CHAPTER 3 :

Benefits of Active Transportation

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Active transportation, such as walking and biking, has multiple benefits not only to the individual but to the community as a whole. Creating a more walkable and bikeable community directly aligns with traditional goals and metrics of metropolitan transportation planning such as reducing traffic congestion and reducing air pollution, while providing health, economic and mobility benefits for the entire Miami Valley Region.

Traffic Congestion Reduction

The MVRPC Long Range Transportation Plan (LRTP) includes congestion management strategies intended to reduce and minimize the duration and extent of traffic congestion throughout the Miami Valley. The plan specifically suggests the development of a connected and accessible bicycle and pedestrian network which provides High Suitability as a congestion management strategy for the Miami Valley Region.[7] Transit is also indicated as an important tool for managing traffic congestion.

Walk.Bike.Ohio estimates that an increase in walking and biking at just 1.1 percent would reduce total automobile trips by over 2.3 billion trips over a twenty year period, thereby reducing vehicle miles traveled by over 5.4 billion miles.[8] Walkable and bikeable places have a more compact development pattern which increases the mode share for active transportation and reduces vehicle miles traveled.[9]

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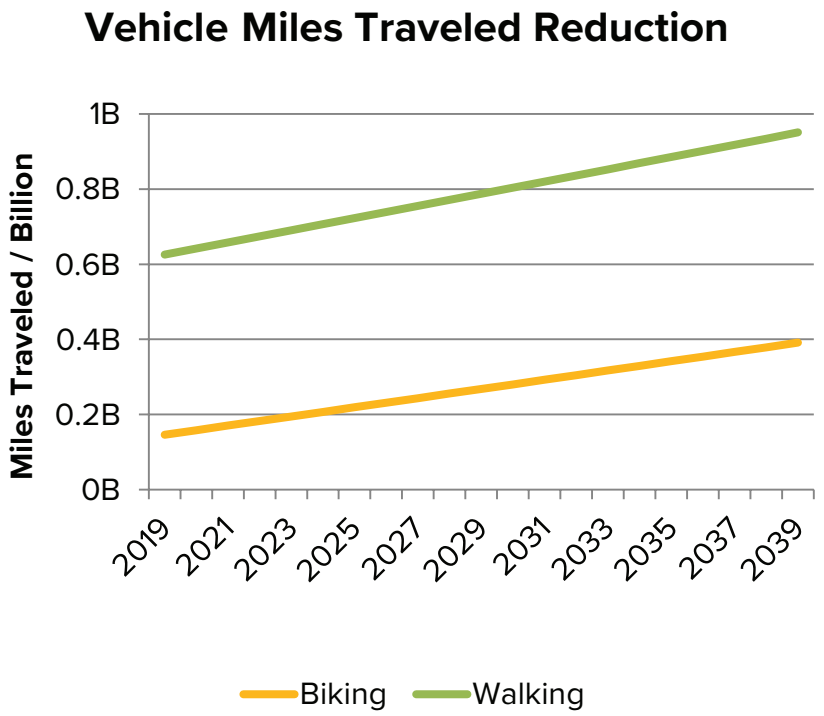

Figure 4: Walk.Bike.Ohio Economic Impact Analysis

Air Quality Improvements

A central requirement of metropolitan transportation planning in regions experiencing poor air quality is that the transportation plan must not contribute to worsening air quality over the life of the plan. This air quality conformity analysis has been a feature of MVRPC's LRTP for many years. Improvements in emissions technology on cars, fleet turnover, and congestion reduction strategies are the major players in reducing overall emissions from the transportation system.

Air pollution emitted from transportation contributes to smog, and to poor air quality, which has negative impacts on the health and welfare of U.S. Citizens. Pollutants that contribute to poor air quality include particulate matter (PM), nitrogen oxides (NOx), and volatile organic compounds (VOCs). PM of 10 microns or less are inhalable into the lungs while VOCs and NOx are poisonous gases emitted in the air. The transportation sector is responsible for over 55 percent of NOx total emissions inventory in the U.S. Additionally, mobile sources are responsible for less than 10 percent of VOCs and airborne particulate matter PM2.5 and PM10 emissions in the U.S.[10]

Transportation sources contribute 29 percent of greenhouse gas emissions in the U.S. – the largest single sector share in our economy, where 98 percent of GHG emissions comes from CO2.[11] Active transportation trips, to the degree they can replace car trips, are emission-free modes that increase mobility without increasing air emissions. The U.S. Environmental Protection Agency (U.S. EPA) estimates that if just half of all car trips shorter than a mile were accomplished by walking and biking vehicle miles traveled would be reduced by 5 billion miles, reducing emissions of CO2 by 2 million metric tons per year.[12]

U.S. EPA estimates that if 1/2 of all short car trips were accomplished by walking & biking, **vehicle miles traveled would be reduced by 5 billion miles, or 2 million metric tons of CO2 per year.**

2019 U.S. Greenhouse Gas Emissions

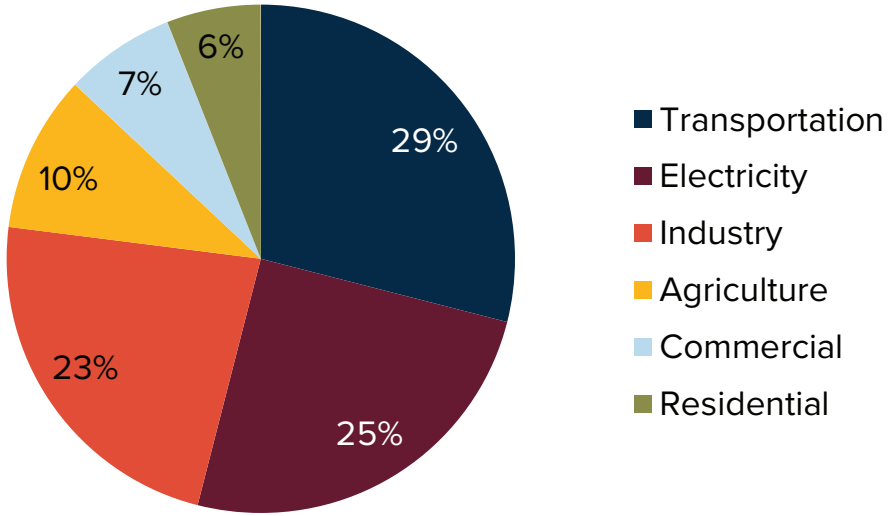

Figure 5: U.S. EPA GHG Emissions by Sector

Health Improvement

The Centers for Disease Control and Prevention (CDC) recommends adults get 150 minutes per week of physical activity. This activity can be broken up into smaller chunks of time throughout the week. Walking and biking are activities the CDC lists specifically as providing at least moderate intensity activity.

Active transportation creates an opportunity to integrate physical activity into individuals' daily activities, by doing something as simple as taking a bike or walk trip instead of a car trip several times per week. Surveys and studies have linked active transportation use with improved mental health as well. In addition to the mental health benefits of physical activity, a Portland study found that bicycle commuters had less commuting stress, due to reduced experience of congestion, higher commute satisfaction, and less arrival time anxiety.[13]

The local community health needs assessments for each county has the most recent chronic disease and health outcome data which were used to compare across counties in the Miami Valley Region. The Figure 6 includes data from the four counties, where Miami and Montgomery Counties experiences the highest rates of obesity, diabetes and heart disease.[14] These chronic disease rates will serve as baseline data for the fourth AT Plan goal as described in Chapter 2.

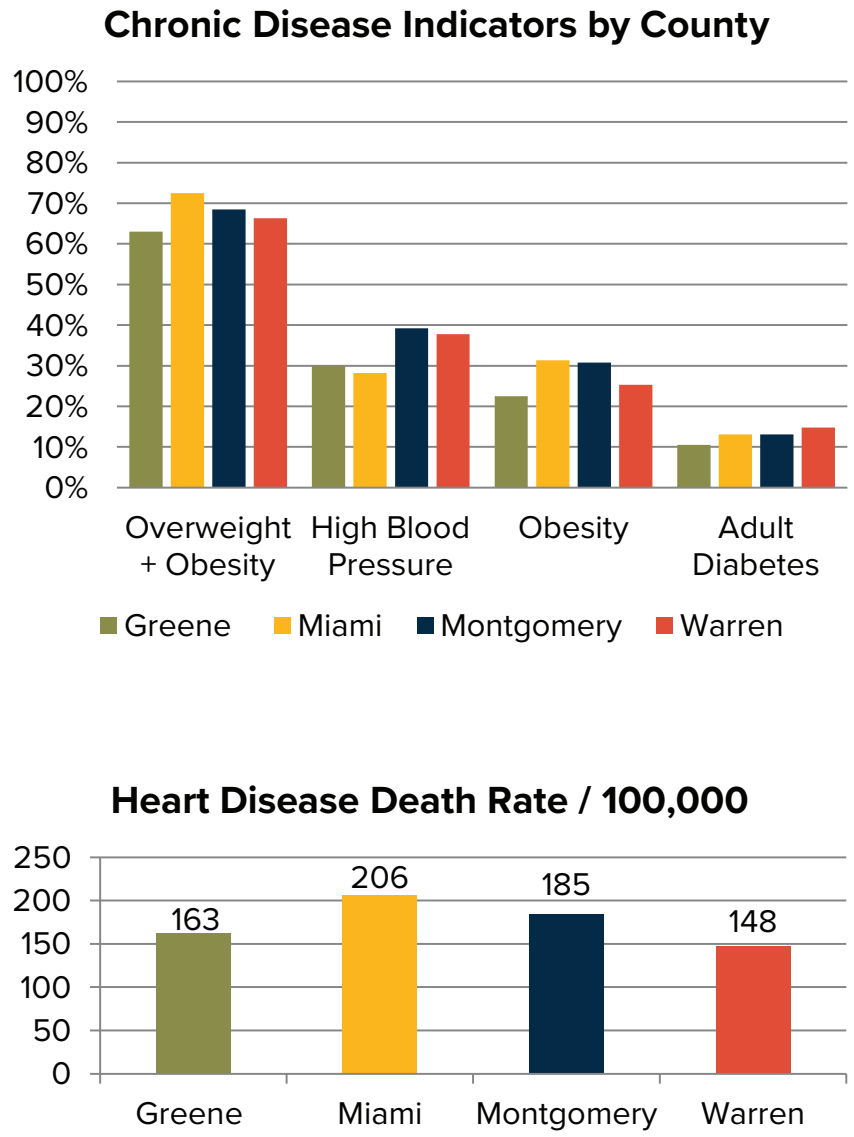

Figure 6: County Community Health Assessments

Economic Benefits

There are monetary benefits to a robust active transportation system to household budgets, community property values and economic activity. If access and use of strong active transportation network enables many households to reduce the number of vehicles owned, the savings can be substantial.

A February, 2021 Move.org report[15] estimates an annual national average car ownership cost at over $5,200. The annual cost of car ownership in the Miami Valley Region is slightly higher than national average, creating a significant expense for households. The Center for Neighborhood Technology's Housing and Transportation Affordability Index (H+T Index)[16] for the Miami Valley Region estimates the annual cost of $5,441 to own the vehicle and $1,713 to use a vehicle. The true cost of vehicle ownership is around $7,154 annually. Transportation costs account for around 25 percent of household income. If a household reduces the number of cars they own and adds active transportation to their transportation mix, this could offer real savings for residents.

The Redfin real estate article from February 2020[17] reviewed over one million home sales and found walkable homes were valued 23.5 percent more than non-walkable homes. Walkable was defined as having a walk score of 51 or greater. The premium averaged out to $77,668 nationally. A previous study from the same organization found in 2016 that, on average, each additional walk score point raised a home sale price by 0.9 percent.[18] The effect of additional walk score points is greater at the higher end of walkability.

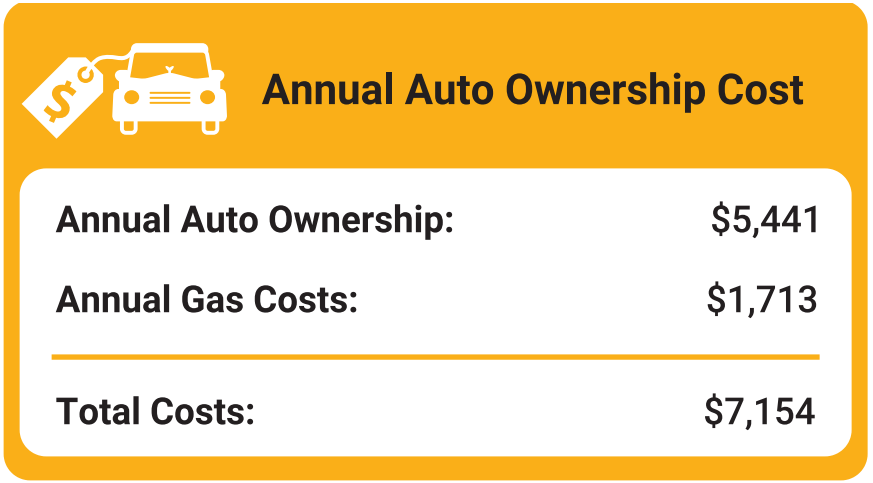

Figure 7: Center for Neighborhood Technology Index

The National Complete Streets Coalition (NCSC) published a broad analysis of the outcomes of 37 Complete Streets projects in 2015.[19] For a subset of these projects, data were available about employment, business impacts, private investment, and property values. From the projects and communities with available data, NCSC found that employment levels rose, and communities reported a net increase in new businesses along complete streets. Eight of ten communities reported an increase in property values after a complete street project and eight communities reported that complete street projects were at least partly responsible for increased private investment in a corridor.

Public investments in active transportation infrastructure, accessible sidewalks, bike facilities, transit facilities and services, can result in positive economic outcomes for the community.

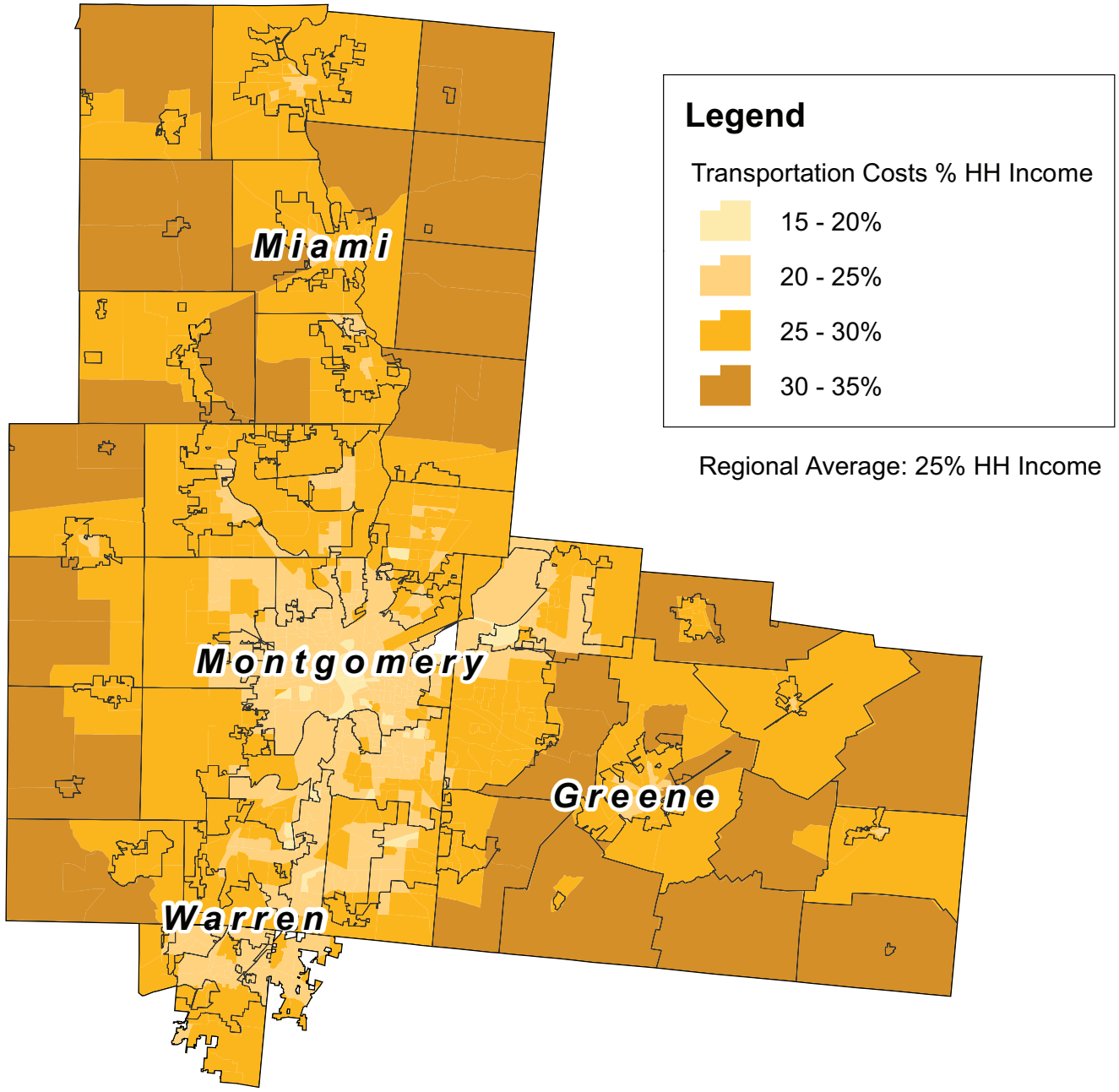

Figure 8: Center for Neighborhood Technology Index

Increased Mobility

Active transportation is a universal transportation option which is especially critical for those who cannot or are unable to drive such as children, individuals with disabilities, older adults who cannot or are unable to drive, as well as families who cannot afford a vehicle. Active transportation will continue to be a critical mobility option as we prepare for changing demographic and cultural shifts in our future.

For the first time in history, there are more older adults over age 65 than children under 18. By 2030, 1 out of 5 individuals will be 65 or older in the U.S.[20] Aging can cause the ability to drive independently to be difficult due to slowed reaction time, increased health conditions and decreased financial resources. Additionally according to the Federal Highway Administration, from 1983 to 2014, the share of 16-year-olds with a driver's license dropped 47 percent reflecting a sharp decline and interest in young people getting their driver license.[21] Therefore the increase in the population of older adults, combined with fewer young drivers getting drivers licenses, reflects there is an increasing need for alternative transportation options such as transit and active transportation.

By 2030, 1 out of 5 individuals will be 65 and older, reflecting older adults will outnumber children for the first time in history.

Demographic Shift of Miami Valley Region

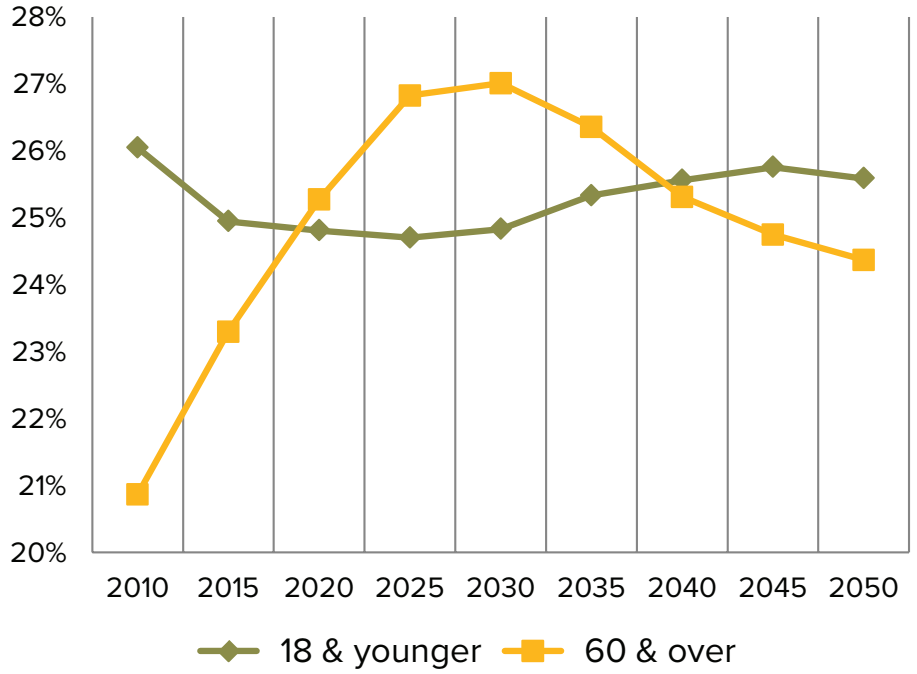

Figure 9: Miami University Scripps Gerontology Center Data