HOUSING + TRANSPORTATION AFFORDABILITY

in

EL PASO

Prepared by the Center for Neighborhood Technology

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INTRODUCTION

Summary

As El Paso continues to grow, it has the opportunity to develop in such a way that minimizes the environmental impacts of travel, while also reducing household transportation costs. This report provides information on the combined housing and transportation costs in the El Paso region, demonstrating that these two household expenses are closely linked. Housing developments radiating out from the city center tend to be newer and larger, and their dispersed land use and transportation infrastructure make car ownership, and its resultant cost, a necessity. In contrast, both housing and transportation costs are lower in the compact neighborhoods within the city where residents can more easily get to jobs, shopping and amenities by transit and walking.

For years, real estate market pricing has incorporated the value of land into the price of a home—based on its location and proximity to jobs and amenities—but there is less clarity about the effect of accompanying transportation costs associated with an efficient or inefficient location on these values. In many places where single-family homes are more "affordable," or offer "more house for your money", usually in outlying areas, costs are lower in part because land is cheaper. However, the transportation costs can be much higher and can often outweigh the savings on housing costs.[1] In order to provide a better picture of affordability in the El Paso region, a measure that models the full costs of transportation and combines it with the cost of housing is utilized. This tool is called the Housing + Transportation (H+T^{SM}) Affordability Index.[2]

The El Paso metropolitan statistical area (MSA) average median income was $34,065 and the average household size was 3.18 members according to the 2000 US Census.[3] Given this income, housing in the El Paso region is broadly affordable when measured using a widely accepted standard of affordability of 30% or less of household income.

In contrast to the relative affordability of housing, El Paso residents are largely overburdened by transportation costs. In the El Paso region, household transportation costs range from as little as $600 per month to nearly $1,000 per month.[4] As a percent of income, households in much of the El Paso region spend more than 28% of their income on transportation. In areas, this cost can even be as high as 33% or more of the average median income, making it a greater burden than housing in some areas.

Because housing and transportation costs both vary so greatly by location, considering the two costs jointly is key in measuring and understanding the affordability of a location. The maps in this report demonstrate that combined H+T costs can range from less than 35% of household

[1] Lipman, Barbara J. A Heavy Load: The Combined Housing & Transportation Burdens of Working Families. Center for Housing Policy, Washington D.C., 2006.
[2] Center for Transit-Oriented Development and Center for Neighborhood Technology. The Affordability Index: A New Tool for Measuring the True Affordability of a Housing Choice. Brookings Institution's Urban Markets Initiative, Washington D.C., 2006.
[3] All data, statistics, and maps presented in this report reference 2000 data unless otherwise noted.
[4] High and low transportation expenditures calculated from the H+T Affordability Index.

income in the central city to more than 75% in outlying areas for the household earning the average median income. This indicates that there are many areas, particularly those outside city limits, where median income households become quite overburdened by housing and transportation costs.

High housing and transportation costs have a direct effect on individual household budgets. They restrict the opportunity to save and to build assets. And, since high H+T is heavily correlated with high rates of car ownership, families often find themselves investing in automobiles that depreciate rapidly, rather than in investments that build wealth, like homeownership, savings, or education.[5]

Low combined housing and transportation costs in El Paso correspond to specific neighborhood characteristics: they are more compact (with more households per acre) and tend to have a range of stores and amenities in close proximity. Many of these communities with low combined H+T values are walkable neighborhoods with access to public transit provided by Sun Metro. Low H+T scores and expanded mobility options are closely related.

As El Paso plans for the future, maintaining low housing and transportation costs could be a strategic objective.[6] This can be accomplished by planning compact mixed use development with access to transit, which encourages and supports vital neighborhoods. Expanding public transportation options is also essential, both increasing scheduled service and ridership as well as establishing new options such as car sharing,[7] van pooling and other demand-responsive services.

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[5] Bullock, Ryan Mooney and Bernstein, Scott. Driven to Debt. CNT, 2002.

[6] The Metropolitan Transportation Commission, which is the Metropolitan Planning Organization for the San Francisco Bay Area, this year formally adopted a goal of reducing the combined cost of housing and transportation as a percentage of median income by 10 percent by 2035. Various cities have started considering such a goal for municipal policy, or are considering adopting a policy defining housing affordability as including the cost of transportation

[7] In San Francisco, independent non-profit car sharing organizations have documented considerable cost of living reduction benefits. See: Cervero, R., Golub, A., and Nee, B. San Francisco City CarShare: Longer-Term Travel-Demand and Car Ownership Impacts. Institute of Urban and Regional Development, University of California at Berkeley. Department of Transportation and Parking, City of San Francisco.

El Paso Mobility Assets

The design of El Paso's street network and land use encourages a dependence on the auto throughout much of the city and metro area. According to the 2000 US Census, in El Paso County, 92% of workers commute by a car, truck or van (see Figure 1), and households own an average of 1.7 autos (see Figure 2). An exception to this trend is at Fort Bliss where significantly less people commute to work by car, truck or van, likely due to military personnel living in close proximity to their work locations. Also, in the City of El Paso, there are areas with less than 75% of workers commuting to work in a private vehicle. In these areas, households own an average of less than one auto per household. One factor in the City of El Paso that may contribute to the lower auto ownership rates is the percentage of workers who commute to work by public transportation (see Figure 3). In much of El Paso County, this is less than 1%, but in the City of El Paso, there are areas where more than 15% of workers commute by transit.

One factor that impacts mode choice and auto ownership is the level of available transit. The H+T Index employs a measure of transit service called the Transit Connectivity Index (TCI). Transit service levels for the purposes of the TCI are based on access and intensity of transit service in a given census block group. Access is captured by a quarter mile buffer around each bus route, and intensity is based on the number of lines that serve the Census block group. For a given Census block group, the index accounts for the percentage of land area within walking access to a bus route and the number of bus lines. However, it is important to note that TCI is not a descriptive or a literal definition of service, but rather a calculated prediction of transit service levels. Figure 4 shows the results of the TCI application within the El Paso area. Not surprisingly, the highest levels of TCI run through the downtown core, areas where auto ownership and the percent of people driving to work are the lowest in the region.

Maintaining current transportation options and encouraging expansion will be critical as gasoline prices continue to fluctuate. Figure 5 shows the gasoline expenditures in 2000 based on an average gasoline price of $1.52/gallon. Figure 6, factoring in all of the same assumptions for vehicle miles traveled,[8] shows how these expenditures change simply based on in increase in fuel prices. This map shows annual expenditures based on a gasoline price of $3.96/gallon, a price frequently reached and even surpassed in 2008.

[8] Vehicle miles traveled calculated in the Housing + Transportation Affordability Index model.

Figure 1: Percent of Workers Commuting by Automobile

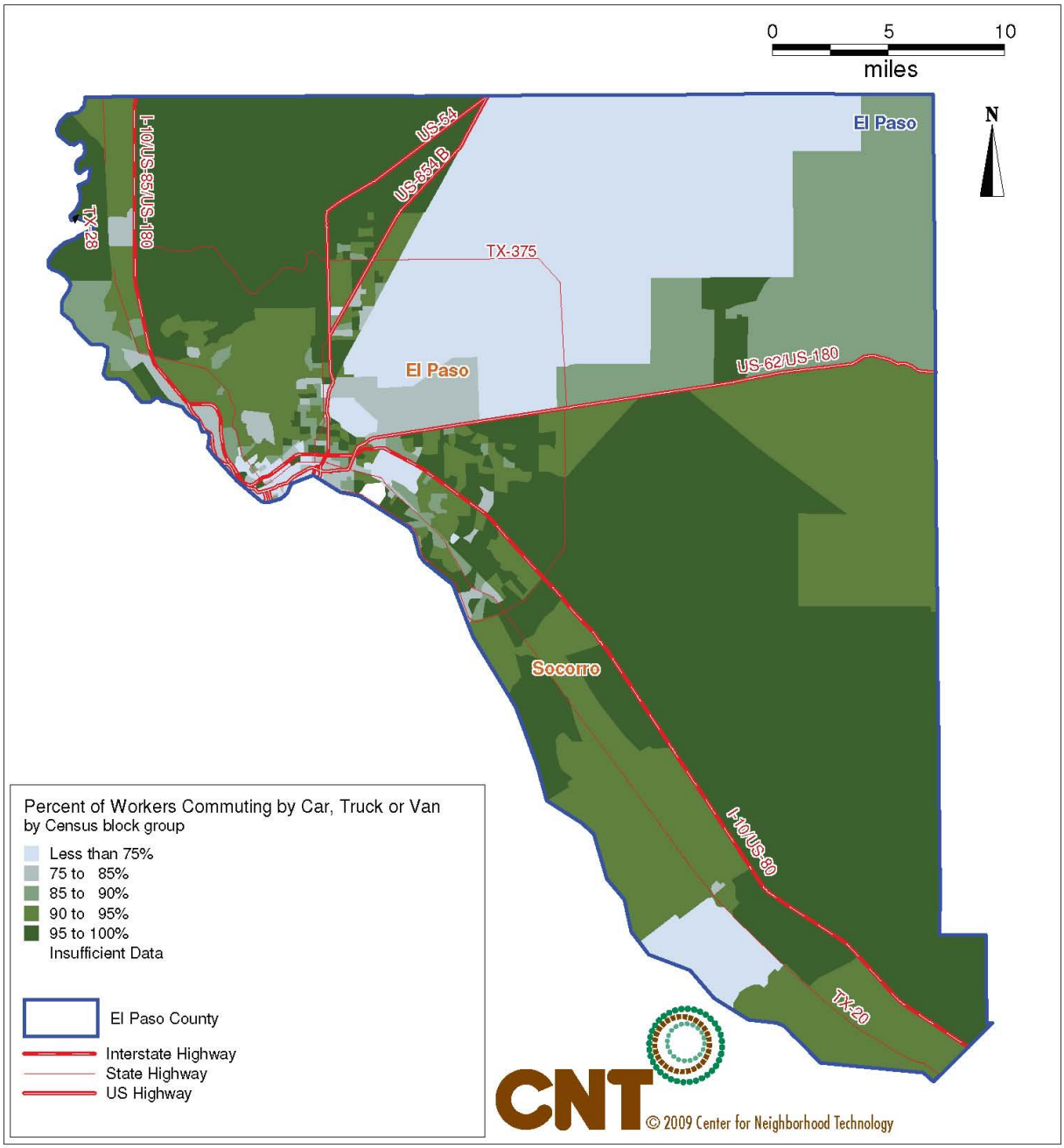


Figure 2: Average Automobiles per Household

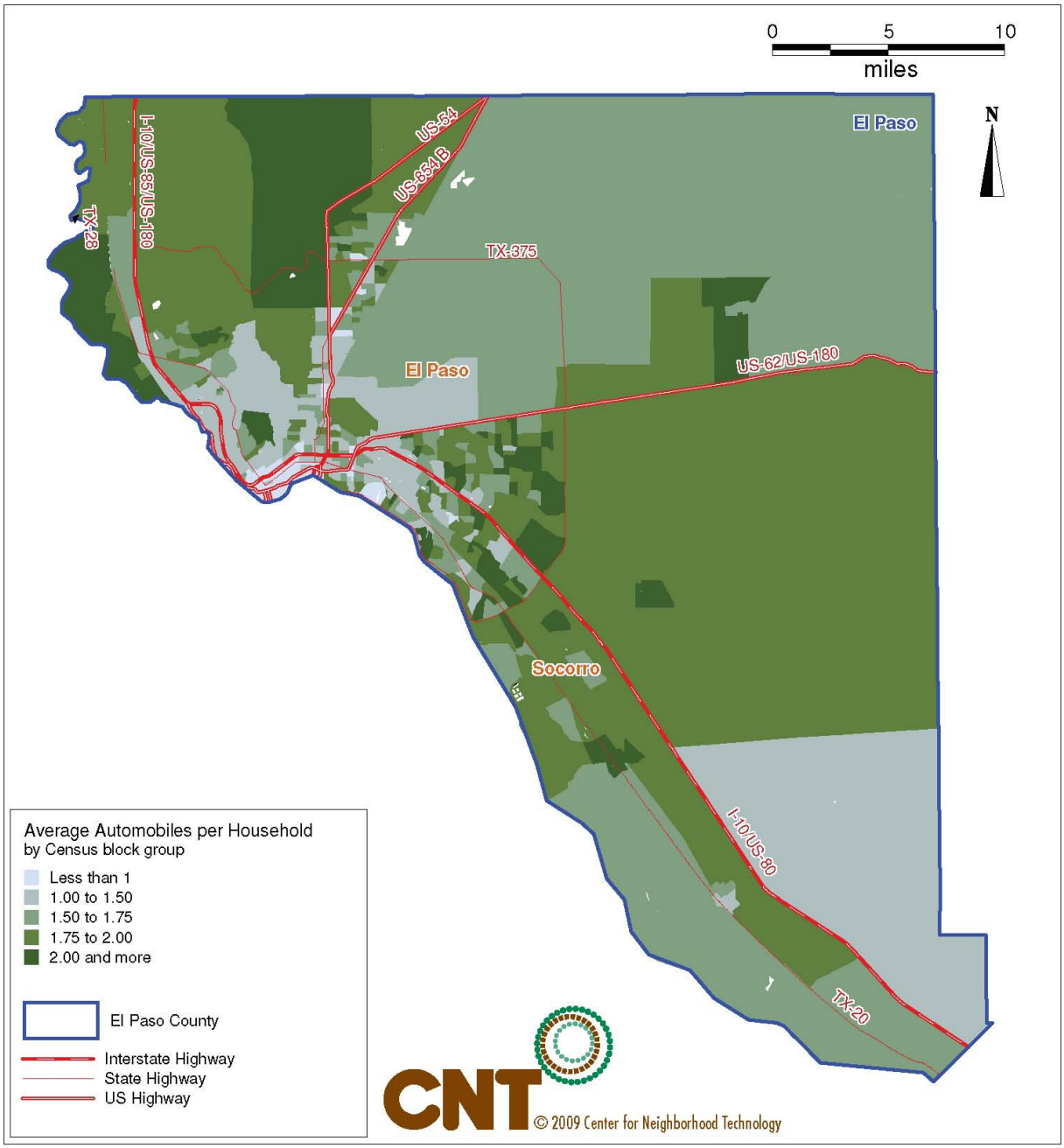


Figure 3: Percent of Workers Commuting by Public Transit

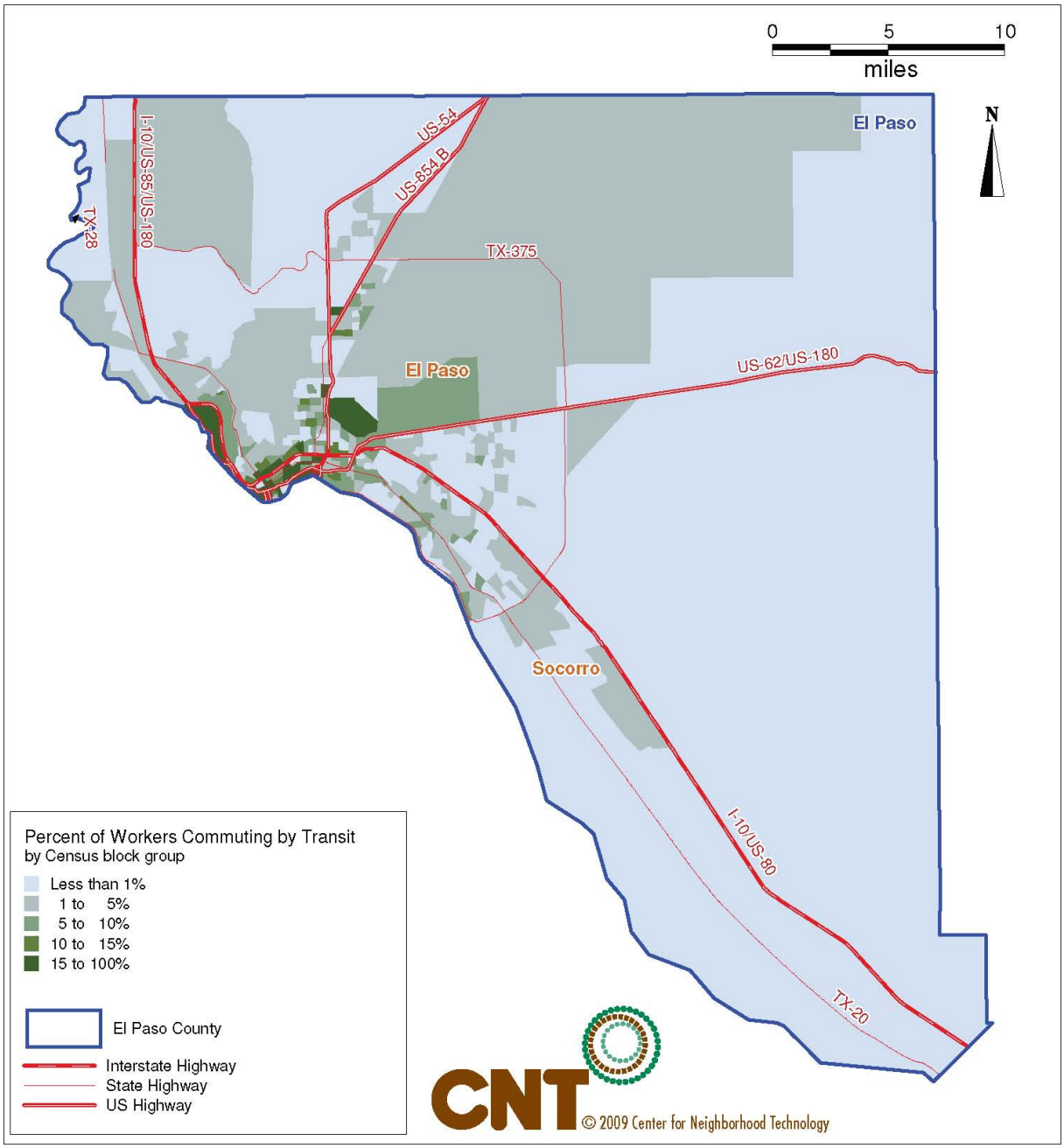


Figure 4: Transit Connectivity Index

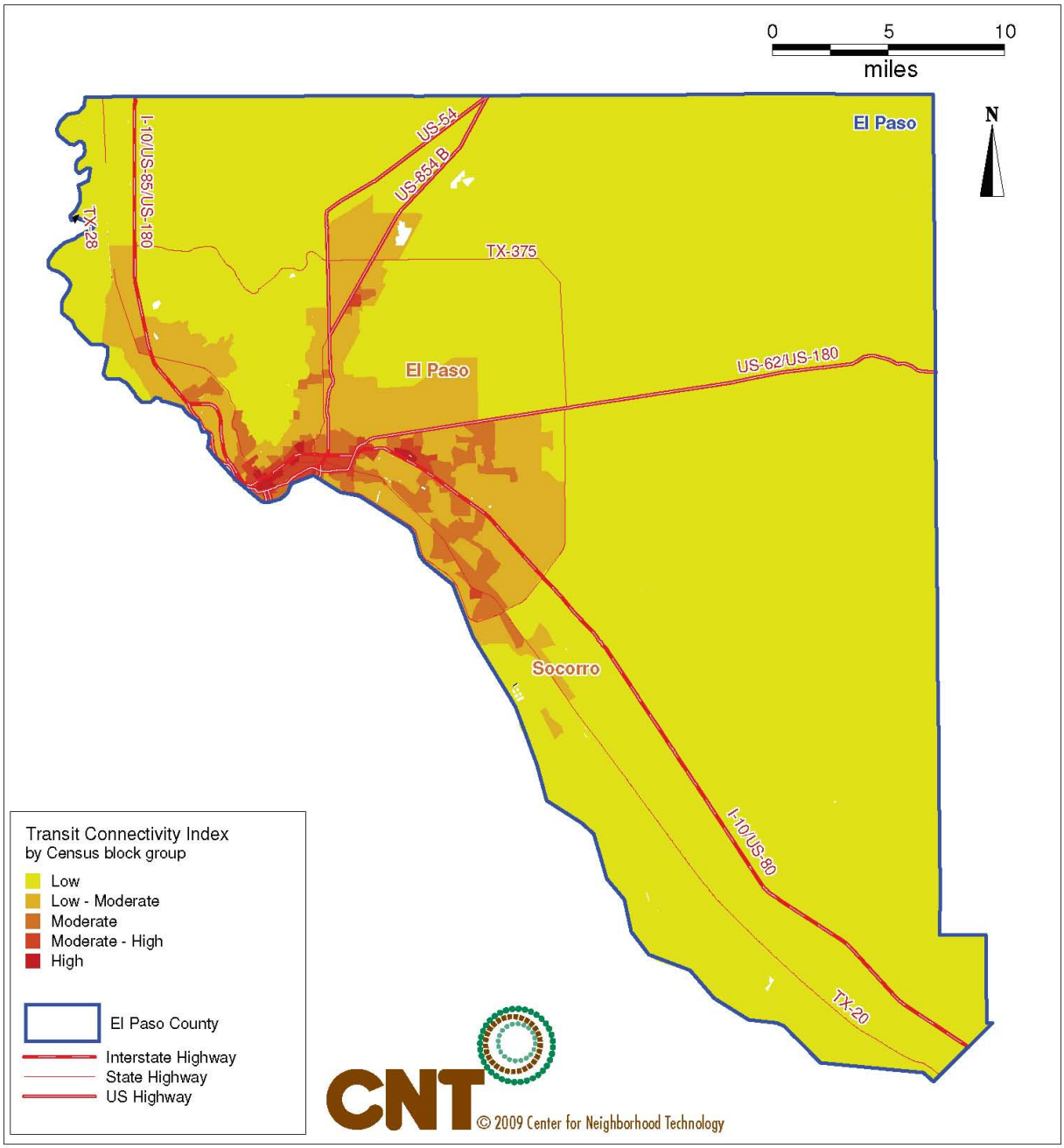


Figure 5: Annual Gasoline Expenditures Based on a 2000 Gas Price

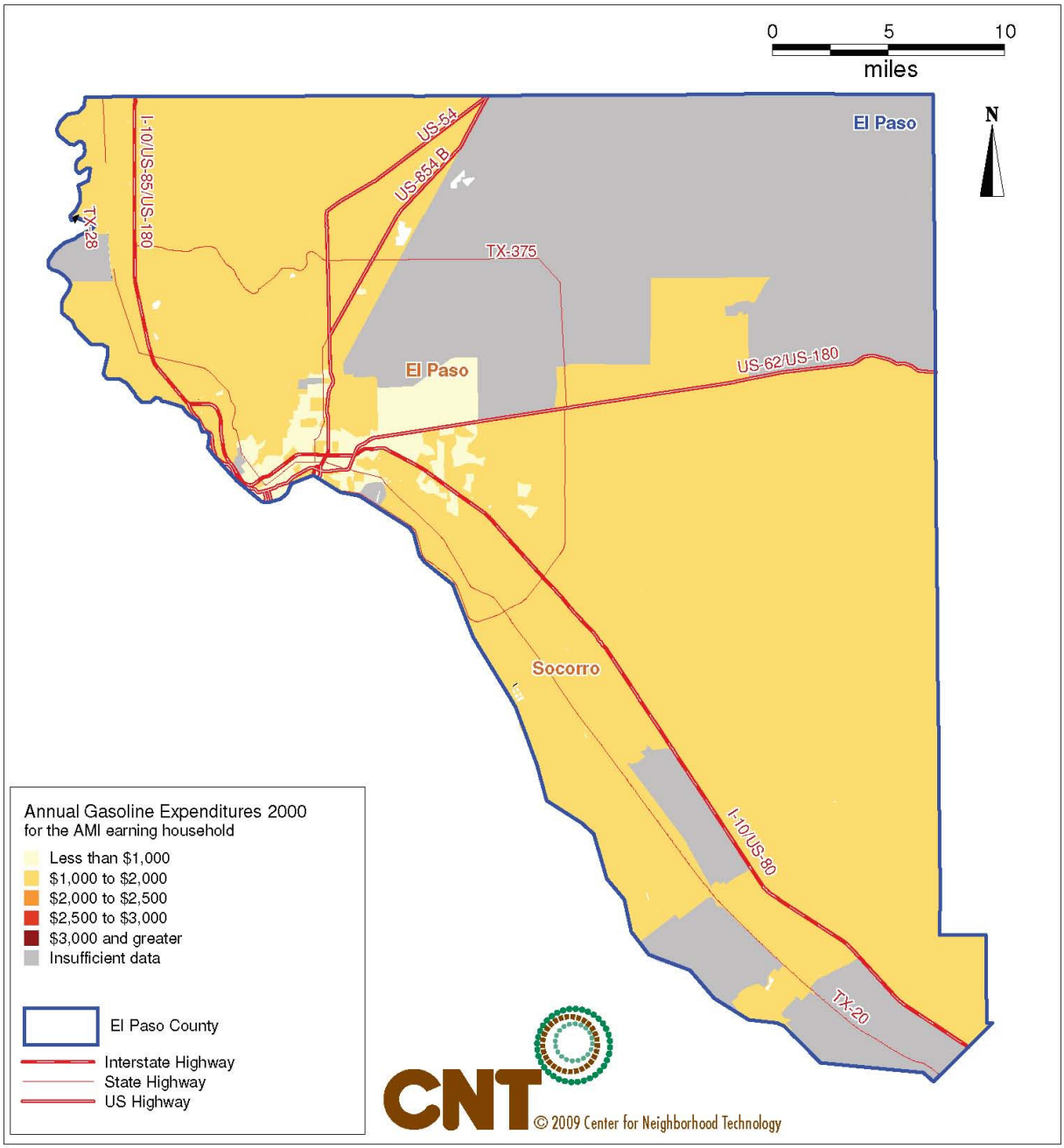
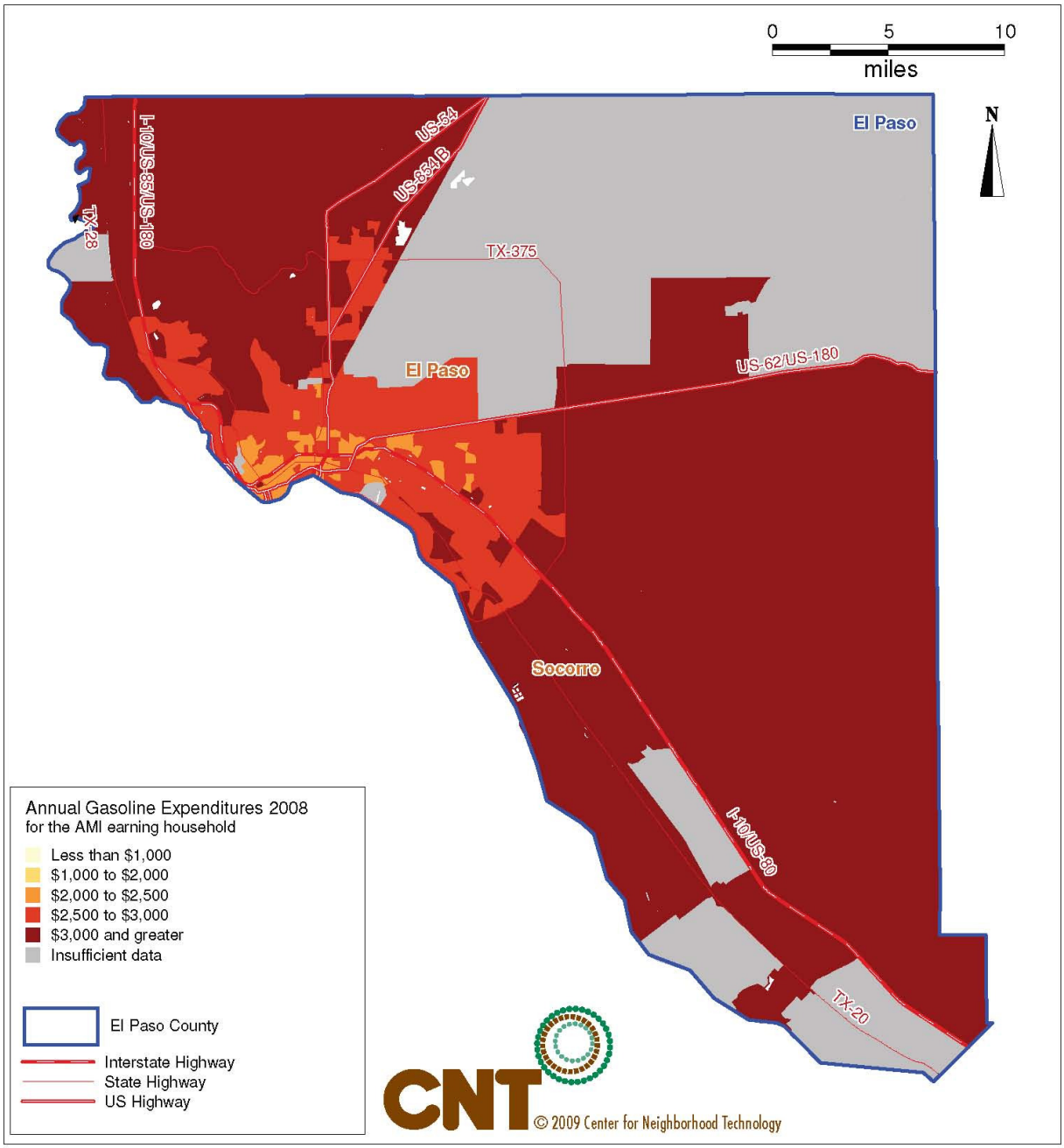


Figure 6: Annual Gasoline Expenditures Based on a 2008 Gas Price



AFFORDABILITY IN EL PASO

Housing and Transportation Affordability: A New Understanding

For years, real estate market pricing has incorporated the value of land into the price of a home—based on its location and proximity to jobs and amenities—but there is less clarity about the effect of accompanying transportation costs associated with an efficient or inefficient location on these values. In most cases, the very same features that make the land and home more attractive, and likely more valuable per square foot, also decrease transportation costs. Being close to jobs and commuter transit options reduces the expenses associated with daily commuting; this is a cornerstone of transit-oriented development (TOD). In fact, being within walking distance of a downtown or neighborhood shopping district allows a household to replace some of the typical daily auto trips with one or more walking trips, and may even allow a family to get by with one less automobile.

By contrast, in many places where single-family homes are more "affordable," or offer "more house for your money", usually in outlying areas, costs are lower in part because land is cheaper. However, the transportation costs can be much higher and can often outweigh the savings on housing costs. In many of these areas where households "drive to qualify" for affordable housing, transportation costs can exceed 32% of household income, creating a greater cost burden than housing. Conversely, in some communities where households are less automobile dependent, transportation can represent as little as 10% of median household income.[9]

In order to provide a better picture of affordability in the El Paso area, a measure that models the full costs of transportation and combines it with the cost of housing is utilized. This tool is called the Housing + Transportation Affordability Index (the H+T Index or the Index). The Index is reported here as the percentage of household income consumed by Housing Costs (H) plus Transportation Costs (T), as shown in the formula below (see

[9] High and low transportation expenditure percents calculated from the 53 metropolitan areas presented on the H+T Affordability Index website (http://htaindex.cnt.org).

Figure 7). For example, in a particular census block group, the H+T costs may be 45% of median household income, where 30% of income is for housing and 15% of income is for transportation.

Housing and transportation costs considered together, as measured by the H+T Index, are a useful measure of the relative affordability of different locations in and around El Paso. Based on comparisons of 53 metro areas studied, ranging from large cities with extensive transit (such as the New York metro area) to small metros with extremely limited transit options (such as Fort Wayne, IN), an attainable standard for transportation costs has been identified as 18% of average median income. All metro regions in the study, to varying extents, exhibit areas where the level of 18% has currently been reached. Therefore, a benchmark of affordability has been defined as this level of 18%, combined with the standard of 30% or less of income for housing costs, or 48% or less of the median income spent on housing and transportation combined.

Figure 7: Affordability Index Formula

$$\textbf{Affordability Index} = \frac{\textbf{Housing Costs + Transportation Costs*}}{\textbf{Income}}$$

*Transportation Costs include the modeled cost of Auto Ownership, Auto Use, and Transit Use

Applying the H+T Affordability Index to El Paso

Using the factors described above, the H+T Index was calculated for the El Paso area by Census block group. As described above, the formula for the Index is simple: housing plus transportation divided by income equals the true cost of where one chooses to live.

Transportation

Figure 8 shows the average monthly transportation costs, modeled for a household making the average median income (AMI) of $34,065, by Census block group in the El Paso metro area. There are clear differences in the transportation costs between the City of El Paso and the suburban-style development around the city border and the more dispersed areas of the county. Not surprisingly, absolute transportation costs are lowest in the transit service area of downtown El Paso, where average costs are generally under $730 per month. They are particularly low in the central neighborhoods downtown where households can spend less than $600 per month on transportation. These lower transportation costs are due to higher densities, where access to amenities and employment centers is plentiful. Transportation costs are highest on the outskirts of the county where some households spend nearly $1,000 per month on transportation. This is partly a function of lower density and the absence of other key elements that contribute to lower transportation costs within El Paso's central neighborhoods, resulting in higher auto ownership rates and a need to travel greater distances for everyday needs.

Figure 9 shows the same modeled monthly transportation costs, this time as a percent of the average median income by Census block group. Household transportation burdens in metro El Paso are striking. There are very few places where households spend less than 20% of the AMI on transportation, and these areas are primarily in downtown El Paso. In any other part of the metro area, the average household can expect to spend at least 24% of their income on transportation, and upwards of 30% in the farthest reaching areas of the county.

Figure 10 shows an even more striking view – transportation costs as a percent of 80% of the area median income ($27,252). This view is significant because this is the transportation burden representing what working households can expect in the El Paso area. Here, the areas where households can anticipate spending more than 24% of their income on transportation cover the entire metro area. This indicates that a large majority of households making less than the average median income (and even many earning AMI) will be significantly overburdened by the cost of transportation in the El Paso region.

Figure 8: Monthly Transportation Costs

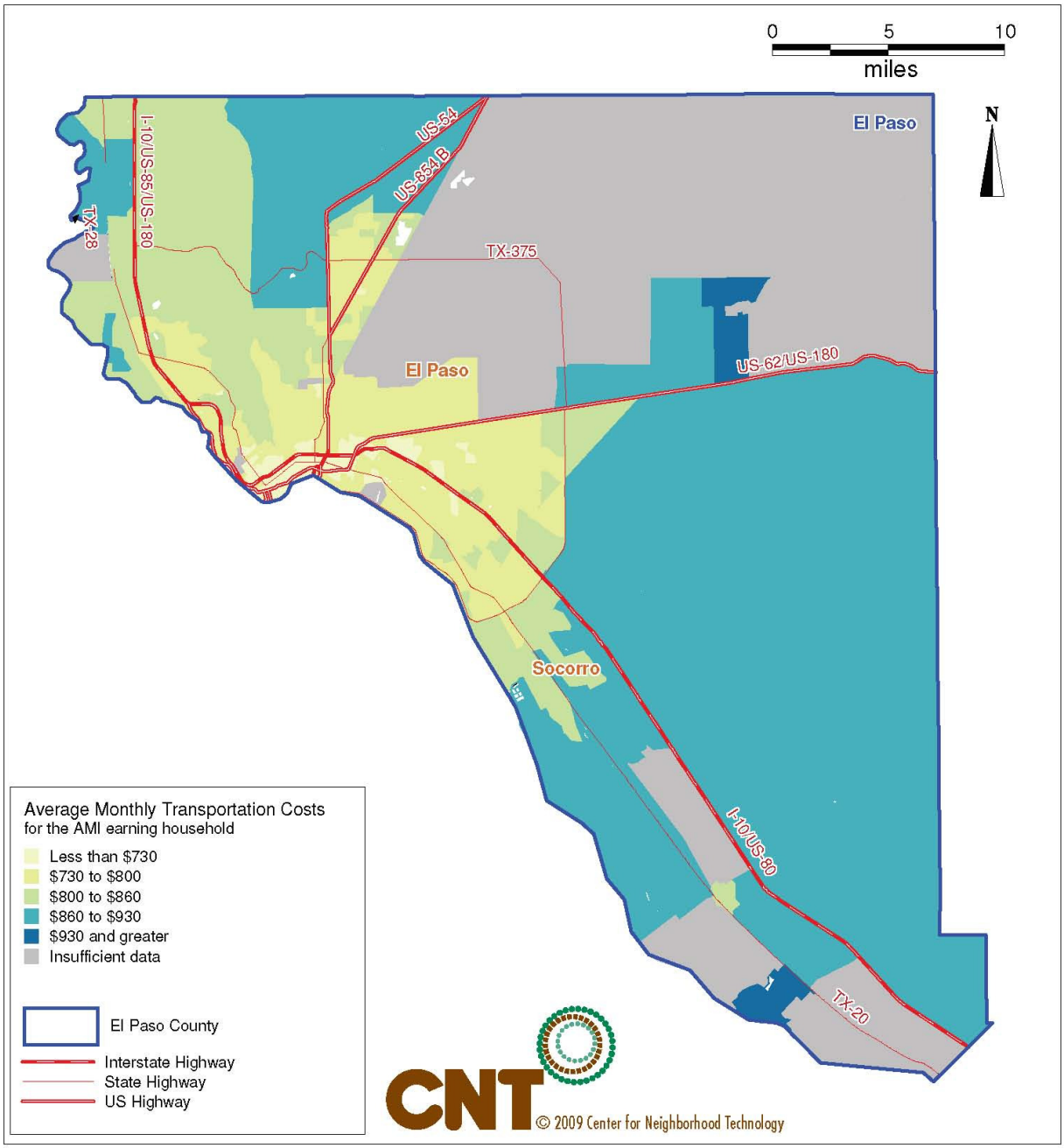


Figure 9: Monthly Transportation Costs as a Percent of AMI

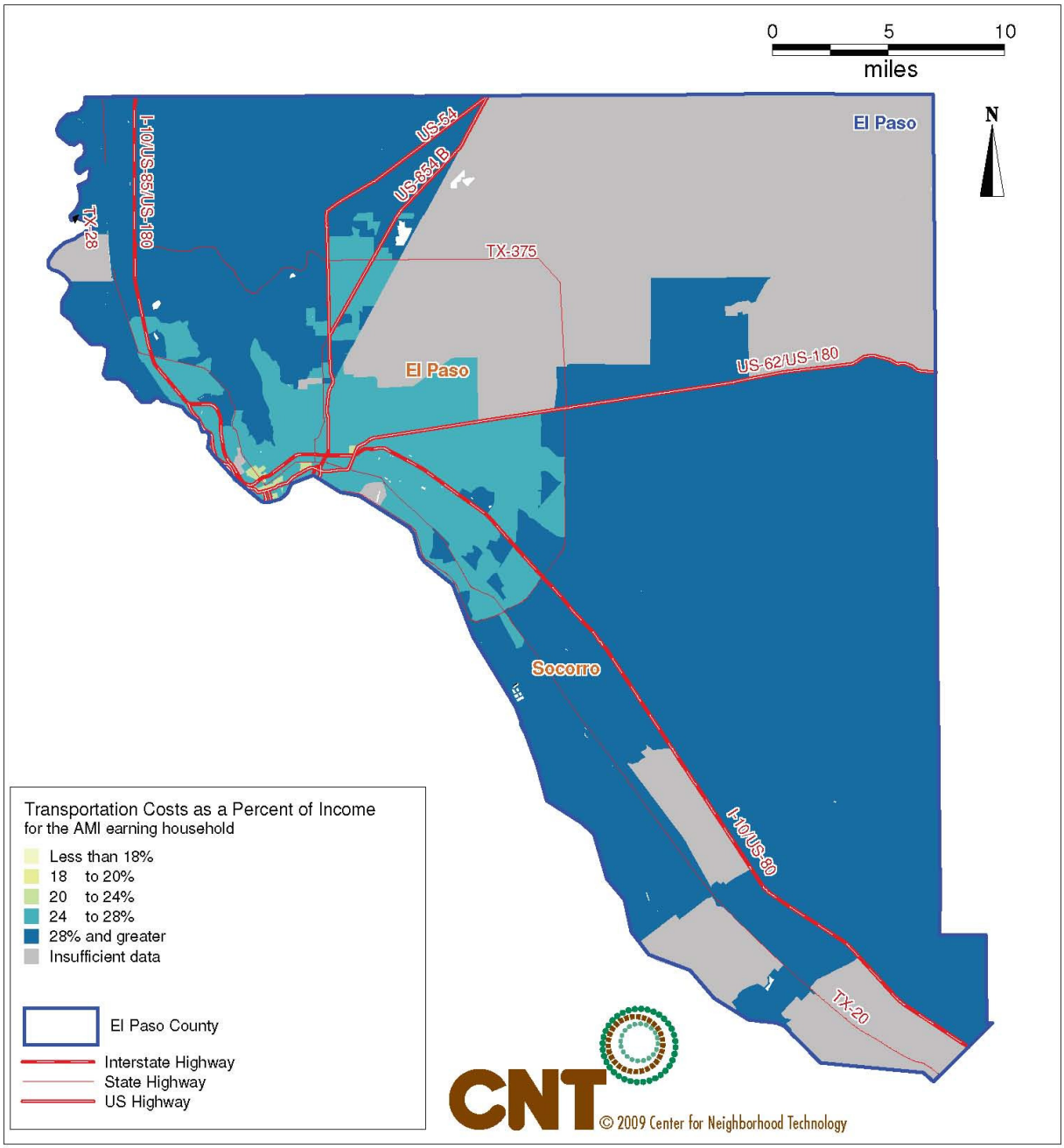
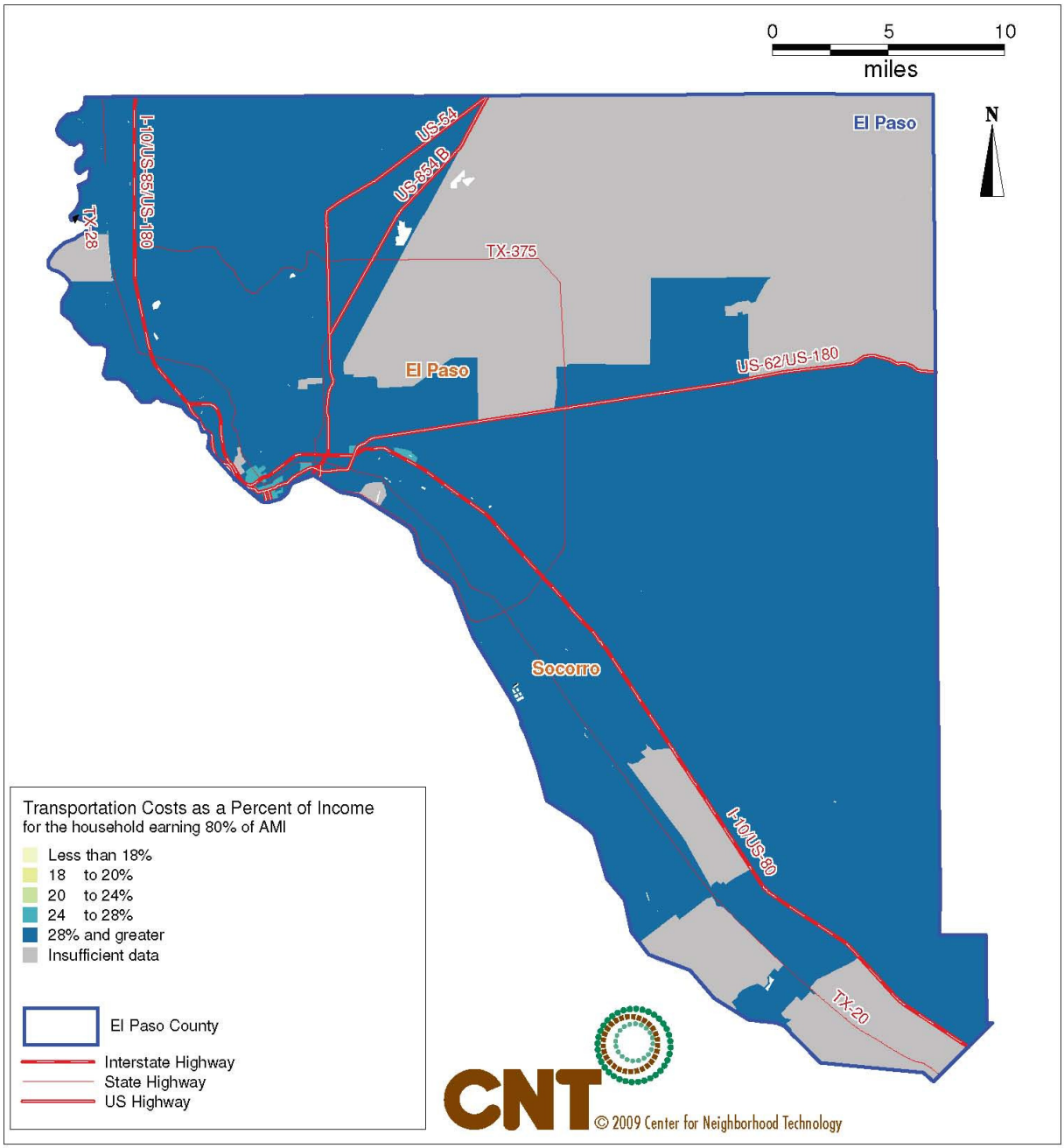


Figure 10: Monthly Transportation Costs as a Percent of 80% AMI



Housing

Housing is significantly more affordable than transportation in metro El Paso. Figure 11 shows that, regionally, housing costs are lowest in the central neighborhoods of El Paso and in the farthest reaching, dispersed areas in the northeast and southern portions of the county. While average housing costs are higher in the northern portions of the City and heading east out of the city, average housing costs are rarely over $1,000 per month. Figure 12 shows that the AMI earning household pays less than the national standard of 30% of their income on housing in a large majority of El Paso County. In the northwestern areas of the city and county, average housing costs do become slightly out of reach for the AMI earning household, but overall, the region is still largely affordable in terms of housing alone. Households earning 80% of the AMI face greater housing burdens, but still find housing in the region largely affordable. The map in Figure 13 indicates that these households do find slightly more restricted areas in which they can limit housing costs to 30% or less of their income.

Figure 11: Monthly Housing Costs

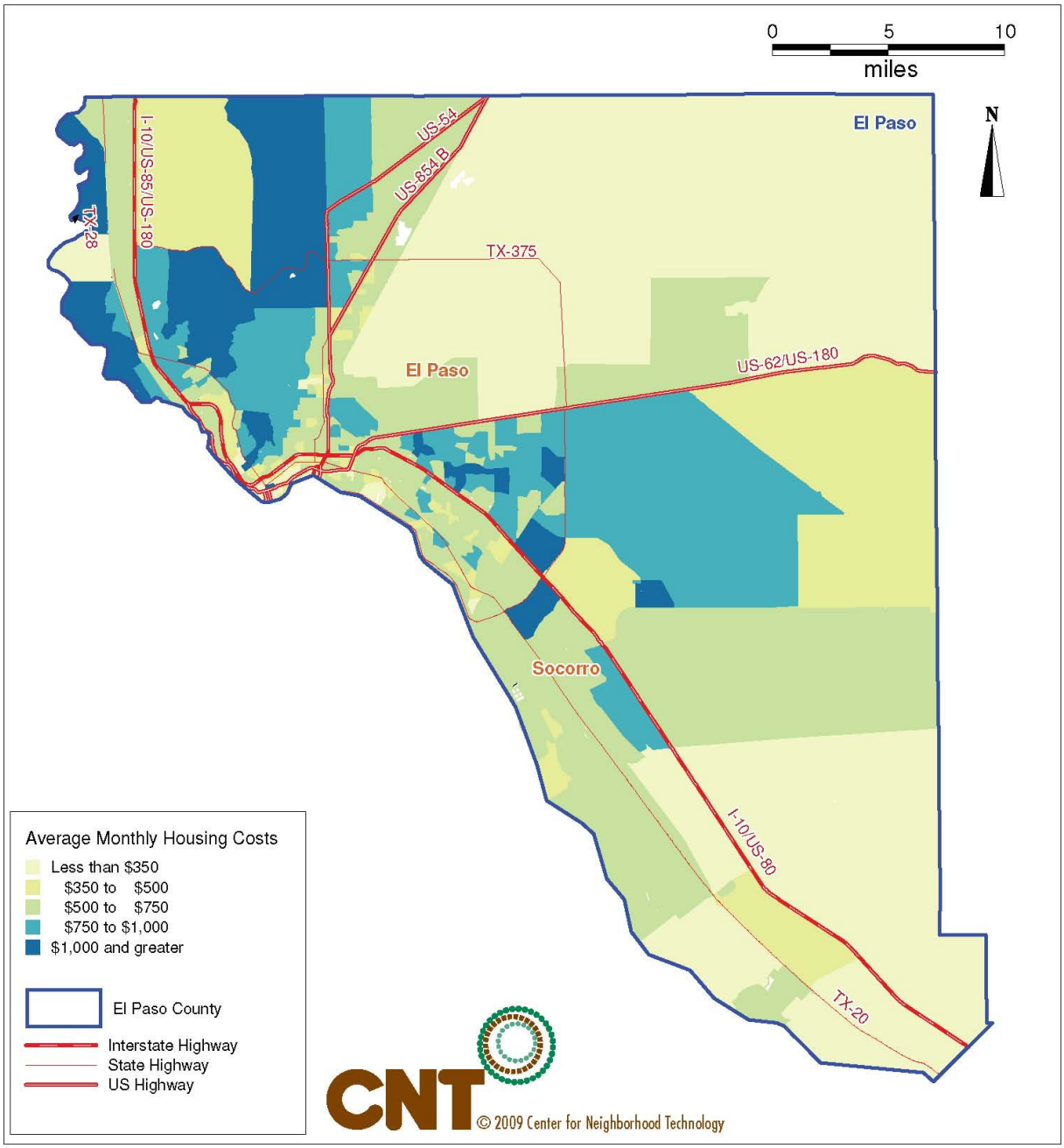


Figure 12: Housing Costs as a Percent of AMI

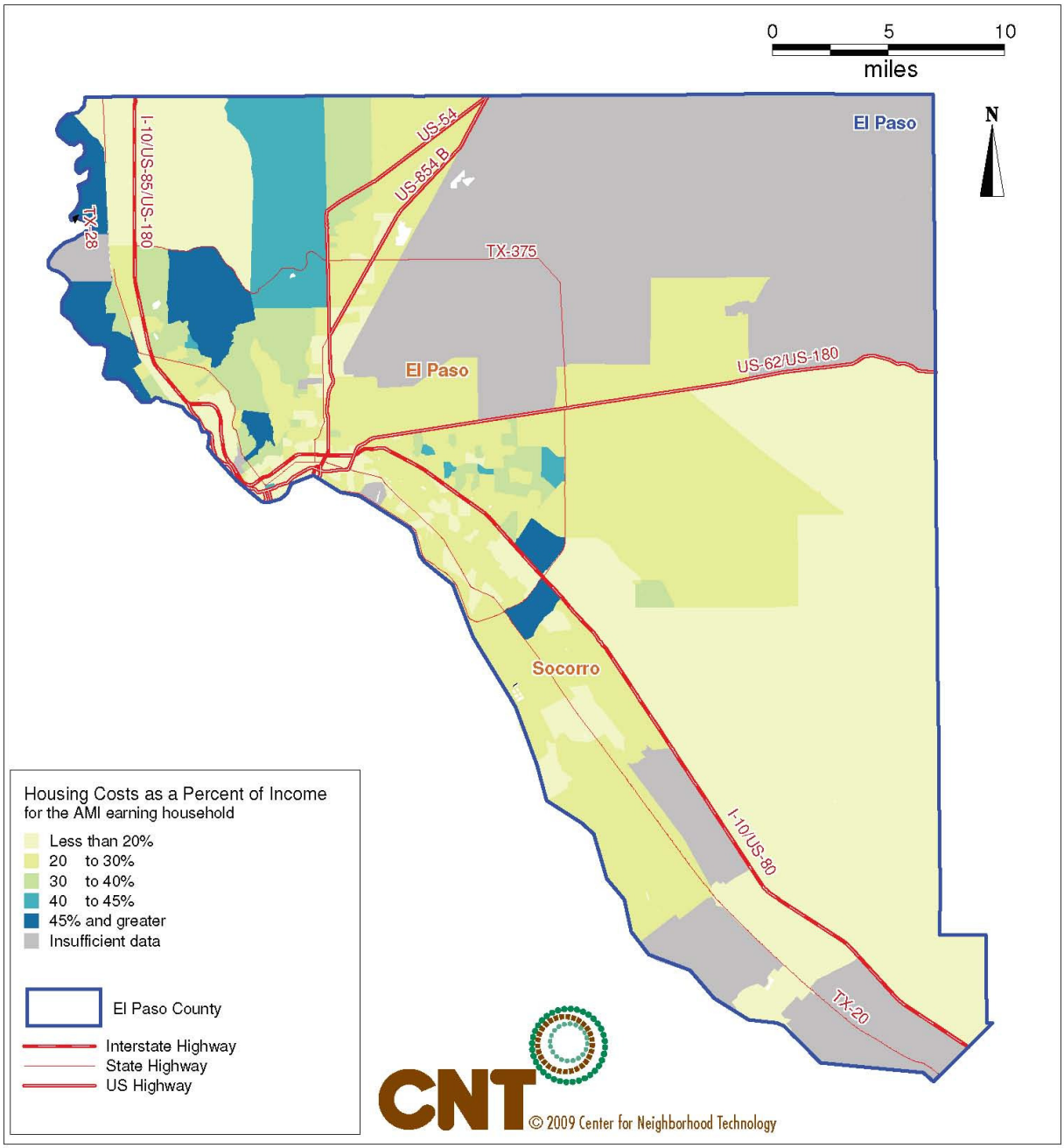
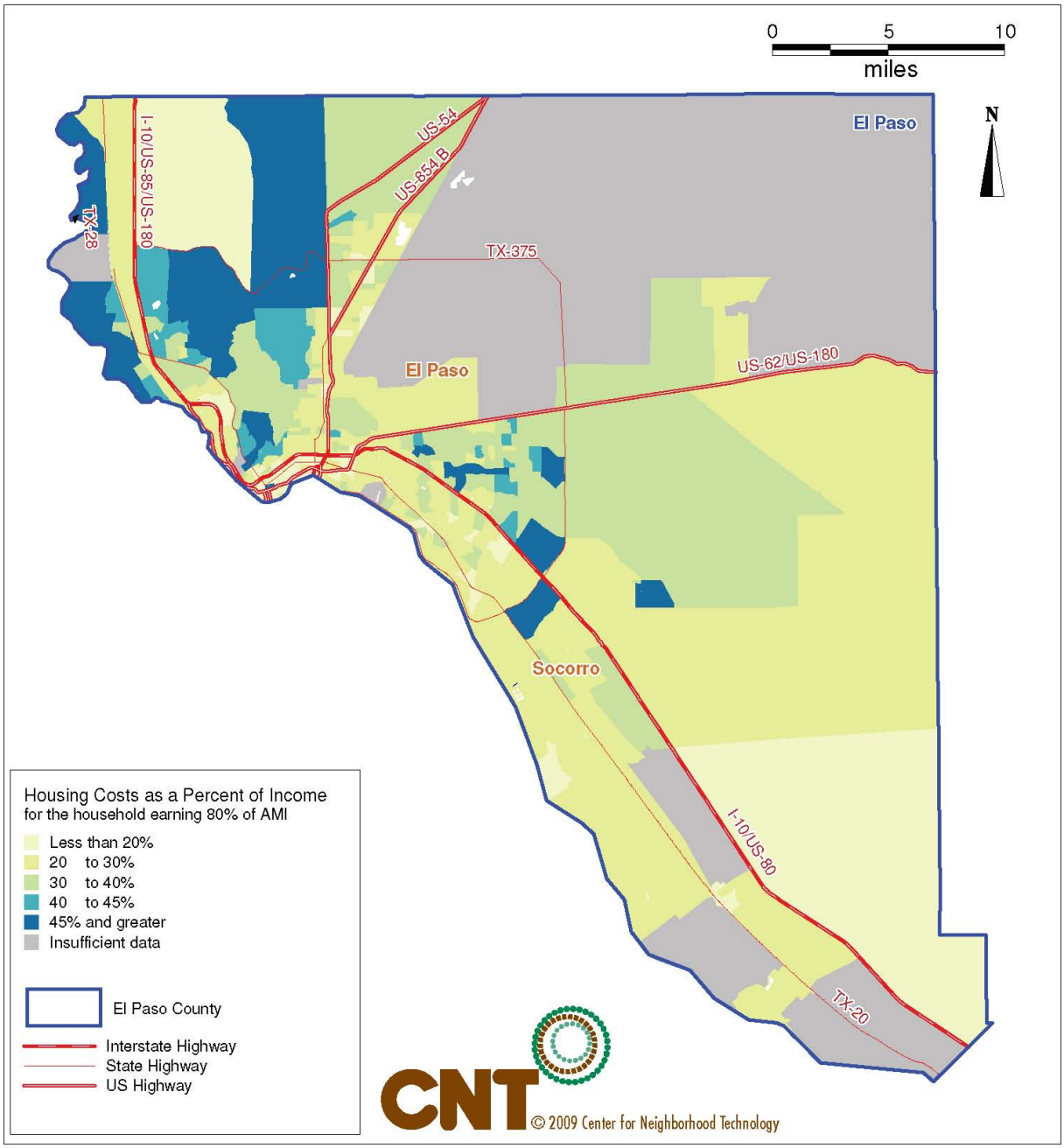


Figure 13: Housing Costs as a Percent of 80% AMI



Housing + Transportation

As seen in previous maps, housing and transportation affordability can both vary greatly by location, making it extremely difficult for households to make informed decisions about the true affordability of housing location choices. The combined H+T Affordability Index maps (Figure 14 and Figure 15) show the burdens that AMI earning and working households pay for combined housing and transportation in any given area throughout metro El Paso. If it is assumed that spending no more than 48% of a household's income for both housing and transportation combined is affordable, Figure 14 indicates that a household earning the AMI has fewer affordable choices when transportation costs are included in the affordability measure. These areas where average costs are affordable for the AMI earning household are located in the central neighborhoods of El Paso, and then spread north along US-854 B, northwest along I-10, and southeast along the border. Figure 15, representing the H+T affordability for working households, shows an even more restricted area of affordability limited to the central neighborhoods of the city of El Paso and one large area in the southeast of the county. These figures clearly indicate that affordability measures that consider housing costs alone, without taking into account transportation costs, do not provide a complete view of affordability.

High Housing + Transportation costs affect not only individual household savings and their potential for wealth creation, but also the overall economic well being of the metro area. City government, however, has the ability to influence high transportation costs, by encouraging and implementing multimodal transportation options for residents and creating streetscapes that encourage walking and bicycling. The City can also adopt an aggressive policy to market the benefits of riding Sun Metro and promote mixed-use development with jobs and shopping downtown to provide El Paso residents an alternative to driving to outlying shopping centers to meet their needs. Finally, the City can support a regional planning policy that directs future growth in a manner that promotes pedestrian-oriented, compact, mixed use development in areas with access to transit.

Figure 14: Housing + Transportation Costs as a Percent of AMI

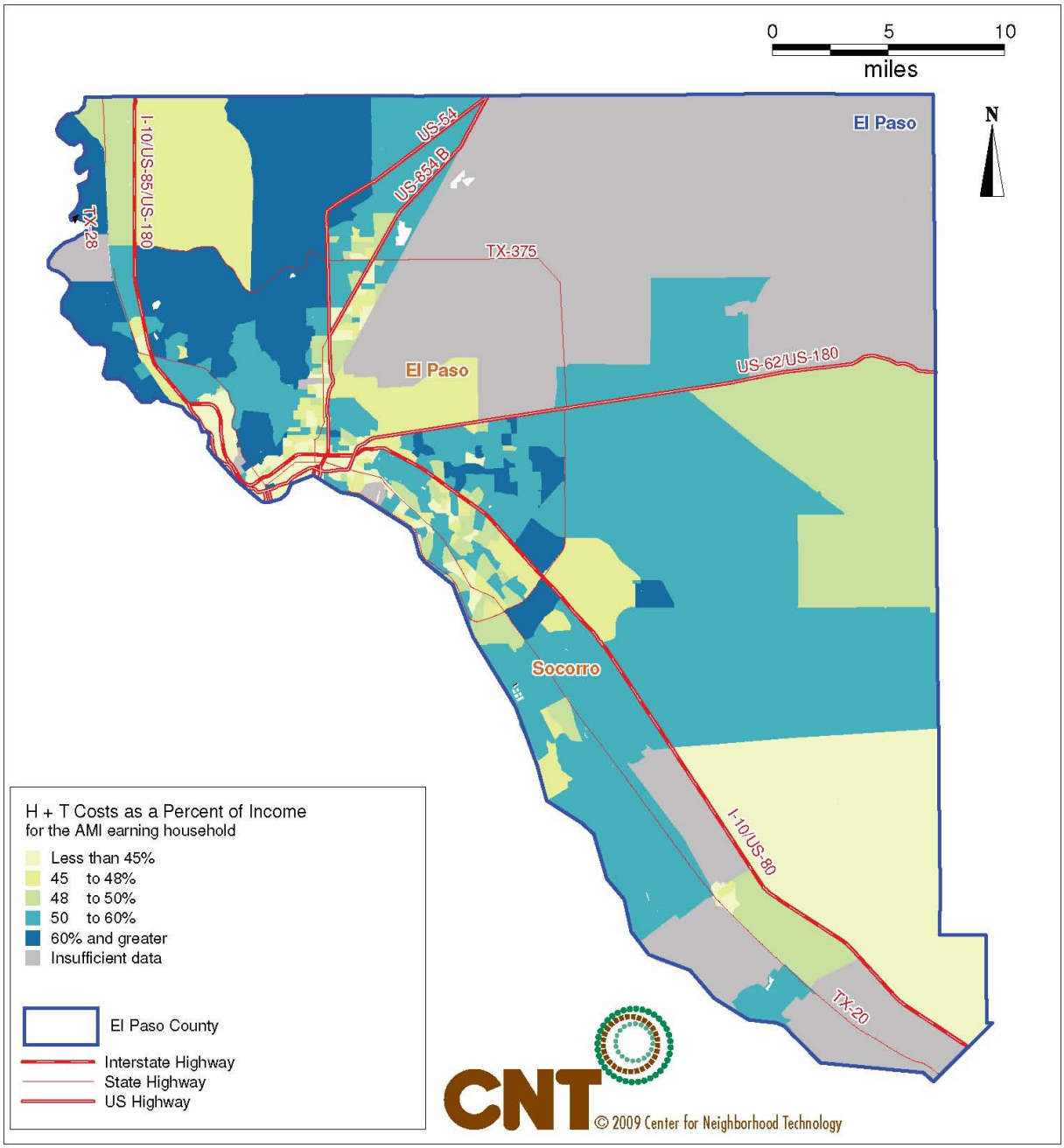
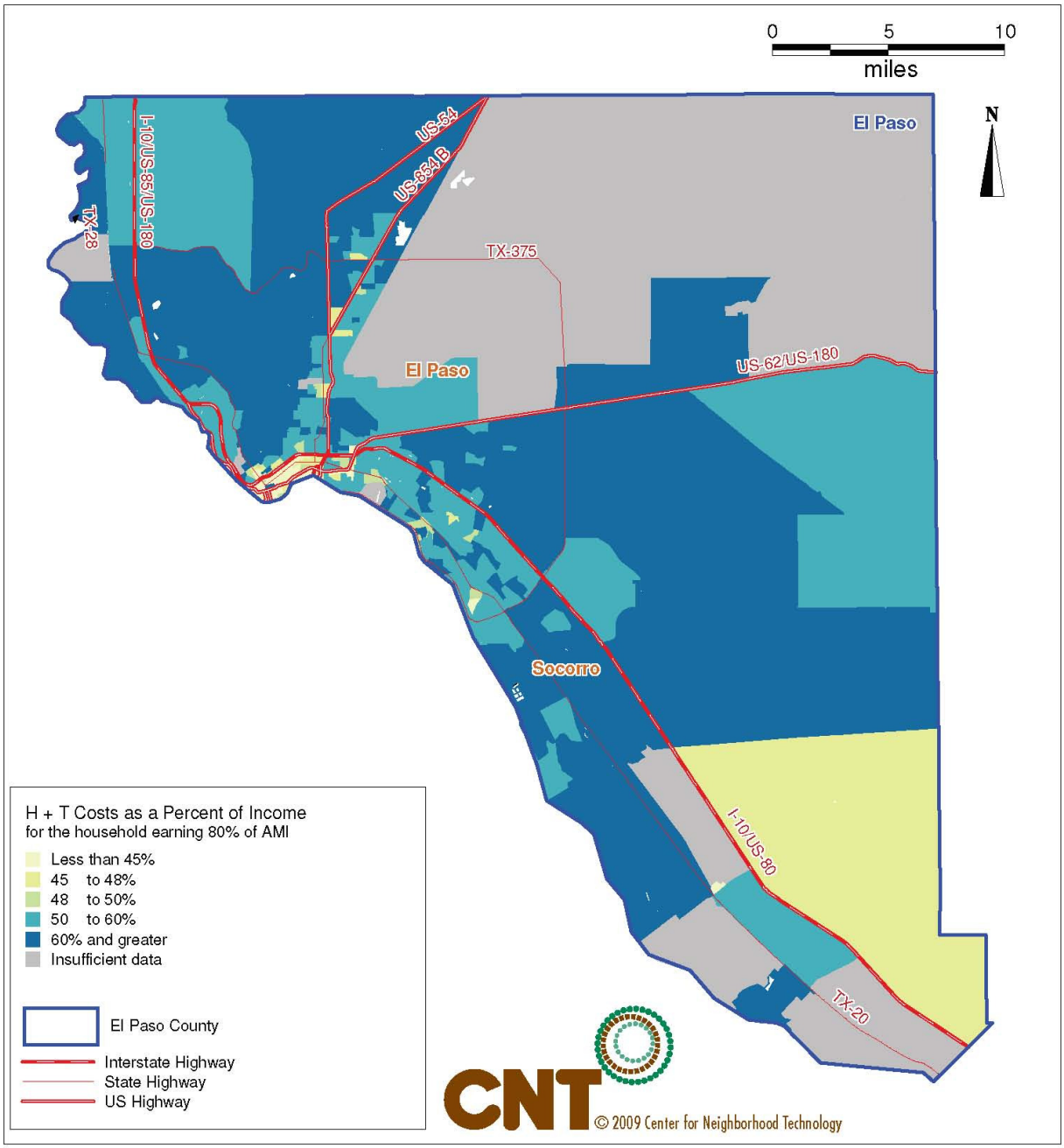


Figure 15: Housing + Transportation Costs as a Percent of 80% AMI



Profiles of Transportation Costs for Sample Communities

Table 1 below shows the average transportation costs for communities and neighborhoods in and around El Paso and indicates how two Index variables, average block size in acres (see Figure 17) and average vehicles per household (Figure 2), influence the average household transportation costs. In the City of El Paso, average transportation costs are $744 per month and, in El Paso County, $752 per month. While the city makes up a large proportion of the county population, the dispersed land use patterns outside of the city limits results in the county having a larger average block size, higher average vehicles per household, and therefore, slightly higher average household transportation costs than in the city.

Table 1: Transportation Costs for Sample Communities in and around El Paso

Place	Households	Average Block Size	Average Vehicles per Household	Average Transportation Costs/ Month
Main Cities				
El Paso	181,953	21	1.65	$744
Socorro	6,096	29	1.86	$774
County				
El Paso	209,884	58	1.67	$752
El Paso Neighborhoods*				
Central	42,542	11	1.30	$603
Lower Valley	29,325	16	1.71	$688
Northeast	30,167	49	1.68	$764
East	48,079	16	1.85	$819
Northwest	33,440	44	1.73	$856

Source: US Census Bureau, 2000. Transportation costs are modeled based on Affordability Index.

**See Figure 16 for neighborhood boundaries*

There are also significant differences in transportation costs within the City of El Paso. Transportation costs are the highest in the city around the outer edges, such as in the Northwest where the average block size is quite large. Here, average transportation costs are $856 per month, and households, on average, own 1.73 automobiles. Transportation costs are lowest in the central area of the City, where households' average transportation costs are $603 monthly. Here, the block size is much smaller, averaging 11 acres, creating more compact areas with services and amenities within walking distance. This results in households owning fewer cars on average and benefiting from more transit options. Research indicates that households living in these more compact neighborhoods will own fewer vehicles and drive fewer miles – resulting in lower monthly transportation expenditures.

Figure 16: El Paso Neighborhoods

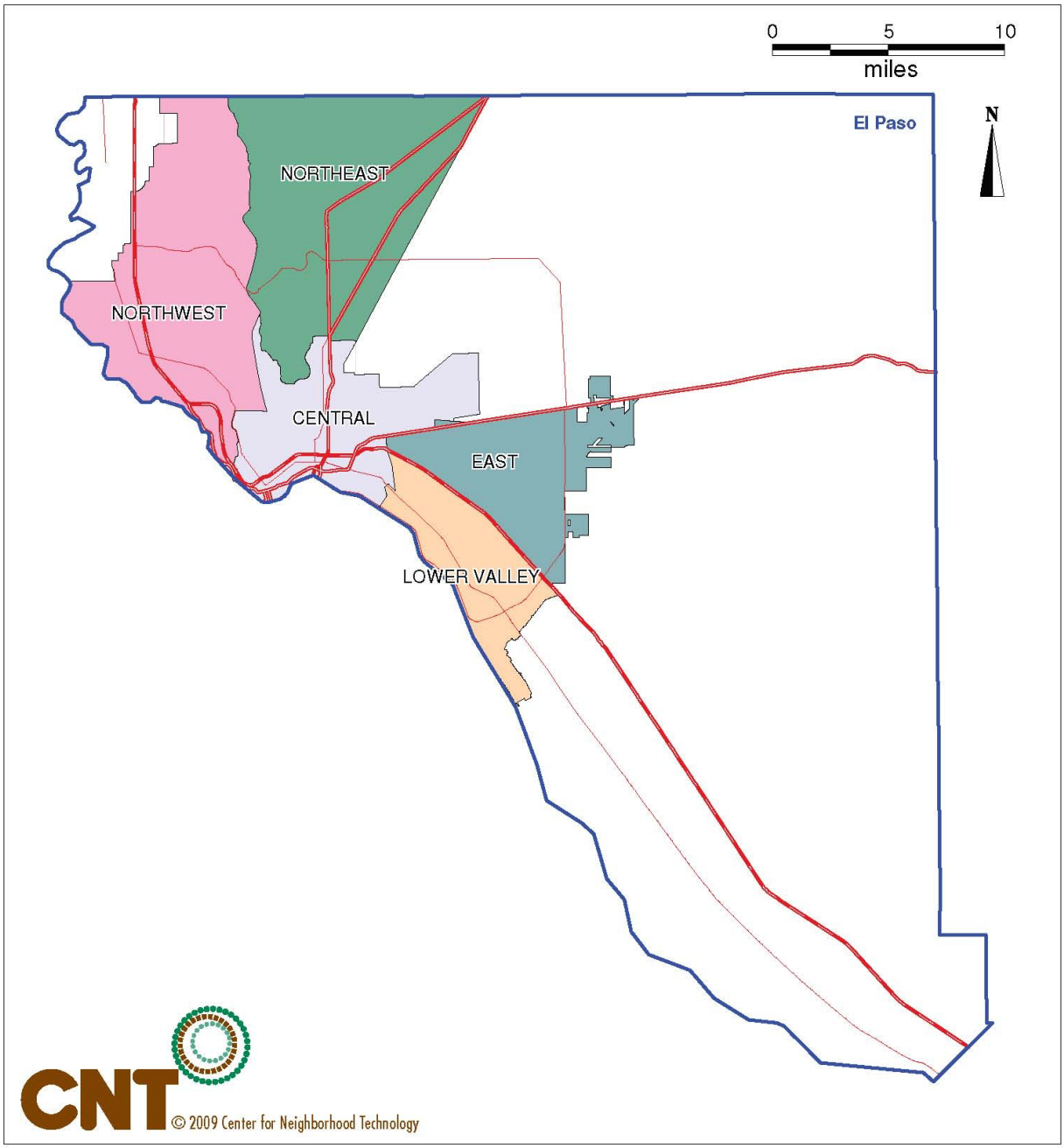
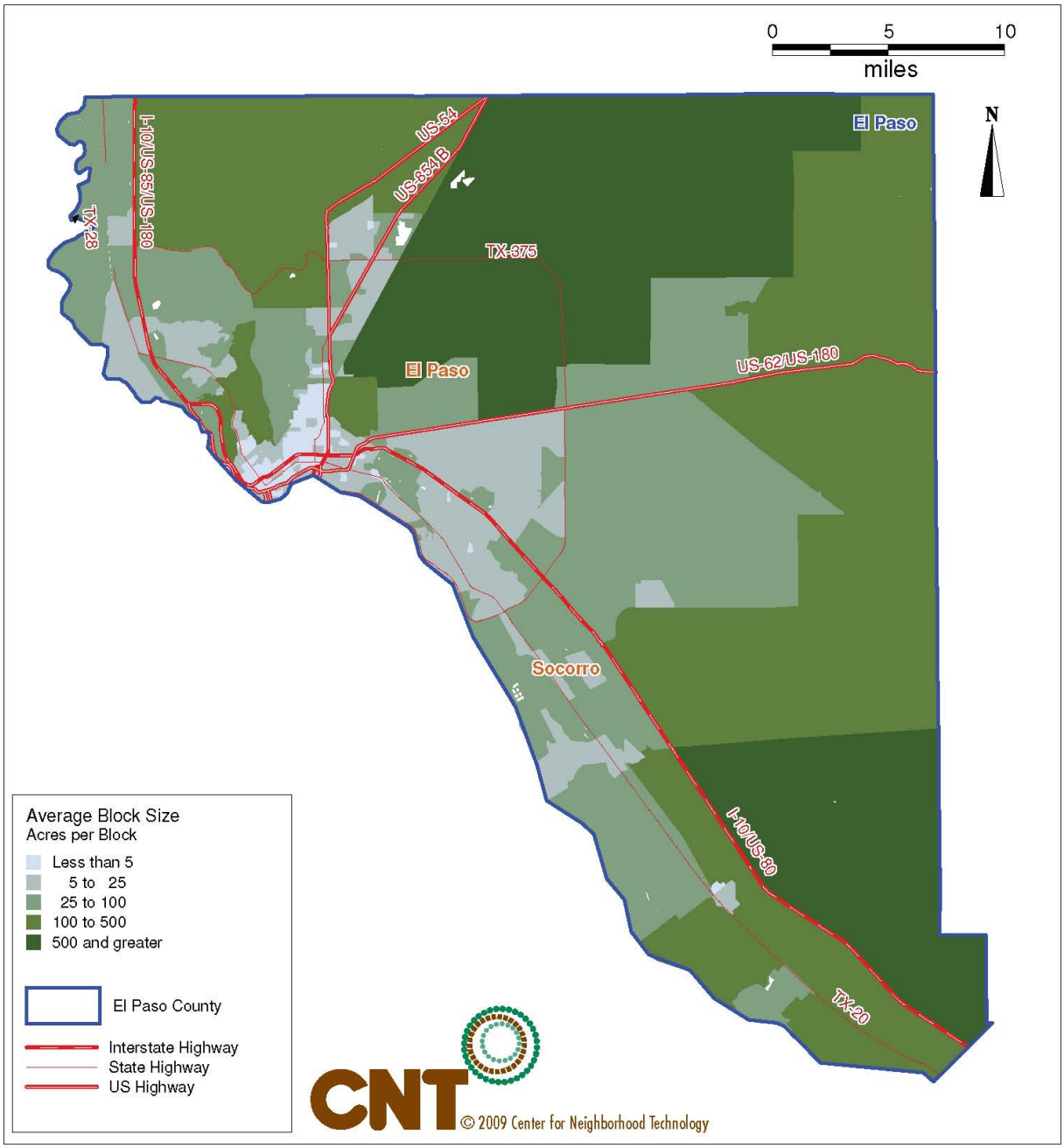


Figure 17: Average Block Size



Changing Affordability with Changing Fuel Prices

While it is quite intuitive that increasing fuel prices impacts households' transportation cost burdens, what may be less clear is the extent to which people will be impacted, and how exposure to such variability can impact households differently. Households living in largely auto dependent areas are left in a position of great vulnerability to fluctuations in fuel prices because they have few options other than to drive. However, households in compact, mixed-use areas with access to transit, jobs and services have much more transportation mode choice, less dependency on automobiles, and therefore, less exposure to changing costs.

Figure 18 shows the same monthly transportation costs mapped in Figure 8, using a gas price of $3.96, a price frequently reached, and even surpassed, in 2008. The tremendous impact of this increased fuel price is immediately apparent. Figure 19 further illustrates this point, showing the actual percent change in values between Figure 8 and Figure 18. In other words, Figure 19 shows the change in transportation costs resulting from an increase in gas prices from $1.52 to $3.96. In this scenario, all other variables, such as income and vehicle miles traveled, are held at the same value, making the change in transportation costs a sole function of the change in gasoline prices. The areas with the greatest change in transportation costs can be interpreted as the areas most vulnerable to fluctuating gas prices. For example, the central neighborhoods in El Paso show a much smaller change in transportation costs than outer reaching areas, indicating that residents of the central city of El Paso are less impacted by increasing gas prices.

Figure 18: Monthly Transportation Costs Based on a 2008 Gas Price

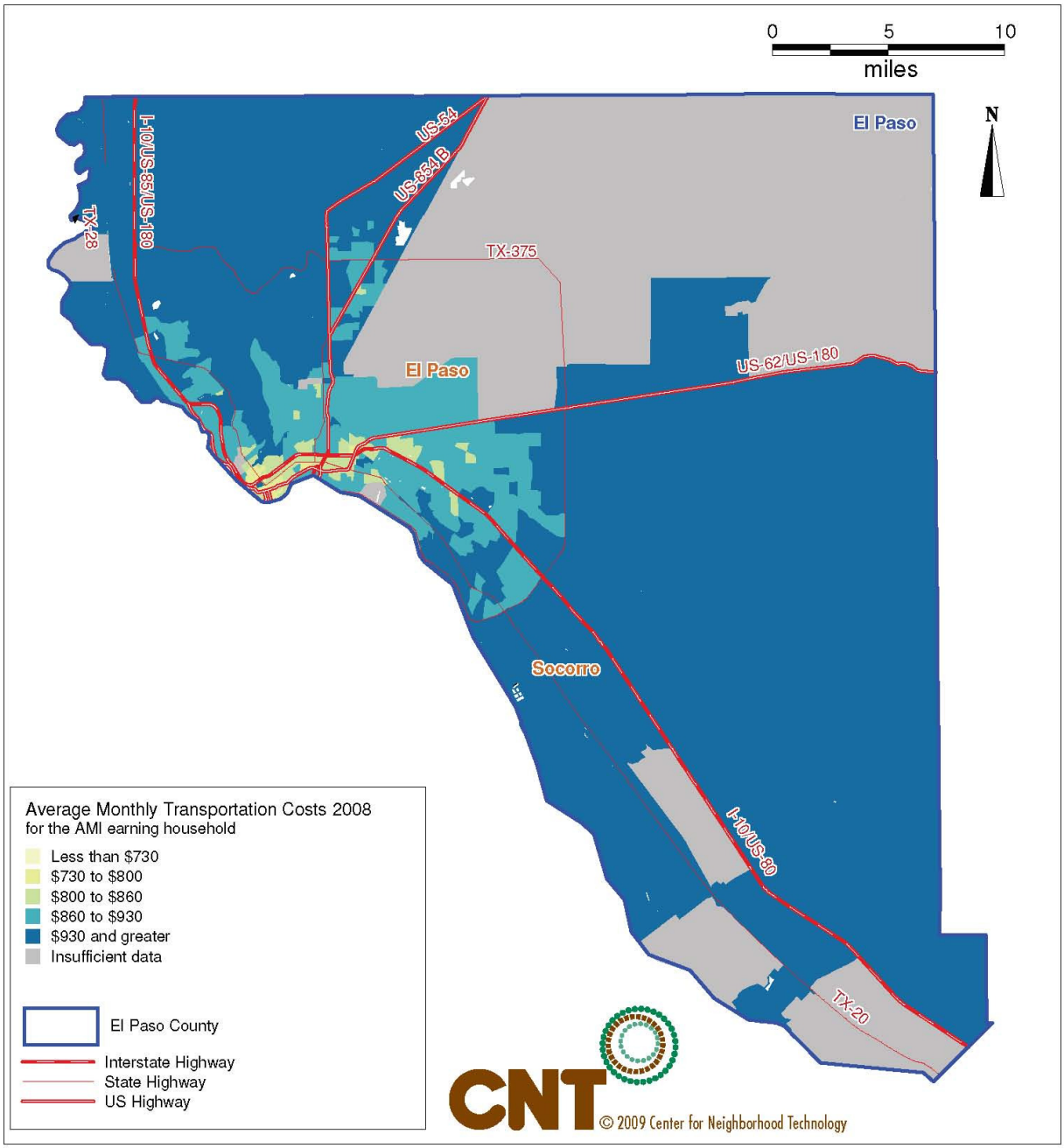
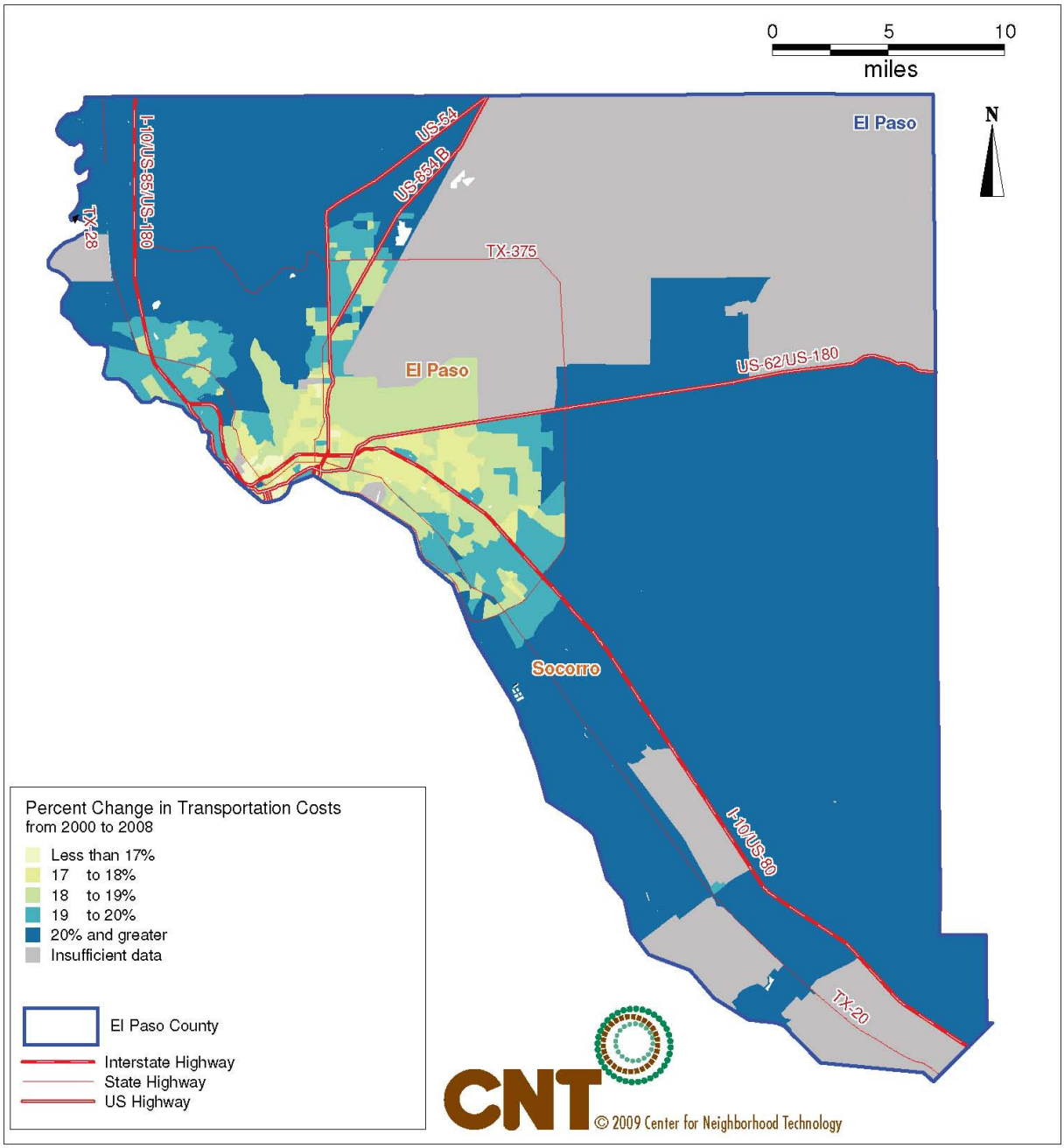


Figure 19: Percent Change in Transportation Costs Considering Select 2000 to 2008 Gas Prices



CONCLUSIONS

Summary of Affordability Index Results

In the El Paso area, housing costs are in an affordable range in many areas for an average earning household; in most places, a household earning the AMI could expect to spend 30% or less on housing. But, the majority of these households could also expect to pay more than 28% of their income on transportation in much of the area, and at least over 24% in nearly the whole area, with the exception of a small pocket in the central city of El Paso.

Figure 20 and Figure 21 present a unique, new view of affordability. Figure 20 presents a traditional view of affordability – housing costs consuming no more than 30% of a household income. Here, areas shaded yellow represent the areas where an average earning household could expect to find affordable housing. In comparison, Figure 21 presents a new view of affordability – housing + transportation costs consuming no more than 48% of household income. Here, the yellow area compresses significantly, indicating the reduction of affordable areas to households earning the AMI. This change in land area actually represented 98,492 households, or nearly half of the total occupied housing units in the year 2000.

While a standard of affordability of 48% or less of income devoted to housing and transportation costs has been utilized in the H+T analysis, it is important to realize that this should not be seen as an ultimate goal. With fluctuating fuel prices, economic instability, and problems associated with automobile use, clearly individuals and communities should be striving for a more affordable goal. Figure 22 illustrates housing and transportation costs when 45% of income is selected as the desired affordability index. This figure indicates that this level is attainable in El Paso, and is currently accomplished within the city core and in isolated pockets throughout the county. The characteristics of these areas, such as transit access, high density, as well as access to services and jobs in walkable neighborhoods, should serve as a model to expand areas in which this level of affordability is attained.

This new view is significant and unique in that it allows examination of the combined costs of housing and transportation by location, a result of differing characteristics of the local environment, such as density and proximity to employment centers. The Housing + Transportation Affordability Index also allows comparison for different income levels and household characteristics, significant for analyzing how different families may be impacted by affordability differently.

Figure 20: Traditional View of Affordability: Housing Costs Above and Below 30% of AMI

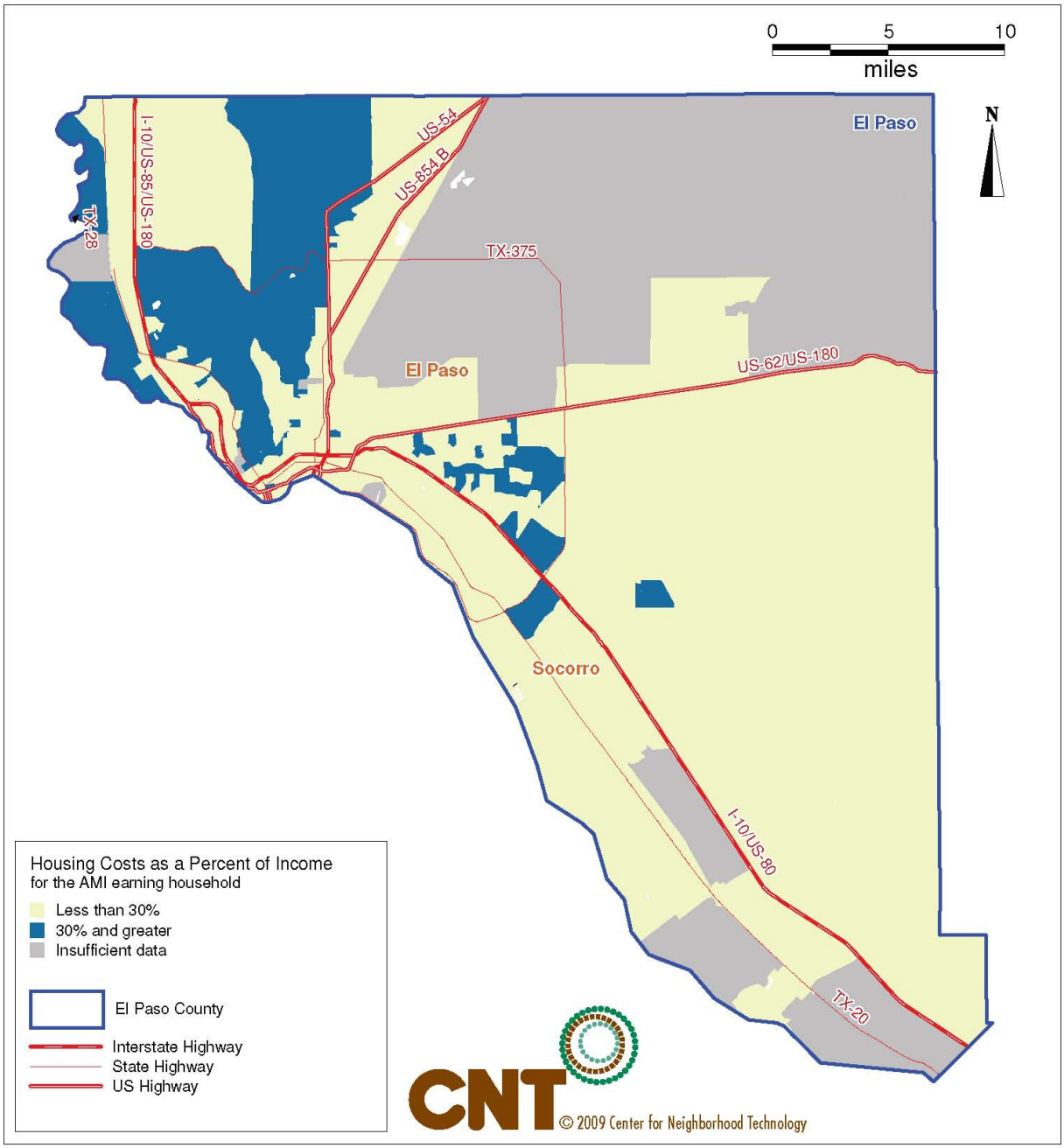


Figure 21: New View of Affordability: Housing + Transportation Costs Above and Below 48% of AMI

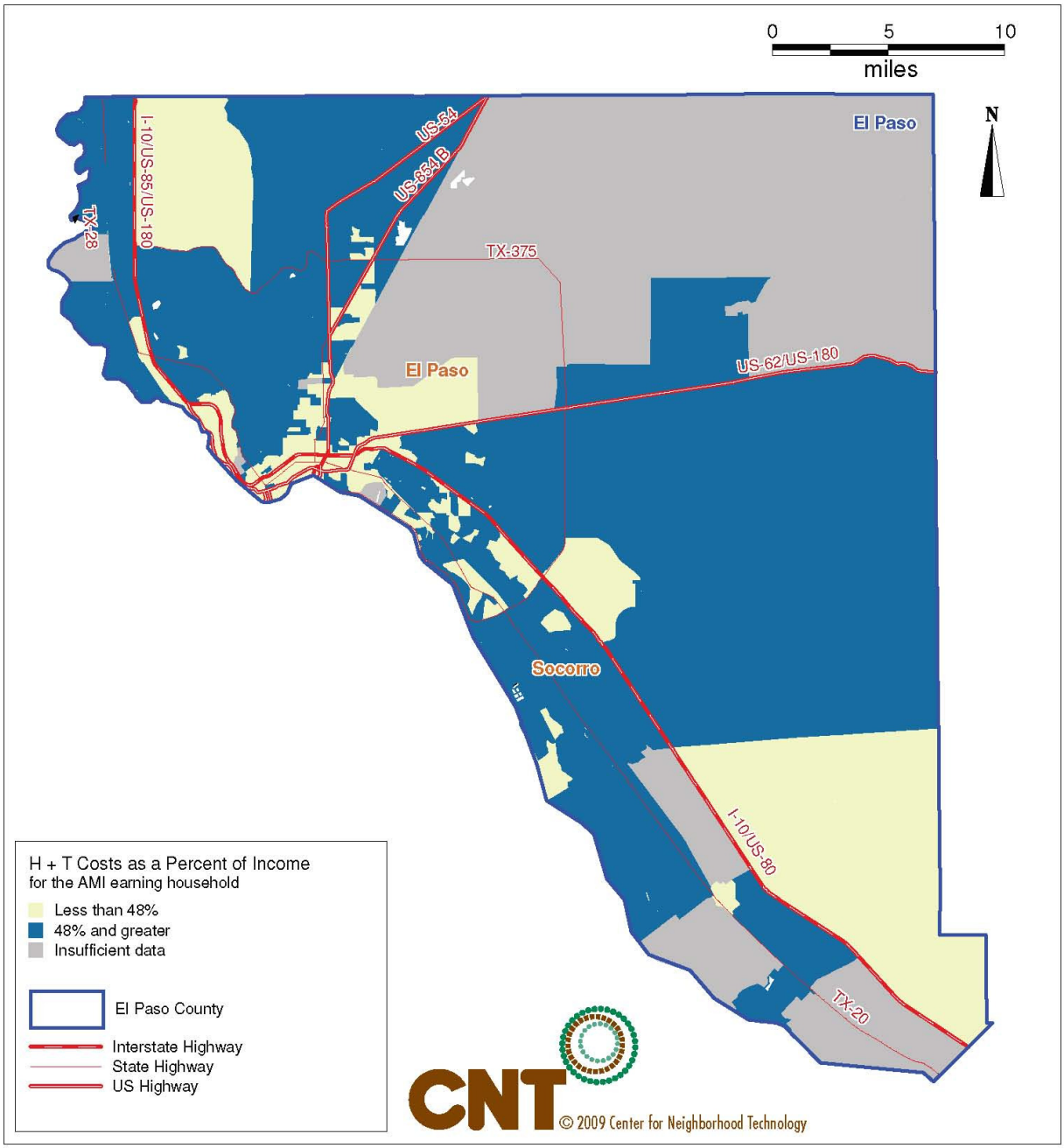
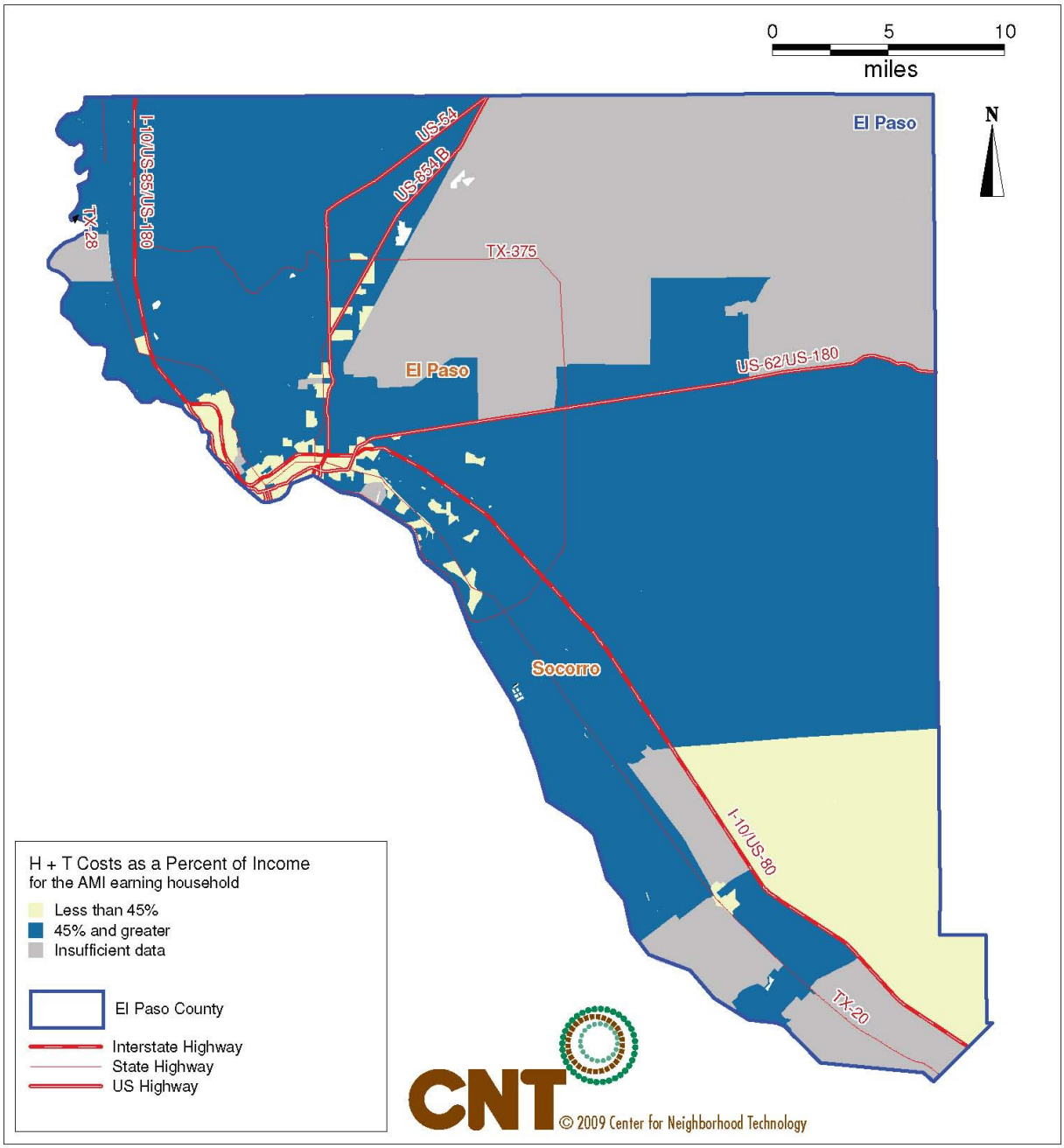


Figure 22: Goal for Affordability: Housing + Transportation Costs Above and Below 45% of AMI



APPENDIX

Brief Overview of H+T Affordability Index Methodology

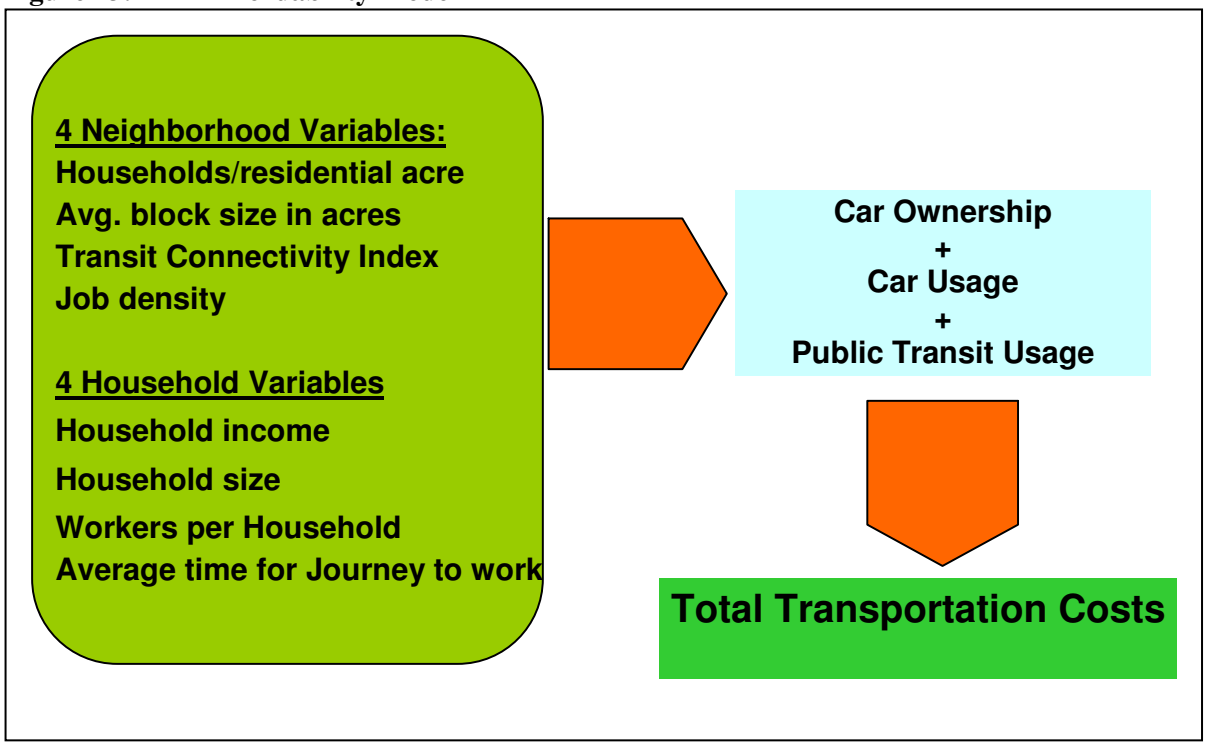
The H+T Affordability Index was created for the El Paso region at the Census block group level. Information specific to El Paso on residential density, commercial services, infrastructure, transit service, and job access were used to predict auto ownership, auto use (vehicle miles traveled per year per vehicle), and transit use. Because the Index is specific to both household size and income, analysis was done for a number of household sizes and income levels.

The results from the Index highlight areas where development patterns, job access, and land use patterns are especially conducive to transit use, walking, biking, and lower auto use. The results also indicate areas where new development patterns likely necessitate higher auto ownership, multiple daily trips by auto, long distances to work, and are difficult to serve by transit.

The Index can be used to provide two types of valuable information: 1) a single number to score each neighborhood's affordability, represented by an estimated monthly household transportation cost; and 2) as an unbundled set of indicators (e.g. transit connectivity, block size, distance to employment, housing density) used to determine which of these factors are contributing to the cost of the area, e.g. large block sizes, low job access, low density, few nearby services.

The Affordability Index was calculated using the eight variables shown in Figure 23. The independent, input variables utilized were obtained from the 2000 US Census. Specifically, four neighborhood variables (residential density, average block size, transit connectivity index, and job density) and four household variables (household income, household size, workers per household, and average journey to work time) were utilized as independent variables. These variables are used to predict, at a neighborhood level (Census block group), three dependent variables – auto ownership, auto use, and public transit usage – that determine the total transportation costs. The costs resulting from these calculations in conjunction with the well defined housing costs provide a picture of the affordability of the region.

Figure 23: H+T Affordability Model



For a full description of the methodology and to view the results of this research as part of an interactive website, visit: http://htaindex.cnt.org.