
- For MU-1 and MU-2 zoning block lengths are as follows:
 - Minimum block length is 200 ft; maximum block length is 500 ft.
 - Maximum block perimeter is 1,600 ft.

7. Are area/height/bulk restrictions adequate?

- According to Fort Worth's Mixed Use Zoning Standards, building setbacks for MU-1 and MU-2 are as follows:
 - Front Yard: 20 ft maximum except in MU-2 zoning where any portion of a building is above 60 ft, then setback must be a minimum of 20 ft from the property line.
 - Setbacks between Mixed-Use Districts and Adjacent One- and Two-Family Districts: A 5 ft bufferyard and 20 ft building setback are required between the boundary of a mixed-use district and an adjacent one- or two-family zoning district, unless the development within the mixed-use district is also one- or two-family, such as townhomes.
 - Rear Yard: 5 ft minimum, no maximum.
 - Side Yard: None required, unless an abutting property with an existing building has windows facing to the side. Then, any new development or addition shall provide at least 10 feet of separation between the two.
- Maximum building heights
 - MU-1 Single-use buildings: 45 ft or 3 stories, whichever is less.
 - MU-2 Single-use buildings: 60 ft or 5 stories, whichever is less; 45 ft or 3 stories, whichever is less, for townhomes.
 - MU-1 Mixed-use buildings: 60 ft or 5 stories, whichever is less. Mixed use buildings must include at least 20% residential and 10% office, restaurant, and/or retail use, as measured by gross floor area, to qualify for the height bonus. The height bonus allows for a greater number of stories as long as buildings incorporate a mix of uses.
 - MU-2 Mixed-use buildings: 120 ft or 10 stories, whichever is less. The height bonus qualifier for MU-1 mixed use applies to MU-2 as well.
 - Note: Rooftop Terraces and the structures providing access to them shall not be included in the measurement of building height
 - Transitional Height Plane: Any portion of a building above 45 ft or 3 stories shall be set back to allow for a 45 degree transitional height plane.

- Mixed use buildings must include at least 20% residential and 10% office, restaurant, and/or retail use, as measured by gross floor area, to qualify for the height bonus.
8. Is the surrounding area part of a TIF, PID, or BID?
- The surrounding area is within a Neighborhood Empowerment Zone (NEZ) and as such, certain incentives are available for property owners who build or rehabilitate property (single family, multifamily, commercial, and mixed use) within the NEZ.
 - These incentives consist of municipal tax abatements, fee waivers, and release of city liens for property owners that improve their property by 30% or greater of appraised value (not including land value).
 - Currently this area is not part of a TIF, PID, or BID.
9. How much land is zoned Multi-Family (MF)? Is there a shortage of MF in the area based on age distribution/income?
- Approximately half of the land is currently zoned low density Multi-Family.
10. What percent of land is available for development in the station area?
- The primary land identified as a potential station area is one parcel of 10.7 acres and owned by Texas Wesleyan University. This parcel, located at 3100 east Vickery Blvd, is zoned MU-1 is currently undeveloped and encompasses 2.1% of the entire 0.5 mile study area.
11. What are the parking requirements in the zoning?
- Section 6.201B of the Zoning Ordinance (see Appendix C) includes a detailed list of off-street parking requirements for the uses allowed in MU-1, MU-1G, MU-2, and MU-2G. For mixed-use buildings and projects, the total parking requirement shall be the sum of the individual requirements for all uses. These requirements apply with the following provisions:

- Reduced Parking Requirements: All MU districts: 25% reduction for all uses.
- Rail Transit Bonus: 50% reduction for all uses in buildings whose primary entrance is within 1,000 ft of an entrance to a passenger rail station or rail stop.
- Credit for on-street parking: Adjacent on-street parking may be applied toward the minimum parking requirements, but shall not reduce the pertinent maximum parking limitations.
- Townhouse Parking Requirement: Minimum of one off-street parking space per dwelling unit, and a maximum of two spaces per unit.
- Parking Cap: The maximum number of parking spaces shall be limited to 100 percent of the minimum requirements listed in Section 6.201B of the Zoning Ordinance.

12. Is a public service facility planned to be sited near the transit facility to demonstrate strength of public investment in the area?

- Currently there is a Boys and Girls Club at the intersection of Rosedale and Vaughan which is owned by TWU.
- Sycamore Park and community center are located nearby and contains a playground and picnic facilities, tennis and volleyball courts and an outdoor swimming pool. This facility is located at 2525 E. Rosedale Ave.
- There is a Police Station (Traffic Division) at 1100 Nashville St. and a Sub Station at the Polytechnic Center.
- The closest libraries are Cavile Outreach Opportunity Library (COOL) located at 5060 Ave G, East Berry Library located at 4300 East Berry Street, Butler Outreach Library Division (BOLD) located at 1801 North/South Freeway and the Ella Mae Shamblee Library located at 959 E. Rosedale Ave. Currently the construction of a 12,500 sq. ft. building at the intersection of Evans Ave and Verbena Street will house the new Ella Mae Shamblee Library, and the Tommy Tucker Building (added to the National Register of Historic Places in 2006). The new library will be located in the Evans & Rosedale Urban Village.

- Not far from the Polytechnic/Wesleyan Urban Village is the proposed new 36,000 sq. ft. public health facility that will house the City of Fort Worth's public health administrative function along with providing a demonstration kitchen and fitness center for public use. Like the new Shamblee library, the health facility is also proposed to be built in the Evans & Rosedale Urban Village.

13. What are the regulatory and permitting procedures for a TOD? Can the time it takes to get permits be reduced?

- The city of Fort Worth works to ensure that high priority projects such as TODs are streamlined as the city works closely with FWTA on these joint ventures.

14. Does the city offer density bonuses?

- No monetary density bonus incentives are offered at this time.

Appendix C: Parking Requirements from Fort Worth Zoning Ordinance

(MU-1, MU-1G, MU-2, MU-2G)

Required Off-Street Parking

1. Minimum Parking Requirements: The following table establishes the minimum parking requirements for uses located in residential zoned property or within two hundred fifty feet (250') of One or Two-Family zoned property. For all other uses, no minimum parking spaces shall be required.
2. Maximum Parking Requirements: The maximum number of parking spaces shall not exceed 125% of the minimum parking requirement for all uses listed in the table set out below. Parking in excess of the maximum shall be allowed by meeting the requirement of one tree above the minimum required under Chapter 6, Article 3, for every additional ten (10) parking spaces beginning with the first additional parking space and for each ten (10) spaces thereafter.

Use	Requirement
RESIDENTIAL	
Residential unit: one-family up to four family	1 to 4 spaces per dwelling unit (see individual districts for details)
Multifamily residential (Unified Residential Development)	1 space per bedroom plus 1 space per 250 square feet of common areas, offices and recreation (less laundry rooms and storage). Two spaces may be tandem if assigned to the same unit and restricted from use for storage.
PUBLIC AND CIVIC	
College or University	1 space per 2 teachers and administrative staff plus 1 space per 4 additional employees plus 1 space per 3 students residing on campus

Use	Requirement
	plus 1 space per 5 students not residing on campus
Day care, kindergarten	1 space per facility plus 1 space per 10 children (as licensed by the state) in back of front building line
Fraternity, sorority	1 space per 2 residents
Hospital	1 space per bed for patients/visitors/doctors plus 1 space per 4 nurses/other employees
Medical clinic, health services facility, assisted living facility	1 space per doctor plus 1 space per 4 employees plus 4 spaces per 1,000 square feet of gross floor area
Nursing home or medical care facility	1 space per 4 beds for visitors/doctors plus 1 space per 4 nurses/other employees
Place of worship	1 space per 4 seats in sanctuary or worship area in residential districts 1 space per 5 seats in sanctuary or worship area in non-residential and mixed-use districts
School, elementary and junior high (public or private)	1 space per 12 students
School, high school (public or private)	1 space per 1.75 students plus 1 space per 5 stadium seats (may be double counted)
COMMERCIAL	
Banks	4 spaces per 1,000 square feet
Bed and breakfast home	2 spaces per owner/operator 1 space per bedroom for guests
Bed and breakfast inn	2 spaces per owner/operator plus 1 space per bedroom for guests plus 1 space per 2 employees plus 1 space to service additional traffic
Boarding or lodging house	1 space for proprietor

Use	Requirement
	<p>plus 1 space per 2 boarding/lodging sleeping rooms</p> <p>plus 1 space per each 4 employees</p>
Bowling alley	<p>4 spaces per lane/alley</p> <p>plus 1 space per 4 seats of restaurant or café</p> <p>plus 1 space per 4 employees</p>
Commercial business, retail sales and service (except large retail see 5.133.A.10)	4 spaces per 1,000 square feet (25% reduction for conversion from a more restricted use)
Construction sales office	2 spaces per unit behind front property line
Hotel	<p>1 space per bedroom unit</p> <p>plus 1 space per 4 patron seats in rooms open to public</p> <p>plus 5 spaces per 1,000 square feet of display/ballroom area</p>
Model home	2 spaces per unit behind front property line
Office, professional building	2.5 spaces per 1,000 square feet of gross floor area
Outdoor amusement (for more than 3 days)	1 space per 5 participants/spectators based on maximum capacity
Private club, cocktail lounge	<p>1 space per guest room or suite</p> <p>plus 1 space per 4 seats</p> <p>plus 5 spaces per 1,000 square feet of ballroom available to nonresidents</p> <p>plus 1 space per 4 employees</p>
Restaurant, cafeteria	1 space per 100 square feet (25% reduction for conversion from a more restricted use)
Retail store, large	See '5.134 Store, Large Retail' A.10 (http://www.fortworthgov.org/zoning/chapter_30.html#section_2430165919265)
Theater, auditorium, place of	1 space per 4 seats in main auditorium

Use	Requirement
public assembly	plus 5 spaces per 1,000 square feet of ballroom/similar area plus 1 space per 4 employees
Walkup business	4 spaces per 1,000 square feet
INDUSTRIAL	
Industrial building	2 spaces per 1,000 square feet gross floor area or 1 space per 3 employees, whichever is greater
Warehouse building	1 space per 4 employees 4 spaces minimum

Appendix E: Data Sources

1. American Public Transportation Association (APTA) 2004 Public Transportation Fact-Book.
2. Real Estate Journal.com;
<http://www.realestatejournal.com/secondhomes/20040420-steele.html> , April 20, 2004.
3. NCTCOG's Regional Rail Corridor Study, 2005.
4. National Bus Rapid Transit Institute, 2007
5. SmartCode Ordinance, Duany Plater-Zyberk, 2005.
1. City of Fort Worth Planning and Development Department, 2007.
2. Tools for Mixed Income TOD, Douglas Shoemaker, Center for Transit Oriented Development, August 2006.
3. Victoria Transport Policy Institute, 2002.
4. Livable Places, 2003.
5. Tompkins County, NY Planning Department, 2005
6. Oregon DOT Transportation and Growth Management Program Transportation and Land-Use Connection Brochure, 2003.
7. State of Massachusetts Smart Growth Toolkit, 2001.

8. Mobility 2025: The Metropolitan Transportation Plan, 2004 Update,
NCTCOG

Additional Resources:

Urban Village and Mixed-Use Zoning Information

- Mixed-Use Zoning Guide:
<http://www.fortworthgov.org/PlanningandDevelopment>

City of Fort Worth Housing Programs and Resources

- <http://www.fortworthgov.org/housing/>

Transportation Information

- Bicycle Transportation: <http://www.fortworthgov.org/tpw/>