

## Hillsborough County TPO Complete Streets Scenario Planning

The Hillsborough County TPO is taking steps to implement adopted policies that include complete street design and associated benefits, health as a consideration for community and infrastructure planning, safety as a priority, and multimodal transportation with equity as a driver.

In support of this coordinated effort, this scenario planning exercise has been conducted to provide the County with tools to help identify and prioritize the roadways and appropriate elements for future improvements with a foundation grounded in healthy community design.

### Executive Summary

In order to inform the characteristics and prioritization of complete streets programming throughout Hillsborough County, a detailed population health and environmental determinant assessment was conducted countywide, with a detailed assessment of selected study areas. A countywide assessment provided an opportunity to understand key locations and identify patterns related to health and its relationship with complete streets. This assessment, detailed in this memorandum, highlights the findings and relationships between determinants of health and health outcomes. It identifies that the study area surrounding E Dr. MLK Jr. Boulevard, a Urban General (C4) FDOT context classification road, had high prevalence of chronic disease across all categories. Building on the countywide theme, the data and statistical analysis showed that an unequal distribution of wealth and resources is related to poorer health outcomes across Hillsborough County. Characteristics of urban form such as higher street intersection density and use of active means of transportation was found to be related to better health outcomes in diseases related to physical activity. However, closer proximity to the jobs in the urban center was not related to improved health outcomes, possibly due to social barriers of access. Higher traffic proximity and poor air quality were statistically associated with poor health outcomes across each chronic disease. Another key finding in this memorandum relates to the possibility that the benefits from being in dense places with higher walkability is negated by the exposures from a car-centric metro area and highways, or other elements that make it less comfortable or safe to use active facilities, such as high crash rates even when complete street characteristics are present.

Building upon these findings, when prioritizing locations, funding distribution, and treatment types for complete streets improvements it is suggested to follow specific principles to guide decision making in order to facilitate the greatest likelihood of creating positive impact. The TPO should prioritize environmental justice communities and health burdened communities when deciding on locations for complete streets projects. Beyond prioritizing these areas, prioritization of treatment type should consider improving active facilities ratios, reducing traffic proximity and air pollution, improving safety, and incentivizing non-car commutes. These are the overarching principles which guide the selection of complete streets projects and treatments are further expanded in the document.

### Introduction

Population health equity is dependent on policy and planning decision-making. The determinants of health vary widely by place and much of the place-based disparity is due to differences in demographics and regional economies. However, research also shows that affordability, urban design, the availability and quality of active means of transportation, and the accessibility of public services all play a large role in education outcomes, economic mobility and other determinants of health. The influence of the environment on health necessitates the integration of population health into urban planning to improve related-policymaking decisions, foster healthier lifestyles and

environments, and avoid major health risks. Urban form can be a health advantage- residential density, walkable streets, public transit use, and safe streets are related to benefits such as greater physical activity and healthier lifestyles, which are related to the rates of a variety of health outcomes.

In order to inform the characteristics and prioritization of complete streets programming throughout Hillsborough County, we conducted a detailed population health and environmental determinant assessment. This involved completing spatial and data analysis on social and environmental determinant indicators, consisting of approximately 60 indicators across demographic, social, economic, transportation, access, urban design, and environmental exposure. A statistical assessment was then conducted to relate these indicators to patterns of chronic disease and physical health within the county.

The characteristics of the indicators were also assessed within each of the study areas in order to determine differences and inform, alongside the statistical assessment, what complete street treatments would be most beneficial for health.

### Methodology

Data for Hillsborough County was collected from various federal, state and local sources and analyzed or geoprocesed in order to create indicators for each variable at the tract level (see **Figure 1Table 1**). All indicators, if not already in index or percentile format, were normalized either by population or by land area to represent a relative rate or per capita reference scale to be able to make meaningful comparisons. All indicators were tested for correlation to eliminate confounding variables and bias during the model creation (ie. Indicators which shared a direct inner relationship or dependence with each other that if left unchecked could cause the statistical model to unintentionally compound these similarities into false statistical significances). With this information, a regression model was created including data for all census tracts with population in the county. Each health indicator (dependent variables) was analyzed to test for statistical significance, magnitude, and directionality of the relationships between the determinants of health (independent variables) and the health outcomes. The R<sup>2</sup> for each of the regression models, or how much the variation in the independent variables across the county explained the variation in health outcomes, ranged from 83-95%, indicating strong models. This information was used to better understand how the patterns of social and environmental determinants influence health outcomes in the county under existing conditions. The full statistical assessment results are shown in **Appendix A**.

**Table 1 Indicators for Assessment**

<b>Health</b>	High Blood Pressure	<b>Demographic</b>	Total Population
	Asthma		Age
	Coronary Heart Disease		Race and Ethnicity
	Diabetes		Educational Attainment
	High Cholesterol		Limited English Speaking
	Obesity	<b>Access and Urban Design</b>	Land Use
	Leisure Time Physical Activity		Open Space Access
	Mental Health		Jobs Accessible by Transit and Auto
	Physical Health		Food Access
<b>Transportation</b>	Street Intersection Density		Healthcare Access

Walkability Arterials- Lanes, Speeds, and Mileage Total Road Miles Crashes Sidewalks Greenways Bike Lanes Road Miles Vehicle Miles Traveled Commute Type Commute Duration Smart Location Index Regional Centrality Transportation Cost Burden Traffic Proximity and Volume	<b>Environmental Exposure</b>	Expected Population Loss Rate Natural Hazard Risk Index Housing Built Pre-1960 (Lead Paint Indicator) Air Quality Wastewater Discharge Hazardous Materials
	<b>Economic</b>	Poverty Ratio Median Income Employment Tenure Vehicle Ownership Rent Burden Housing Cost Burden Energy Cost Burden Income Inequality Jobs per Household Employment Density

Sources: ACS, CDC PLACES, CEJST, EPA, USDA, HUD, FEMA, Hillsborough County, FDOT, HRSA, Bureau of Transportation Statistics  
Note: Please see Master Dataset for full data dictionary and source information

In addition to the county wide analysis, five study areas were chosen as case studies in order to evaluate potential complete streets treatments that could be implemented along the top 350 miles of severe crash roadways countywide, and to better understand the various intersections of demographics, economics, the built environment, transportation and how they relate to health outcomes across the county. Each study area represents an FDOT context classification:

- › C2, Rural- Sparsely settled lands; may include agricultural land, grassland, woodland, and wetlands
- › C3C, Suburban Commercial- Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network.
- › C3R, Suburban Residential- Mostly residential uses within large blocks and a disconnected or sparse roadway network.
- › C4, Urban General- Mix of uses set within small blocks with a well-connected roadway network. May extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway.
- › C5, Urban Center- Mix of uses set within small blocks with a well-connected roadway network. Typically concentrated around a few blocks and identified as part of a civic or economic center of a community, town, or city.

The health assessment informed which complete streets treatments could be used by providing prioritization principles to guide where complete streets projects are located and what treatments focus on.

### Study Areas

The Study Areas are displayed in **Figure 1** and summarized below.

#### **E. Dr. Martin Luther King Boulevard (C4)**

The E. Dr. Martin Luther King Boulevard study area is a 2.42-mile segment from I-275 to N. 40<sup>th</sup> Street. Ten census tracts overlap this segment and are included in the analysis. This location has been designated an Environmental Justice Area. Land uses along the corridor include a mix of commercial, residential, industrial, and institutional. Neighborhood scale commercial is prominent along the western portion of the corridor. East, single-family housing becomes more prominent. Young Middle Magnet School abuts approximately half a mile of the south side of the roadway. The land use becomes more industrial on the eastern end of the corridor as it approaches the rail line.

#### **Hillsborough Avenue (C3C)**

The Hillsborough Avenue study area is a 5.32-mile segment from the Pinellas-Hillsborough County Line to Veteran's Memorial Highway. The roadway is six lanes throughout the length of the study area. Ten census tracts overlap this segment. Land uses along this corridor include mostly large-scale commercial uses, such as supermarkets, outlet stores and shopping centers. Multi-family housing also exists along the corridor with limited access driveways. Portions of this location have been designated as Environmental Justice areas.

#### **Lithia Pinecrest Road (C2)**

The Lithia Pinecrest Road study area is an 8.96-mile segment from Boyette Road to the Polk-Hillsborough County Line. The roadway is two lanes throughout the length of the study area. Five census tracts overlap this segment. This area has not been designated as an Environmental Justice area. Land uses along this corridor include mainly agricultural and low-density rural housing, with some small-scale commercial throughout. One elementary school is present along the corridor.

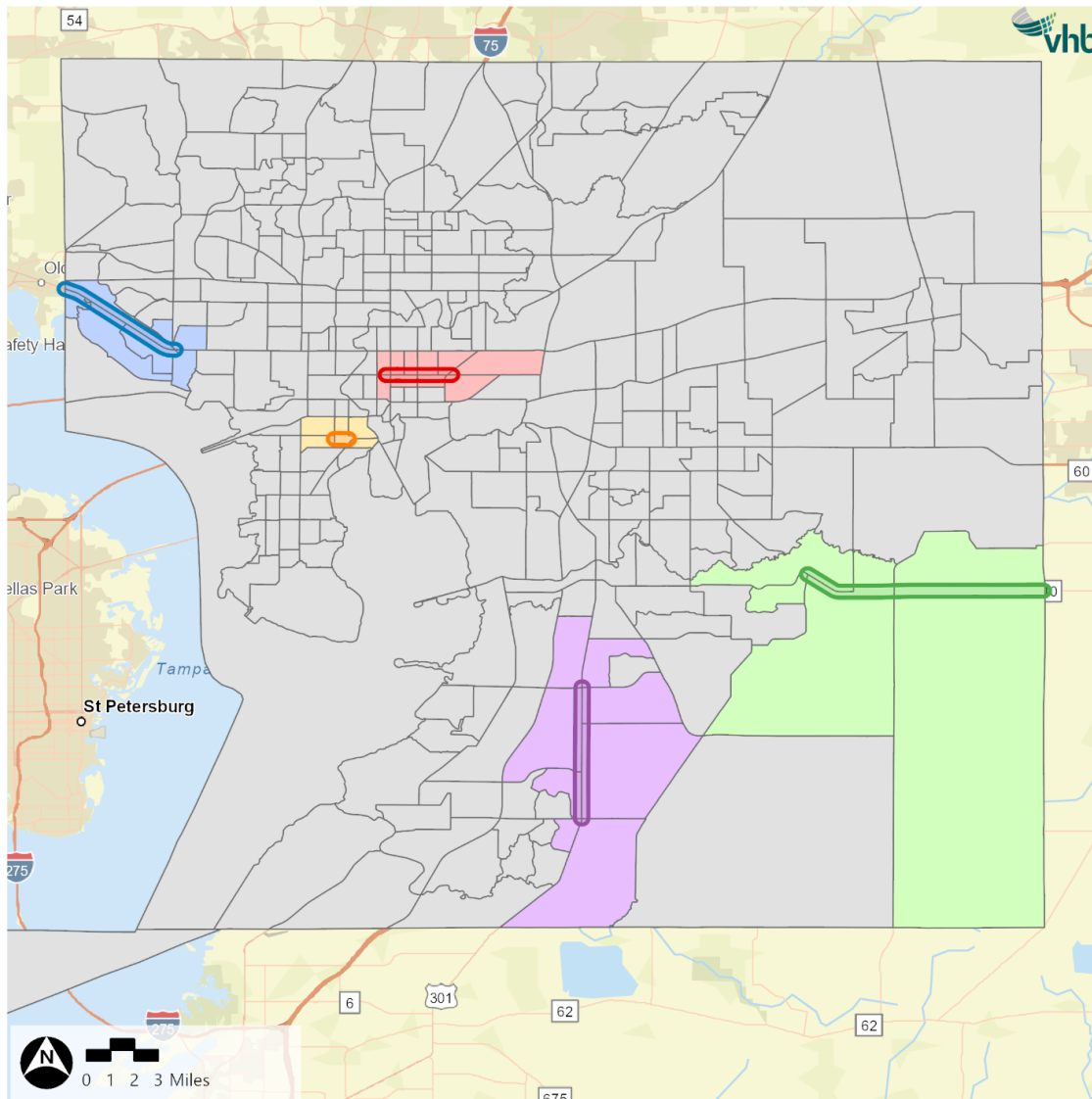
#### **US 301 (C3R)**

The study area is a 5.48-mile segment from Big Bend Road to Sun City Center Boulevard. The roadway is two to four lanes wide through most of the study area and extends to two lanes for short portions. Seven census tracts overlap this segment. One of these tracts has been designated as an Environmental Justice area. Large-scale commercial uses are present at the north and south ends of the study area. The middle section of the study area abuts mainly agricultural or non-developed lands, with some limited-access residential and commercial uses throughout.

#### **W. Platt Street/ W. Cleveland Street (C5)**

The study area includes two approximately 0.51-mile segments of West Platt Street and West Cleveland Street from South Armenia Avenue to South Rome Avenue. These streets are one-way, with Platt Street running west and Cleveland running east. The roadways have two automobile travel lanes and an unprotected bike lane through the study area. Both streets also contain on-street parking throughout most of this study area. Four census tracts overlap this study area. These tracts have not been designated as Environmental Justice areas. Land uses along these streets include a mix of single- and multi-family residential and small- to mid-scale commercial uses.

**Figure 1 Study Areas**



Study Area (0.25 mi buffer)

**Road Name**

- E Dr Martin Luther King Jr Blvd
- Hillsborough Ave
- Lithia Pinecrest Rd
- US 301
- W Platt St / W Cleveland St (one-way pair)

**Associated Census Tracts**

- E MLK Jr Blvd
- Hillsborough Ave
- Lithia Pinecrest Blvd
- US 301
- W Platt St / W Cleveland St
- Not in study area

## Health Outcomes in Hillsborough County

A health risk assessment for Hillsborough County was provided in a memo on 5/10/2022, including an analysis of EJ areas. When looking at health outcomes by study area, it is clear that some areas in Hillsborough County are overburdened by chronic disease and other poor health outcomes (see **Table 2**).

The study area surrounding E MLK Jr Boulevard, which represents the Urban-General (C4) context classification, has higher disease prevalence than the county in all of the areas assessed and higher prevalence than the state of Florida in all categories except for High Cholesterol. The study area surrounding US 301 (C3R) also has slightly higher disease prevalence than the county but is within the average health outcome category overall. West Platt/West Cleveland, the dense urban representation, has poor health outcomes in asthma and mental health but good outcomes in other categories. The Hillsborough Avenue and Lithia Pinecrest Boulevard have above average health outcomes overall. These results indicate that various areas of the county are being affected differently and may require targeted complete street treatments based on health indicators and with consideration to neighborhood demographics and socioeconomic characteristics. The following assessment looks at the social and environmental determinants of health and the values of these indicators for both the study areas and the county as a whole. The statistical assessment to understand the relationship between these indicators and health outcomes was assessed at the county-wide level, and applies to the conditions seen in the study area.

**Table 2 Health Indicators**

		Average Prevalence								
		High Blood Pressure	Asthma	CHD	Diabetes	High Cholesterol	Obesity	No Physical Activity	Poor Mental Health	Poor Physical Health
<b>Study Areas</b>	E MLK Jr	42.3%	11.2%	7.7%	17.6%	30.7%	39.8%	37.7%	20.6%	19.7%
	Hillsborough	27.4%	8.1%	4.8%	9.4%	28.1%	28.7%	24.6%	15.4%	12.4%
	Lithia Pinecrest	27.3%	8.2%	4.6%	8.0%	29.7%	27.1%	20.7%	14.5%	11.6%
	US 301	32.7%	8.1%	6.6%	10.8%	31.3%	28.4%	25.5%	14.2%	13.2%
	W Platt/ W Cleveland	25.1%	8.6%	4.2%	8.2%	24.7%	26.6%	22.1%	16.5%	11.0%
<b>County</b>		30.9%	8.1%	5.7%	11.8%	30.4%	30.4%	27.0%	14.7%	13.5%
<b>State</b>		33.5%	7.3%	7.6%	11.8%	33.4%	28.4%	26.5%	10.3%	12.3%

Sources: Census CDC Places 2021

## Social and Environmental Determinants in Hillsborough County

Social and environmental determinants of health are the full set of social and physical conditions in which people are born and live their lives that affect a wide range of health and quality of life outcomes and risks. These can be grouped into the following categories: socioeconomic, built environment, environmental exposure (or natural environment), and access to resources that promote health, such as health care. Biological determinants of health, such as age, sex, ethnicity, and genetics are also major contributors to health outcomes. Demographic variables were included in the statistical model to control for their contributions to patterns in health outcomes to the extent possible, so that their effects on other variables could be accounted for.

### Demographic Indicators

The demographic indicators considered in the assessment are shown in **Table 3**. When assessed statistically, demographic indicators showed significant relationships with overall poor health outcomes, meaning that as the share of a given indicator increased, so did overall health risk prevalence. Age and ratio of People of Color to white people, were included in the model and were found to be significantly associated with lower combined health risk scores. A larger population of seniors was associated with higher prevalence of high blood pressure, coronary heart disease, diabetes, high cholesterol, no physical activity and poor physical health. The ratio of People of Color to white people was significant except in the case of coronary heart disease, high cholesterol and poor mental health.

Limited English households, were found to be highly correlated with other significant demographic and socioeconomic indicators, indicating it is likely that household language proficiency plays a role in influencing health outcomes.

Looking at the study areas in comparison to the county demographics, 14% of the population in the county is over the age of 65, and about half of the county population is white with the rest identifying as People of Color or mixed-race groups according to the 2015-2019 ACS. E MLK Jr Boulevard has a majority Black population and an overall ratio of about 5.3 People of Color to every white person in the study area. Hillsborough Avenue has a higher share of Hispanic/Latino Population than the county overall as well as a higher share of households with limited English speakers. Lithia Pinecrest is majority white with a low ratio of People of Color to White people in the study area. W Platt Street is similarly majority white but is closer to the average demographic profile than Lithia Pinecrest. US 301 has a demographic profile very close to that of the county overall.

**Table 3 Demographic Indicators**

	Total Population	Over 65	White	Black	Hispanic	POC:White	Limited English
<b>Study Areas</b>							
E MLK Jr	33,316	12%	16%	61%	20%	5.28	5%
Hillsborough	32,513	12%	45%	8%	40%	1.21	11%
Lithia Pinecrest	19,235	10%	72%	6%	16%	0.39	3%
US 301	58,266	17%	48%	16%	31%	1.09	6%
W Platt/ W Cleveland	22,284	12%	59%	13%	23%	0.71	7%
<b>County</b>	1,422,278	14%	49%	16%	29%	1.05	7%

Sources: Census ACS 2015-2019 5-Year Estimates

### Socioeconomic Indicators

The socioeconomic indicators evaluated are shown in **Table 4**. Select indicators are shown in histograms below to show the distribution of census tracts by health outcome category and socioeconomic indicator (see **Figure 2** through **Figure 5**).

When assessed at the county level, a number of socioeconomic indicators were found to be significantly related to health outcomes in the county. Low educational attainment, low income, and income inequality were all found to be significantly associated with lower combined health risk scores in the statistical assessment. Furthermore, indicators such as median income and unemployment were found to be highly correlated with the significant demographic and socioeconomic indicators, indicating it is likely that these all play an important role in influencing health in Hillsborough.

The same demographic and socioeconomic indicators were significant across most of the individually measured chronic diseases. Low educational attainment was universally significant, while 200% poverty ratio was significant across all health categories except for high cholesterol. The GINI inequality coefficient was significant for coronary heart disease, diabetes, high cholesterol, physical activity, and physical health.

The county has about the same rate of educational attainment as the United States overall, with 38% of people ages 25 and older with no degree or only a high school education. However, the E MLK Jr Boulevard study area has 60% of the population with this measure of educational attainment. The histogram in **Figure 5** shows how census tracts with below average overall health outcomes are skewed towards having a higher share of the population with no higher education, while those with above average health outcomes more often have higher educational attainment. About 34% of the population lives within 200% of the poverty line, a general indicator for eligibility for many Human Services programs and financial assistance. A majority of the population in the E MLK Jr Boulevard study area (60%) is within this category and the median income in the area is around \$36,000, as opposed to \$62,000 for the county overall. US 301 and Hillsborough Avenue study areas have median incomes above that of the county while the other study areas are closer to the county median. According to the census, unemployment for the county's working population is at about 5%, but about double in the E MLK Jr Boulevard study area. The histogram in **Figure 2** shows that census tracts with below average health are skewed toward having higher unemployment rates. About 24% of the occupied households in the county spend more than 50% of their household income on rent. This share is higher in the E MLK Jr Boulevard study area at 33% of households being severely rent burdened. The histogram in **Figure 3** shows how census tracts with above average health outcomes overall have lower shares of severely rent burdened households.

The GINI index of income inequality summarizes the dispersion of income across the entire income distribution. Coefficients closer to 0 indicate perfect equality while coefficients of 1 represent perfect inequality. The US overall has a GINI Coefficient of around .40 and the coefficients in the world range from around 0.24 to 0.65. In the county overall, income inequality is about 0.43. Only the US 301 study area has less income equality than the US overall. The histogram in **Figure 4** shows that census tracts with above average health outcomes also have GINI coefficients indicating higher equality.

**Table 4 Socioeconomic Indicators**

Study Areas	2.0		Median Income	Unemployment	Severe Rent Burden <sup>2</sup>	GINI
	No Higher Education <sup>1</sup>	Poverty Ratio				
E MLK Jr	60%	61%	\$35,726	10%	33%	0.47
Hillsborough	38%	31%	\$57,987	5%	21%	0.42
Lithia Pinecrest	28%	16%	\$103,050	3%	16%	0.41
US 301	38%	25%	\$72,332	5%	21%	0.37
W Platt/ W Cleveland	29%	35%	\$61,893	6%	25%	0.46
<b>County</b>	38%	34%	\$61,966	5%	24%	0.43

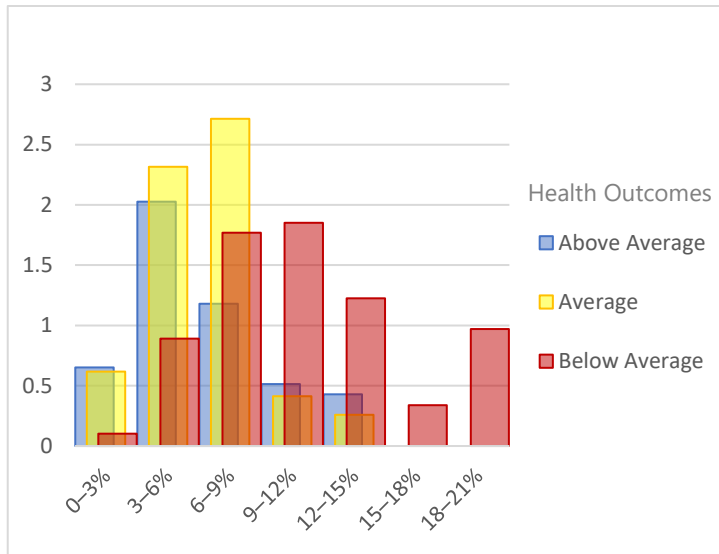
Sources: Census ACS 2015-2019 5-Year Estimates

1 Educational attainment for the population 25 years and over- share of people without at least "some college"

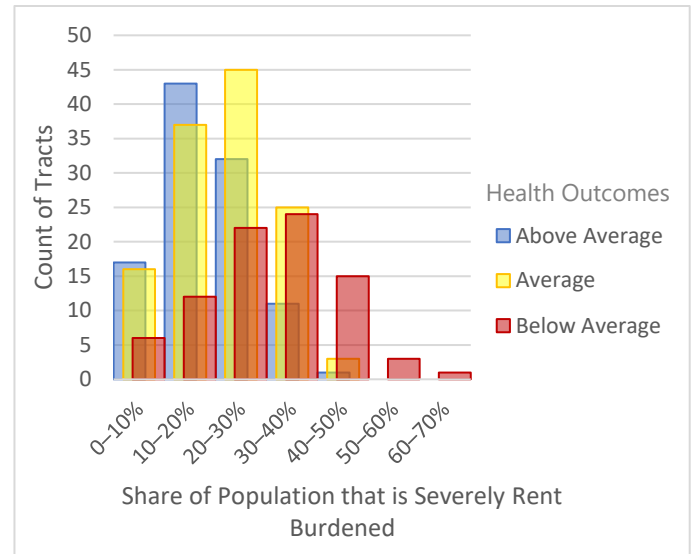
2 Gross rent as a percentage of household income in the past 12 months- share of renter occupied housing units spending more than 50% of income on rent



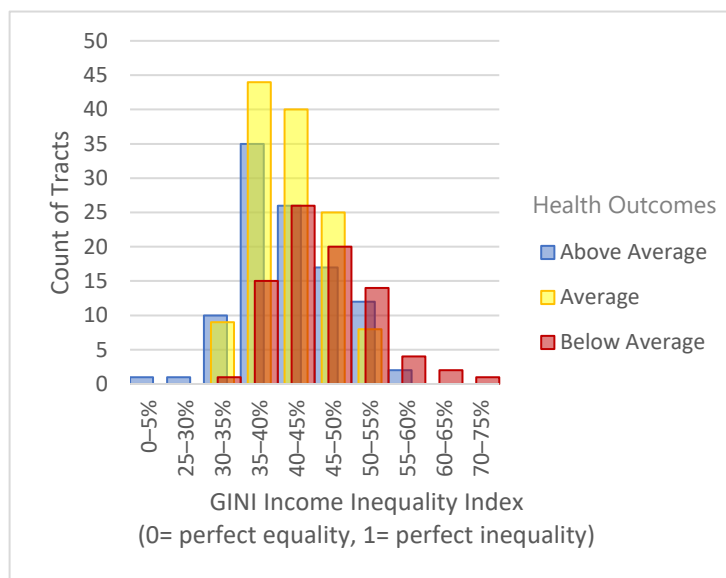
**Figure 2 Distribution of Health Outcomes by Unemployment Rate**



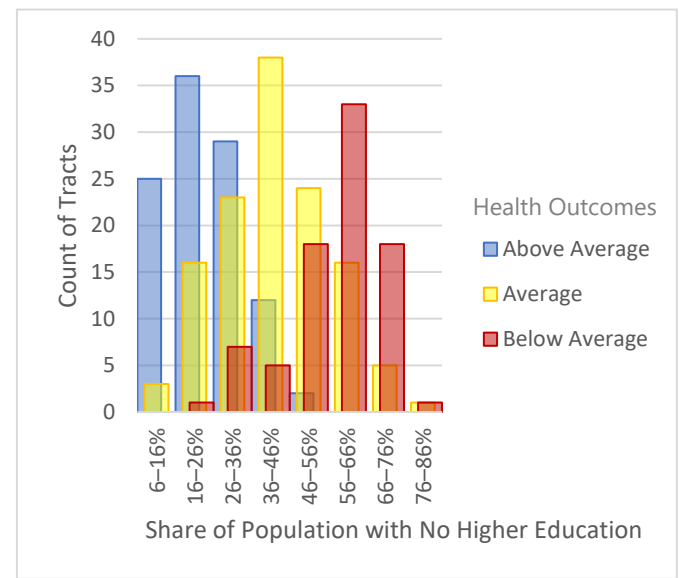
**Figure 3 Distribution of Health Outcomes for Severely Rent Burdened Households**



**Figure 4 Distribution of Health Outcomes by GINI Inequality Index**



**Figure 5 Distribution of Health Outcomes by No Higher Education**



**Built Environment**

The built environment influences levels of physical activity and access to health conferring resources. Built environment indicators include land use, mobility infrastructure and access to resources such as jobs, open space,

health care, and healthy food among other factors. De-concentration of populations and separation between residential and business areas contribute to chronic health problems. It also increases the reliance on the automobile which contributes to air pollution and sedentary lifestyles. Differences in investment in public infrastructure, mixed-use development, recreational space and other resources can also lead to inequalities.

Urban design and access indicators are shown in **Table 5** and **Table 6**. Land use distribution across the county averages about 40% land area being residential and 20% commercial. In the statistical assessment, a higher share of residential land use was significantly associated with higher rates of high cholesterol. The park acres per capita accessible to each study area vary widely from 0 to 36 acres per 1,000 people. Overall, the county has about 8 jobs per housing unit, but none of the study areas reach this ratio, with the commuting suburbs having fewer than 1 job per unit. These suburbs have very or no jobs accessible by transit and also fewer by auto given that they are farther from the metro center. The E MLK Jr study area also has a higher-than-average percentile for energy cost burden relative to the state of Florida and the county. A majority of the population also lives beyond 1/2 mile for urban areas or 10 miles for rural areas from supermarket. Furthermore, the Health Resources & Services Administration has designated 9% of tracts in the county as medically underserved areas and 62% of tracts as medically underserved populations, meaning these areas and populations have too few primary care providers, high infant mortality, high poverty or a high elderly population. <sup>1</sup>

In terms of access, having more jobs accessible by transit or by car was found to be statistically related to poor outcomes across many categories. Low access to grocery stores was also significantly associated with overall health risk. Greater park access was also associated with worse outcomes in many categories.

**Table 5 Urban Design Indicators**

		Industrial Land Share	Commercial Land Share	Residential Land Share	Energy Cost Burden <sup>1</sup>
<b>Study Areas</b>	E MLK Jr	0.03	0.28	0.38	0.7
	Hillsborough	0.01	0.16	0.53	0.3
	Lithia Pinecrest	0.08	0.44	0.18	0.2
	US 301	0.01	0.20	0.42	0.3
	W Platt/ W Cleveland	0.02	0.28	0.32	0.3
	<b>County</b>	0.04	0.23	0.42	0.4

Sources: Census ACS 2015-2019 5-Year Estimates

<sup>1</sup> Average annual energy cost per household (\$) divided by average household income as a percentile relative to the state

**Table 6 Access Indicators**

Park Acres <sup>1</sup>	Jobs: Housing Units	Auto Accessible Jobs	Transit Accessible Jobs	Low Food Access <sup>2</sup>	Medically Underserved
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<sup>1</sup> Medically Underserved Areas (MUAs) and Medically Underserved Populations (MUPs) identify geographic areas and populations with a lack of access to primary care services. MUAs have a shortage of primary care health services within geographic areas. MUPs have a shortage of primary care health services for a specific population subset within a geographic area. These groups may face economic, cultural, or language barriers to health care. Some examples include people experiencing homelessness, people who are low-income, people who are eligible for Medicaid, Native Americans, and migrant farm workers.

Study Areas	E MLK Jr	0.2	2.2	134,516	147,850	40%	100%
	Hillsborough	0.8	0.7	88,423	10,432	60%	100%
	Lithia Pinecrest	36.6	0.5	9,794	0	60%	100%
	US 301	2.7	0.4	21,435	0	80%	25%
	W Platt/ W Cleveland	0.0	2.6	160,238	137,424	20%	100%
	<b>County</b>	17.9	7.9	78,519	45,758	70%	71%

Sources: Census ACS 2015-2019 5-Year Estimates

1 Acres per 1,000 people

2 Population share beyond 1/2 mile for urban areas or 10 miles for rural areas from supermarket

Measures of regional mobility include the indicators shown in **Table 7**. The county is in the below average walkability category according to the EPA walkability index, but walkability varies greatly among the study areas, with E MLK Jr and West Platt/ West Cleveland having scores in the most walkable category. This is closely tied to street intersection density, the number of intersections per square mile that are pedestrian oriented. Regional Centrality is an index that estimates the relative access to employment in each place relative to the maximum access in the core based statistical area. The E MLK Jr, Hillsborough, and West Platt/ West Cleveland study areas have greater regional centrality, and smart location index scores than the County overall since they are more urban in typology. The same study areas also have lower transportation cost burden.

Street intersection density (a measure of walkability) is positively associated with better rates of coronary heart disease, diabetes, physical activity, mental health and physical health. However, sidewalk presence was not always beneficial in these categories, possibly because other characteristics of urban form related to density beyond walkability, such as access to destinations. High transportation cost burden was significantly related to poorer health outcomes in all categories, except that areas that spent a higher share of their income on transportation actually saw lower prevalence of poor mental health.

**Table 7 Transportation Indicators- Regional Mobility**

Study Areas		Walkability	Street Intersection Density	Regional Centrality	Smart Location Index <sup>1</sup>	Transportation Cost Burden <sup>2</sup>
	E MLK Jr	15.3	26.5	0.7	78.4	27.5%
Hillsborough	10.4	17.1	0.5	75.2	28.9%	
Lithia Pinecrest	5.8	5.5	0.1	47.9	36.0%	
US 301	6.5	8.7	0.1	61.3	34.1%	
W Platt/ W Cleveland	16.6	31.1	0.9	77.0	24.5%	
<b>County</b>	10.0	17.0	0.4	68.8	29.9%	

Sources: EPA SLD, HUD LAI

1 Smart Location Index ranges from 0-100 to measure location efficiency compared to the surrounding region. It takes into account worker commute mode-share, vehicle miles traveled, and workplace accessibility via transit

2 Modeled transportation costs as a percent of income, as modeled for a median income family (4 people, 2 commuters)

Measures surrounding commutes are shown in **Table 8**. Select indicators are shown in histograms below to show the distribution of census tracts by health outcome category and commute indicator (see **Figure 6** and **Figure 7**). The

share of households with no vehicle access ranges from 2 to 16% among the study areas, with E MLK Jr Boulevard and West Platt/ West Cleveland study areas having higher shares than the county overall. A small percentage of commuters use forms of active transportation to get to work county wide (3%), however some study areas, including East MLK Jr Boulevard and West Platt Street/ West Cleveland Street, have higher shares using public transit, bikes, or walking. These areas also have lower commute and non-commute (leisure) vehicle miles traveled. This could be due to the indicators discussed above surrounding walkability and centrality, as well as indicators surrounding access discussed in the [Error! Reference source not found.](#) section. Lithia Pinecrest and US 301 have larger shares of commuters with commutes that are 45 minutes or longer.

A higher share of car commuters was related to higher prevalence of poor health outcomes in categories such as coronary heart disease, diabetes, obesity, and no physical activity. However, it was associated with improved asthma and mental health rates. Greater vehicle miles traveled for commutes was also associated with lower asthma rates. A higher share of households with no access to a vehicle was also found to be associated with higher prevalence in all disease categories except for mental health. Furthermore, commutes greater than 45 minutes, regardless of mode, were found to be associated with higher prevalence of obesity and no physical activity.

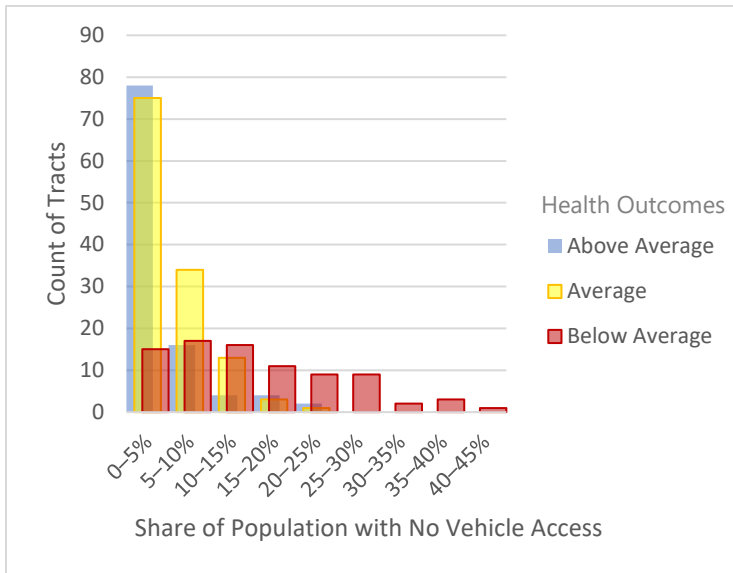
**Table 8 Transportation Indicators- Commutes**

		No Vehicle Access	Car Commuters <sup>1</sup>	Active Commuters <sup>2</sup>	45min+ Commutes	Commute VMT <sup>3</sup>	Leisure VMT <sup>4</sup>
<b>Study Areas</b>	E MLK Jr	16%	85%	9%	11%	13.8	4.1
	Hillsborough	3%	90%	3%	18%	14.3	4.7
	Lithia Pinecrest	2%	85%	4%	35%	21.3	7.2
	US 301	2%	90%	1%	32%	17.4	6.4
	W Platt/ W Cleveland	11%	82%	11%	6%	15.3	3.1
<b>County</b>		7%	89%	3%	19%	16.2	5.1

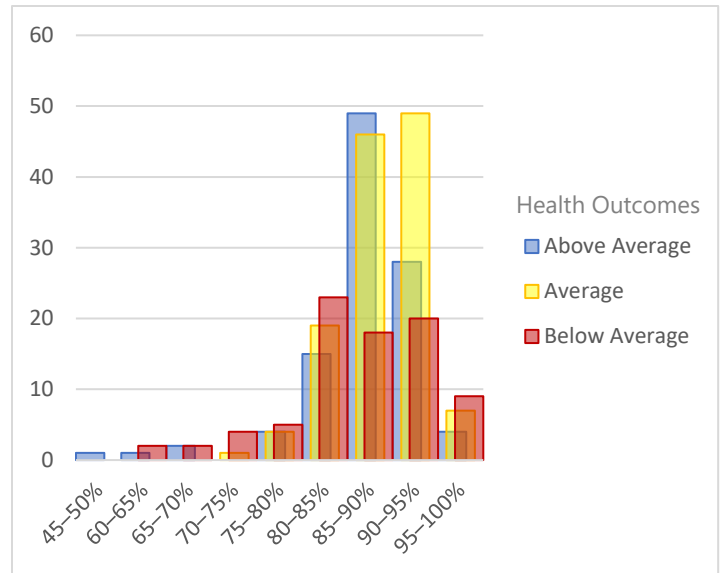
Sources: Census ACS 2015-2019 5-Year Estimates

- 1 Share of all commuters to work that use a car, truck, van, taxi, or motorcycle within tract
- 2 Share of all commuters to work that use public transit, bike or walk to work within tract
- 3 Mean commute vehicle miles traveled per worker (by workplace)
- 4 Mean non-commute vehicle miles traveled per worker (by workplace)

**Figure 6 Distribution of Health Outcomes for No Vehicle Access Households**



**Figure 7 Distribution of Health Outcomes by Car Commuter Share**



In terms of transportation infrastructure, **Table 9** includes ratios of sidewalks, bike lane, greenway and road mileage relative to population, arterial characteristics, and crash information. The county has about 7,200 miles of road and 1,500 miles of arterials according to Hillsborough County datasets. The data also shows that about 69% of county arterials have posted speeds of 40 mph or more, and that about 39% of these arterials are more than 3 lanes wide. There are 157 miles of greenway in the county, 219 miles of bike lanes, and 4,800 miles of sidewalks. West Platt/ West Cleveland is the only study area with a 1:1 ratio of sidewalks to roads per 1,000 people. Lithia Pinecrest has the most road mileage relative to the number of people in the study area as well as the highest rate of 40 mph arterials. The number of crashes per 1,000 people in the E MLK Jr. study area is almost double that of the county with similarly high rates in Bike and Pedestrian related crashes and serious and fatal injury crashes. West Platt/ West Cleveland also has high rates in all crash categories. It is important to note that these two areas also have the lowest bike lane ratio, but higher than average sidewalk ratios.

**Table 9 Transportation Indicators- Transportation Infrastructure**

Study Areas	Sidewalk Ratio <sup>1</sup>	Bike Lane Ratio <sup>1</sup>	Greenway Ratio <sup>1</sup>	Road Ratio <sup>2</sup>	3 Lane+ Arterials <sup>2</sup>	40mph+ Arterials <sup>2</sup>	Bike/Ped Crashes <sup>3</sup>	Injury Crashes <sup>4</sup>	All Crashes <sup>5</sup>
	E MLK Jr	0.8	0.00	0.19	5.6	0.7	0.7	19.5	19.2
Hillsborough	0.7	0.01	0.01	3.2	0.2	0.2	4.9	5.8	107.2
Lithia Pinecrest	0.5	0.02	0.00	10.7	0.0	2.8	1.3	8.0	69.9
US 301	0.9	0.05	0.06	6.5	0.3	0.8	1.8	12.9	117.3
W Platt/ W Cleveland	1.0	0.00	0.09	4.4	0.8	0.6	11.8	15.3	372.4
<b>County</b>	0.7	0.03	0.13	6.2	0.5	1.0	6.9	11.3	206.8

As discussed above, a higher share of residential land use was significantly associated with higher rates of high cholesterol, while higher sidewalk and bike lane ratios was associated with lower cholesterol rates. This shows that

census tracts with a large share of residential land with few active transportation facilities, and possibly destinations to walk or bike to, are worse off in terms of high cholesterol. A higher rate of car crashes was also found to be associated with poorer rates of physical health.

Sources: Census ACS 2015-2019 5-Year Estimates

- 1 Mileage of feature to roads per 1,000 people
- 2 Mileage per 1,000 people
- 3 Bicycle and pedestrian crashes since 2011 per 1,000 people
- 4 Serious and fatal injury crashes since 2011 per 1,000 people
- 5 All crashes since 2011 per 1,000 people

### Environmental Exposure

Environmental exposures are related to pollution, allergens, occupational factors and other chemicals and compounds we come in contact with due to our environments that can be harmful to health. The East MLK Jr and West Platt/ West Cleveland study areas have higher potential home lead paint exposure, potential chemical accident plan facility proximity, and hazardous waste facility proximity. E MLK Jr study area also has higher Superfund site proximity. The World Health Organization (WHO) released guidelines in 2021 that annual PM2.5 averages should not exceed 5 µg/m<sup>3</sup>, that ozone should not exceed 60 ppb over 8 hours. The county has poor PM 2.5 levels overall compared to this standard, but some areas have more exposure. Traffic proximity, PM 2.5, diesel particulate matter, and ozone levels are also higher in the East MLK Jr and West Platt/ West Cleveland study areas. The other study areas are closer to the average.

Environmental exposures such as higher shares of people living in pre-1960 housing (lead paint indicator) was associated with poorer health outcomes across all categories. Air quality indicators such as particulate matter, ozone and the respiratory hazard indices were also significantly associated with high blood pressure, asthma, diabetes, high cholesterol, obesity, and poor physical health. Furthermore, greater proximity to traffic was associated with poor health outcomes in all categories. A statistical assessment was also done for areas that experience nuisance levels of transportation noise, and the model found areas with associated with poor mental health rates.

**Table 10 Environmental Exposure Indicators- Contaminant Exposures**

	Lead Paint Exposure <sup>1</sup>	Superfund Proximity <sup>2</sup>	Wastewater Discharge <sup>3</sup>	RMP Facility <sup>4</sup>	Hazardous Waste <sup>5</sup>
<b>Study Areas</b>					
E MLK Jr	43%	0.42	0.00	2.90	1.59
Hillsborough	3%	0.11	1.07	0.85	0.32
Lithia Pinecrest	4%	0.10	0.23	0.41	0.15
US 301	2%	0.07	0.00	0.17	0.18
W Platt/ W Cleveland	28%	0.13	0.00	1.02	2.09
<b>County</b>	14%	0.29	2.9	0.96	0.90

Sources: EPA EJ Screen

- 1 Percent of Households built pre-1960 as an indicator of Lead Paint
- 2 Superfund site (proposed or listed NPL sites) frequency and proximity
- 3 Modeled toxic concentrations at stream segments frequency and proximity
- 4 RMP (potential chemical accident management plan) facility frequency and proximity
- 5 hazardous waste facility (TSDFs and LQGs) frequency and proximity

**Table 11 Environmental Exposure Indicators- Air, Noise and Climate**

Study Areas	Traffic Proximity <sup>1</sup>	Transportation Noise <sup>2</sup>	PM 2.5 <sup>3</sup>	Diesel Particulate Matter <sup>3</sup>	Ozone <sup>4</sup>	Respiratory Hazard Index <sup>5</sup>	Natural Hazard Risk <sup>6</sup>
	E MLK Jr	2,722	8%	8.32	0.54	35.31	0.40
Hillsborough	727	20%	8.16	0.42	35.28	0.40	15.9
Lithia Pinecrest	27	0%	7.70	0.17	33.74	0.38	17.8
US 301	167	8%	7.82	0.24	33.64	0.34	15.6
W Platt/ W Cleveland	3,263	3%	8.29	0.51	35.23	0.40	12.4
<b>County</b>	<b>890</b>	<b>18%</b>	<b>8.13</b>	<b>0.39</b>	<b>35.02</b>	<b>0.39</b>	<b>13.6</b>

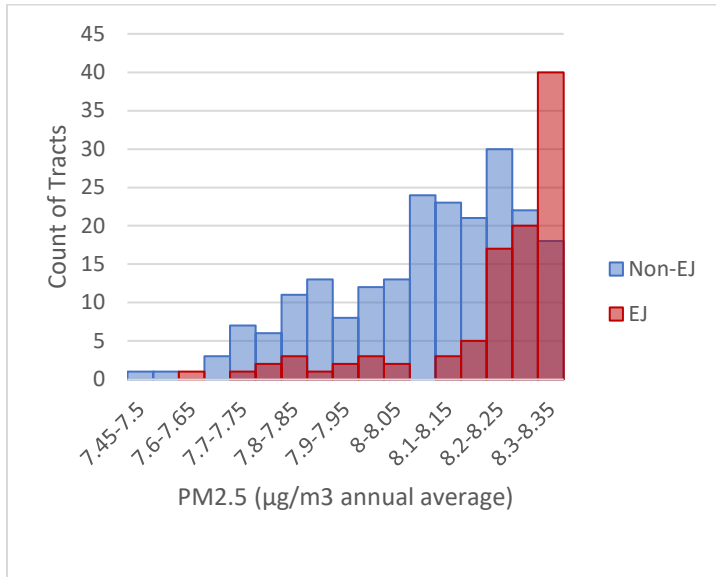
Sources: EPA EJ Screen, Bureau of Transportation Statistics, FEMA

- 1 Average annual daily traffic (AADT) proximity at major roads within 500 meters, divided by distance in meters.
- 2 Average share of residential land area that intersects area with average noise levels of 65 dBA or higher from highway, rail, and airport sources
- 3 µg/m3 annual average
- 4 summer seasonal avg. of daily maximum 8-hour concentration in air in parts per billion
- 5 Ratio of exposure concentration to health based reference concentration for all air pollutants measured y the National Air Toxics Assessment
- 6 Score represents the community's risk to all 18 hazard types relative to all other communities

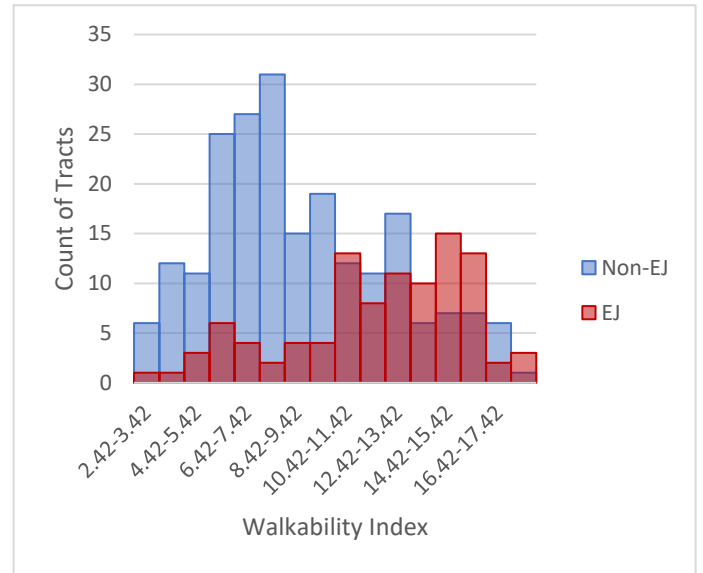
### Environmental Justice

EJ Areas as defined in the Plan Hillsborough Nondiscrimination and Equity Plan, are block groups in the top 10th percentile of low-income households or racial/ethnic minority populations. EJ Areas are concentrated in the neighborhoods of East Tampa, West Tampa, Sulphur Springs, Egypt Lake, Drew Park, Twelve Oaks, Town N' Country, East Lake- Orient Park, University Area, Progress Village, Palm River-Clair Mel, south Plant City, Ruskin, and Wimauma. Many of these neighborhoods also have populations with below average health outcomes, especially in East and West Tampa, Drew Park, Town N' Country, Progress Village, Sulphur Springs and Ruskin. As discussed in the Health Risk Assessment memo, these populations are more often in below average, concern or poor health risk categories. It is important to note that some of the social and environmental determinants of health are also distributed inequitably for EJ populations. For example, EJ areas clearly have higher rates of high PM 2.5 exposures, as shown in **Figure 8**. EJ areas also skew more walkable than non-EJ areas (see **Figure 9**). **Figure 10** shows that Non-EJ areas have lower shares of the population using active commute means, such as public transit, and **Figure 11** shows that non-EJ are much less likely to overlap with areas of high traffic proximity.

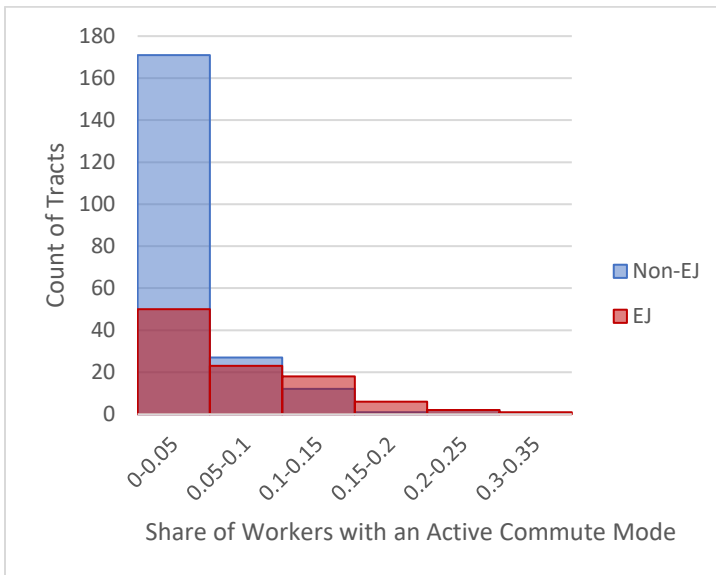
**Figure 8 Distribution of EJ Area PM 2.5 Concentrations**



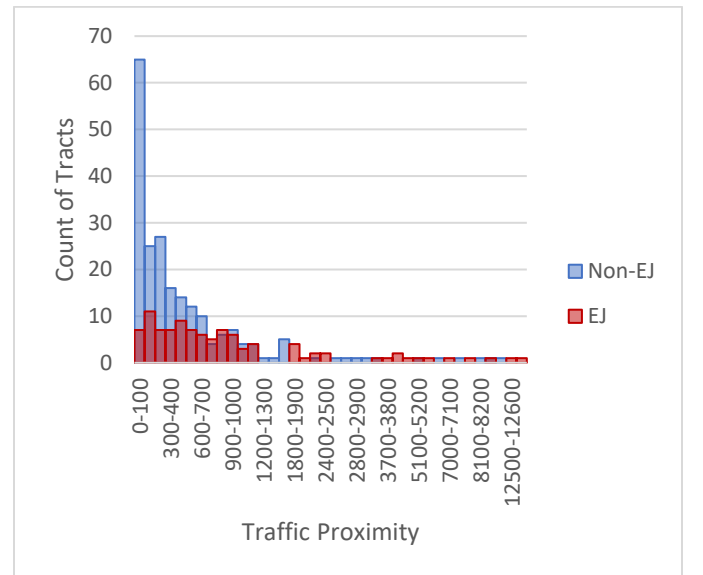
**Figure 9 Distribution of EJ Area Walkability Scores**



**Figure 10 Distribution of EJ Area Active Commuters**



**Figure 11 Distribution of EJ Area Traffic Proximity**





## Statistical Result Key Takeaways

As described above, there were a number of overlapping relationships and patterns identified which all combine to the complex nature of how health within a community should be considered. Looking across these findings, there are a number of key takeaways which if considered and planned for in the future can result in meaningful impacts across Hillsborough County as a whole and the various study areas which on which the analysis was performed. These key takeaways include:

- › Unequal distribution of wealth and resources is related to poorer health outcomes in Hillsborough County
- › Increased transportation cost burden is related to poorer health outcomes
- › Street intersection density is associated with better health outcomes across a number of categories, especially those related to physical activity.
- › Having greater access in close proximity to the urban center with jobs does not confer health benefits. This might speak to other social issues surrounding access to opportunity such as educational attainment. In categories such as asthma, having to drive further to reach destinations was associated with better health outcomes, and areas with a high share of car commuters were also associated with better rates of mental health than in areas with lower shares of car commuters.
- › The populations that rely on active means of transportation, may see some health benefits from this use, given that a higher share of car commuters equates with poorer health outcomes related to diseases associated with physical activity. However, the presence of active facilities such as bike lanes or greenways, did showed mixed significance. This may be because the quality or prevalence of active facilities is not such that they efficiently help people access the resources they need.
- › Higher traffic proximity and poor air quality was associated with poor health outcomes across the board. It is possible that the benefits from being in dense places with higher walkability is negated by the exposures from a car-centric metro area and highways, or other elements that make it less comfortable or safe to use active facilities, such as high crash rates. A higher rate of car crashes was found to be associated with poorer rates of physical health,

## Prioritization Principles

When prioritizing locations, funding distribution, and treatment types for complete streets improvements we suggest following the below principles to guide decision making. These are paired with measurable indicators that that can be evaluated and tracked over time. When seeking to understand where complete streets project should occur, in addition to looking at high crash roadways, the TPO should prioritize:

- › **Environmental Justice Communities**- Social inequality is a major driver of health disparity in the county, therefore, mobility improvements should focus on serving the most vulnerable and those who have been, and continue to be, impacted by discrimination.
- › **Health Burdened Communities**- Communities that are overburdened by chronic disease (in the poor or below average categories) should be prioritized for improvements. The EJ community definition might not capture all of the intersectional facets of what creates an underserved community. Pairing the consideration with health risk can help capture who is not being best served by their environments.

Beyond prioritizing these areas, prioritization of treatment type should consider the following:

- › **Improving Active Facilities Ratios:** Increasing pedestrian street intersection density and active facilities in places with low presence of these facilities. The density and access of these features are linked to high cholesterol, a risk factor for coronary heart disease, as well as diabetes, physical activity, mental health, and physical health. This may include facilities such as pedestrian and bike infrastructure to serve as a means of recreation or to connect to important destinations.
- › **Reducing Traffic Proximity and Air Pollution:** In more urban context classifications (C4 and C5) treatments that are geared towards reducing traffic proximity and air pollution, as these areas bear the brunt of the car centric metro area while they have lower shares of the population using cars.
- › **Improving Safety:** Urban context classifications have a higher rate of all types of crashes, bicycle and pedestrian crashes, and serious and fatal injury crashes, which were tied to poor physical health outcomes. Treatments should be geared towards crash reduction and other safety counter measures to make active facilities more appealing.
- › **Incentivizing Non-Car Commutes:** Car commuters are most prevalent in more suburban context classifications (C2 and C3). Treatments should be focused on reducing the need to commute by car, which will also improve traffic proximity for more urban context classifications. Furthermore, high transportation cost burden is tied to poorer health outcomes, and cost burden is highest in more rural areas. Bolstering public systems or carpooling options, which are often less expensive than personal vehicle ownership, in rural areas, could help improve health outcomes.

These are the overarching principles that can guide the selection of complete streets projects and treatments, which are discussed in the following section. For the purposes of this study, context sensitive complete street treatments that encourage active transportation, safety improvements, and non-car commutes have been identified on typical cross sections within the study areas. When performing corridor studies, transportation agencies should be cognizant of existing health conditions of the local communities in order to recommend shared solutions that improve both mobility and public health outcomes.

## Potential Effects of Complete Streets Program on County Health Outcomes

It not possible to model exactly how the individual complete street treatments will affect health outcomes because of many other independent factors, such as changes in driver behavior, or willingness for individuals to change their physical activity levels. There are several methodologies for the TPO to consider to monitor health conditions after implementation and construction of complete street treatments, including:

- Conduct a traditional Health Impact Assessment (HIA) survey of residents after complete street implementation
- Monitor CDC (Population Level Analysis and Community Estimates) PLACES data<sup>2</sup> to observe trends after complete street implementation
- Continue to monitor crashes to determine if complete street implementation and safety countermeasures have resulted in removal from the Vision Zero Network Top 20 Severe Crash Corridor list

However, it is clear that inequalities in exposure to traffic, high crash areas, the amount of time spent commuting, and poor air quality is connected to unequal health burdens, in addition to the distribution of wealth and resources. When these issues overlap in the same geographic area, it creates significant disparities that are difficult to overcome, particularly with limited economic resources, particularly within environmental justice and low income neighborhoods.

<sup>2</sup> <https://www.cdc.gov/places/index.html>

If the TPO complete streets plan prioritizes areas that are chronic disease burdened and have higher rates of exposure to these variables, while focusing on treatments that have the most potential to reduce these exposures, over time it would likely make Hillsborough a healthier place to live. This methodology can be applied across the 350 miles of high crash corridors (Figure 14) that the TPO has identified for complete street treatments, using context sensitive solutions similar to the five case studies described in Appendix B. Approximately 755,879 people, or 51% of the County's population, live within a ½ mile buffer of the 350 miles of high crash corridors. Therefore, implementing complete street treatments on these corridors has the potential to provide safety, mobility and community health benefits to the majority of the County's residents. Complete Street studies projects that are currently underway within Hillsborough County, such as Fowler Avenue and Nebraska Avenue, also have the potential to provide safety, mobility and community health benefits, because the recommendations of these studies are generally aligned with the Healthy Mobility prioritization principles.

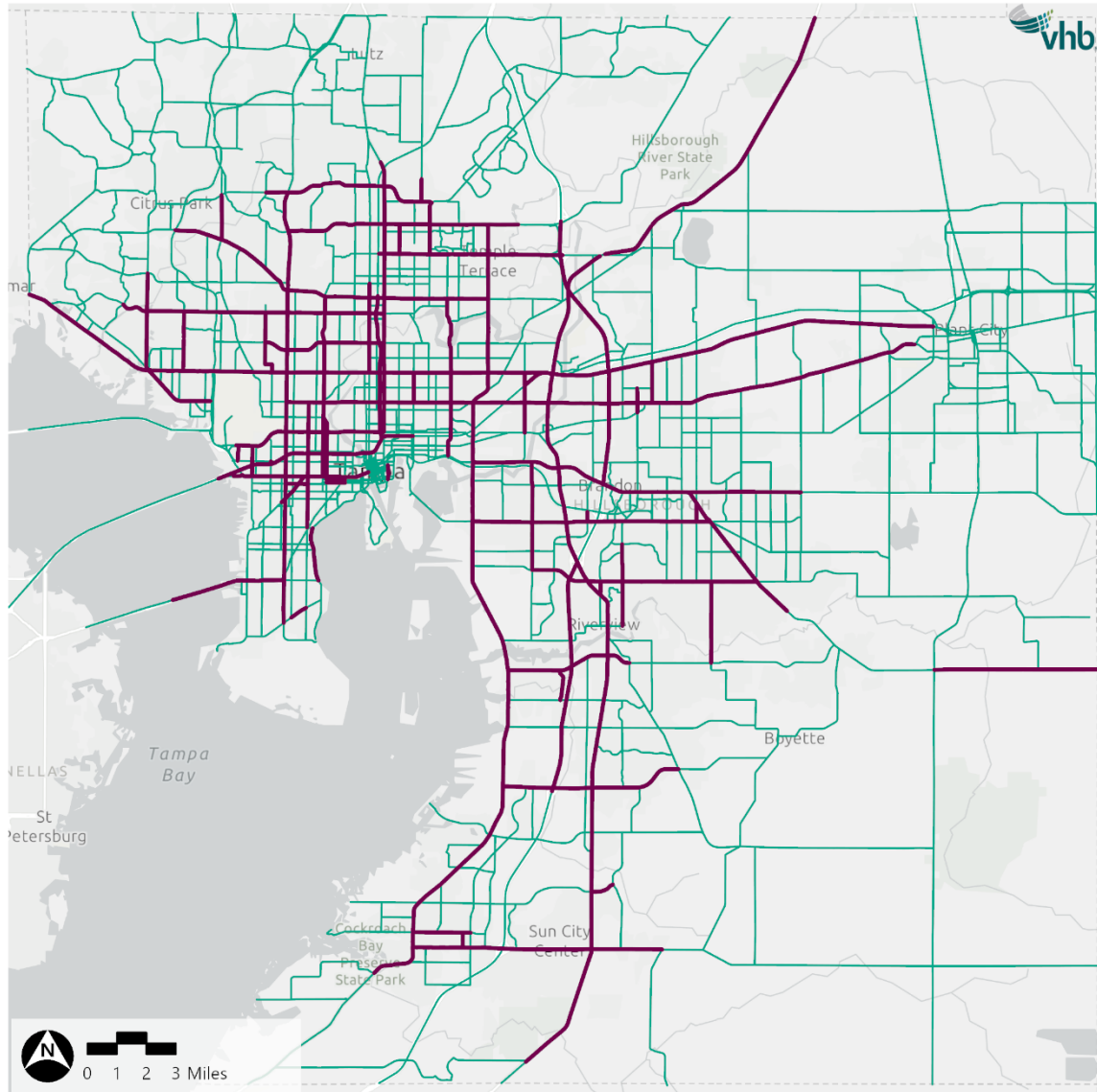
The overarching prioritization principles and associated complete street treatments identified in this study can help improve health outcomes by:

- Changing behavior and use of streets by both drivers and pedestrians;
- Promoting walking and using active forms of transportation, including public transportation, by providing amenities and making places safer to achieve physical activity;
- Reducing exposure to transportation-related emissions;
- Reducing vehicle-related injuries and fatalities; and
- Making streets greener and shadier, including at public transit stops.

**Figure 14** 350 Miles of High Crash Corridors prioritized for Complete Streets

**Hillsborough County - High-Injury Network Plus Additional Roadways**

Hillsborough TPO Health Assessment | Hillsborough, FL



Path: \\vhb.com\gis\proj\Tampa\66392\04\_Healthy\_Mobility\_LRTP\Project\Healthy\_Mobility\_LRTP\Maprx (jsjones, 10/28/2022)

- High Crash Corridors
- Other Roads

## Appendix A- Statistical Assessment Results

The below **Table A-1** shows the coefficients and p-values from the statistical model. P-values in dark orange indicate strong significance while the lighter orange colors represent lower significance. All grey values indicate a lack of significance. Coefficients show how much each dependent variable is influenced by the independent variables.

Note that the variables are measured in ratios and shares, so the number in the coefficient column is difficult to interpret. What is most important is directionality.

- › Positive coefficients are coded in red and indicate that as the value of the independent variable rises so does the prevalence of the dependent variable- indicating poorer health outcomes.
- › Negative coefficients, coded in green, indicate as the independent variable value rises, the prevalence of the dependent variable goes down- indicating better health outcomes.

Variables not included in the model from **Table A-1** above were either removed for lack of significance or correlation bias issues. There are instances when variables were able to be included for only certain health outcomes without interfering with the validity of the model.

The outputs of the statistical assessment including significance and magnitude of influence were used to inform the alternatives development process. Each independent variable was scored against each dependent variable for its significance and coefficient magnitude and direction:

- › Significance – Scored on a scale from 0-3, ranging from no significance, 70-80 percent confidence, 80-90 percent confidence, and 90 percent confidence and higher.
- › Coefficient – If an independent variable scored from 1-3 on significance, it was then also scored for its coefficient.
  - Magnitude – Measured relative to other coefficients for the same indicator and scored on a 1-3 scale.
  - Directionality – If the coefficient indicated a positive or negative relationship with improved health outcomes. Meaning that if a beneficial increase in an independent variable (say higher educational attainment) was linked to improved health outcomes, it was given a positive score. If an increase in an independent variable was linked to poorer health outcomes, it received a negative score.

These two scores were multiplied together to come up with a total score for each indicator relative to each health outcome, then added together across the six assessed chronic diseases so that each indicator was scored. **Table A-2** shows the indicators from most positive connections to improved health outcomes, to least. Note that some indicators were combined for the purposes of scoring the alternatives.

**Table A-1 Statistical Assessment Results**

	Dependent Variables																			
	Combined Score		High BP		Asthma		CHD		Diabetes		High Cholesterol		Obesity		No Physical Activity		Mental Health		Physical Health	
	Coeff	P	Coeff	P	Coeff	P	Coeff	P	Coeff	P	Coeff	P	Coeff	P	Coeff	P	Coeff	P	Coeff	P
Age 65 and Older	1.02	0.00	42.12	0.00	-2.10	0.00	15.89	0.00	15.76	0.00	32.35	0.00	-4.51	0.00	6.86	0.00	-10.54	0.00	8.46	0.00
POC: White Population	0.01	0.00	0.31	0.00	0.06	0.00			0.18	0.00			0.24	0.00	0.17	0.00			0.03	0.15
Car Commuter	0.16	0.09			-1.54	0.01	1.96	0.06	5.51	0.00			3.79	0.04	3.89	0.03	-5.20	0.00		
45 min Commutes													2.32	0.12	2.81	0.05				
Low Educational Attainment	0.37	0.00	9.73	0.00	0.52	0.18	3.38	0.00	7.70	0.00	8.58	0.00	10.13	0.00	20.48	0.00	4.70	0.00	10.50	0.00
200% Poverty Ratio	0.42	0.00	10.63	0.00	4.15	0.00	3.73	0.00	7.97	0.00			12.17	0.00	18.17	0.00	11.52	0.00	9.76	0.00
No Vehicle Access	0.39	0.00	16.95	0.00	1.19	0.09	3.89	0.00	6.29	0.00	5.31	0.06	7.00	0.00	7.64	0.00			5.64	0.00
GINI	0.16	0.09					2.11	0.05	3.47	0.05	2.44	0.28			2.60	0.15			2.67	0.06
Transportation Cost Burden	0.01	0.00	0.50	0.00			0.07	0.05	0.28	0.00	0.43	0.00	0.30	0.00			-0.22	0.00	0.10	0.03
Jobs Accessible by Car	0.00	0.25	0.00	0.13	0.00	0.00			0.00	0.15	0.00	0.22					0.00	0.00	0.00	0.01
Street Intersection Density							-0.03	0.09	-0.03	0.27					-0.06	0.03	-0.03	0.07	-0.02	0.29
Park Access			0.00	0.15			0.00	0.28			0.00	0.08								
Residential Land Use											1.80	0.05								
Sidewalk Ratio					0.16	0.04			0.70	0.01	-0.59	0.07	0.84	0.00	0.60	0.02	0.20	0.19		
Bike Lane Ratio											-3.49	0.05			1.70	0.25				
Lead Paint Indicator	0.10	0.01	4.29	0.00	0.88	0.00	0.86	0.05	0.83	0.25	2.23	0.02	1.80	0.02	0.97	0.19	1.28	0.00	1.86	0.00
Traffic Proximity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
Superfund Proximity	-0.02	0.20					-0.25	0.08	-0.48	0.04	-0.56	0.06			-0.35	0.15			0.29	
Hazardous waste proximity											-0.24	0.10	-0.14	0.25					0.20	
Particulate Matter 2.5	0.17	0.01	7.11	0.00	0.65	0.12			2.54	0.05	6.14	0.00	3.18	0.02					2.86	0.01
Transportation Noise																	0.19	0.07		
Commute VMT					-0.05	0.00														
Crashes																			0.00	0.00

**Table Key**

- high significance
- moderate significance
- low significance
- no significance
- positive coefficient
- negative coefficient

**Table A-2      Indicator Ranking**

**Indicator**

Decreased Poverty
Improved Educational Attainment
Increased Vehicle Access
Decreased Particulate Matter Ozone
Decreased Lead Paint Indicator
Decreased Traffic Proximity
Decreased Transportation Cost Burden
Increased Income Equality
Increased Walkability
Decrease Car Commuters
Decrease Commute Length
Increased Bike Lane Ratio
Increased Residential Land Use
Decreased Transportation Noise
Decreased Crashes
Decreased Commute Vehicle Miles Traveled
Decreased Hazardous Waste Proximity
Increased Park Access
Increased Sidewalk Ratio
Decreased Superfund Proximity
Increased Jobs Accessible

## Appendix B- Complete Street Treatment Recommendations

### Complete Street Treatment Recommendations

This section describes the existing physical and community characteristics of the five study areas, including EJ designation, typical cross section, transit availability, and if the study area is identified as a Vision Zero Network Top 20 Severe Crash Corridor. Recommendations for Complete Street Treatments and associated programming is described below, consistent with Design Guides published by the National Association of City Transportation Officials (NACTO)<sup>3</sup>, and best practices recommendations from the Florida Department of Transportation (FDOT)<sup>4</sup>, Federal Highway Administration (FHWA)<sup>5</sup>, and US Environmental Protection Agency (EPA)<sup>6</sup>. These recommendations are preliminary and should be further evaluated during corridor specific studies for each of the study areas. The recommended complete street treatments are informed by the statistical analysis on transportation, environmental, socioeconomic, and other indicators, as well as the resulting Prioritization Principles, including the promotion of active transportation, safety improvements, and non-car commutes to improve health outcomes.

The treatment types recommended for each study area can be used as a guide (by appropriate context classification) while planning for the TPO's goal of 350 miles of Complete Streets. The statistical assessment indicates that these treatment types will have a positive impact on public health outcomes.

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<sup>3</sup> NACTO Design Guides: <https://nacto.org/publications/>

<sup>4</sup> FDOT Complete Streets: <http://www.flcompletestreets.com/>

<sup>5</sup> FHWA Complete Streets: <https://highways.dot.gov/complete-streets>

<sup>6</sup> EPA Vegetation Planning Guide: [Recommendations for Constructing Roadside Vegetation Barriers to Improve Near-Road Air Quality | Science Inventory | US EPA](#)



**E Dr. Martin Luther King Jr Boulevard, I-275 – N 40 Street**

Context Classification: C4 (Urban General)

Theme: Community Connections

**Existing Conditions:**

- › EJ designation.
- › Land use: single-family housing and neighborhood-serving retail with parking lot frontage, transitioning to industrial uses. Many community amenities (schools, parks, library).
- › Cross section: two lanes in each direction, plus occasional planted median and turn pockets. No on-street parking.
- › ROW: 68 – 100 feet (back of sidewalk to the back of sidewalk).
- › Posted speed limit: 40 mph.
- › AADT: 29,000.
- › Transit: Bus 32 along the entire length of segment – Airport to transfer center, 60-minute headway.
- › Sidewalks: Inconsistent, low-quality sidewalks.
- › Bike lanes: No bike lanes on this segment, but bike lanes on the other side of N 40<sup>th</sup> St, connecting to Myrtle Hill Memorial Park.
- › Vision Zero Network: Top 20 Severe Crash Corridor.
- › Schools: Young Middle Magnet, Lomax Magnet Elementary, Ferrell Girls Preparatory Academy.
- › Parks: Memorial Park Cemetery, Cyrus Greene Pool, Ragan Park, Robert L. Cole Sr Community Lake, in proximity to Myrtle Hill Memorial Park (cemetery).
- › Other community amenities: C Blythe Andrews, Jr. Public Library.

**Table 1 E. Dr, Martin Luther King Jr Boulevard- Health Indicators**

Asthma	High Cholesterol	Obesity
High blood pressure	Chronic heart disease	No physical activity
Poor mental health	Poor physical health	Diabetes
Note: Indicators in <b>red</b> are found in higher-than-average rates in the study area.		

## Recommendations and themes:

- › Increase intersection density.
  - Midblock crossings with RRFB.
- › Treatments that reduce traffic proximity and air pollution.
  - Street trees for shade, air quality, safety, and aesthetics.
- › Treatments that reduce crashes (for all users) and make facilities more appealing.
  - Street trees for shade<sup>7</sup>, air quality, safety, and aesthetics.
  - Add SUP and/or protected bike lanes.
  - Reduce speed limit to 35. A road diet to reduce the width of the road will slow traffic and reduce crashes, making the road more appealing for bikes and pedestrians.
  - Improved bus shelters with safe crossings between them.
  - Intersection improvements at N 40<sup>th</sup> St. to better connect the new shared-use path with existing bike lanes and Myrtle Hill Park.
  - Extended centerlines at intersections with markers to slow left-turning motorists and provide additional protection for pedestrians.
- › Other
  - Community engagement to identify important local destinations and create connections with those destinations (schools, churches, etc.).

## W Hillsborough Ave, Pinellas County Line – Veteran’s Memorial Highway

Context classification: C3C (Suburban Commercial)

Theme: Greenway Spine

## Existing Conditions

- › EJ designation.
- › Land use: Large-scale commercial, some multi-family housing on northwest and southeast ends, natural/open space in between.
- › Cross section: 3 lanes in each direction with an occasional grass median.
- › ROW: 115 feet (back of sidewalk to the back of sidewalk).
- › Posted speed limit: 50 mph.
- › AADT: 57,000.
- › Transit: Bus route 812 along the entire length of segment - between Pinellas County and Tampa - 60 min headway. Stops around Race Track Rd., Double Branch Rd., Montague St.
- › Sidewalks and bike lanes: along full length but they are poor quality and unappealing; sidewalk is directly adjacent to the road.
- › Vision Zero Network: Top 20 Severe Crash Corridor.
- › Schools: West Gate Christian School.
- › Parks: Upper Tampa Bay Park is adjacent to this road to the south.

- › Other: Proposed Memorial Bikeway would connect from Upper Tampa Bay Park, across Hillsborough Ave., to the existing Upper Tampa Bay Trail and to western Tampa.

**Table 2 W Hillsborough Ave - Health Indicators**

Asthma	High Cholesterol	Obesity
High blood pressure	Chronic heart disease	No physical activity
Poor mental health	Poor physical health	Diabetes
Note: Indicators in <b>red</b> are found in higher-than-average rates in the study area.		

### Recommendations and Themes

- › Treatments that reduce crashes (for all users) and make facilities more appealing.
  - This segment has an opportunity for a greenway to connect Upper Tampa Bay Park, Upper Tampa Bay Trail, Tampa, and into Pinellas County.
  - Include amenities along the south side of the road, such as overlooks, bird-watching platforms, and nature signs that connect the community to Tampa Bay.
  - Planted median where possible.
  - Intersection treatments at Double Branch Road to promote safe crossing and prepare for Memorial Bikeway. Full pedestrian crossing treatment at Montague St.
  - Shade trees near sidewalks, creating a roadway buffer where possible.
  - Slightly narrower travel lanes.
  - Bus bays with shelter.
- › Treatments that incentivize non-car commutes.
  - Park & Ride / carpooling facility at the northwestern end to promote transit use.
  - Evaluate potential to repurpose one lane in each direction (“road diet”) for transit and bicycling use.
- › Treatments that increase intersection density.
  - Montague St. connection to Upper Tampa Bay Trail.
  - Additional trail connections to increase intersection density and shorter blocks for people on foot and bikes.

<sup>7</sup> EPA Recommendations for Constructing Roadside Vegetation Barriers to Improve Near-Road Air Quality: [https://cfpub.epa.gov/si/si\\_public\\_file\\_download.cfm?p\\_download\\_id=528612&Lab=NRMRL](https://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=528612&Lab=NRMRL)

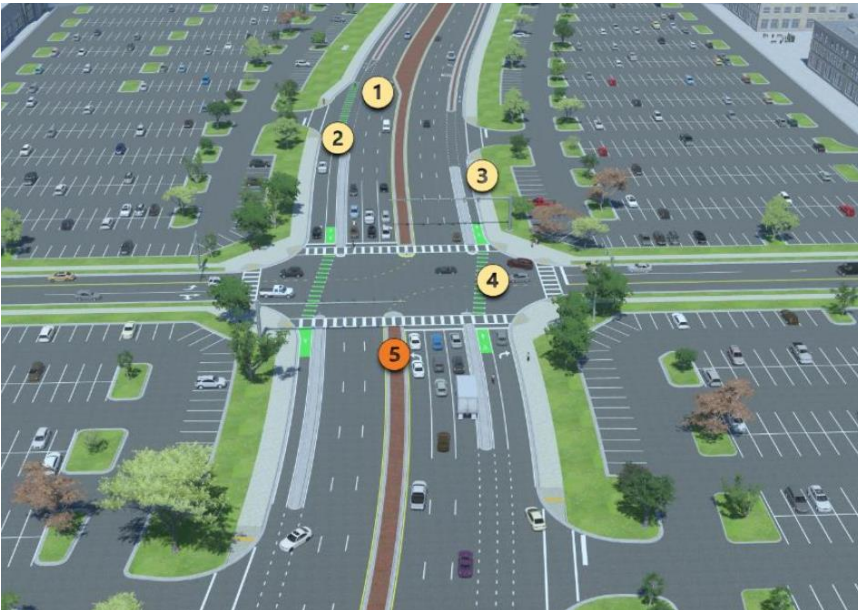
## FDOT Suggestions

**Figure 12 Example 1**



*Example 1: 1 - Midblock crossing. 2 – Full stop pedestrian signal. 3 – Bus bays. 4 – Raised street crossings. 5 – Intersection refuge islands. 6 – Shared-use path. 7 – 8’ sidewalk. 8 – Lane narrowing. (Source: Florida Department of Transportation Complete Streets Explorer Tool, [flcompletestreets.com](http://flcompletestreets.com).)*

**Figure 13 Example 2**



*Example 2: 1 – Lane narrowing. 2 – Separated bicycle lanes. 3 – 8’ sidewalk. 4 – Green-colored pavement markings. 5 – Intersection refuge islands. (Source: Florida Department of Transportation Complete Streets Explorer Tool, [flcompletestreets.com](http://flcompletestreets.com).)*

## Lithia Pinecrest, Boyette Road – Polk County Line

Context Classification: C2 (Rural)

Theme: Rural Recreation

### Existing Conditions:

- › No EJ designation.
- › Land use: rural/agricultural, some clusters of low-intensity retail, suburban residential at the western end.
- › Cross section: One lane in each direction, paved shoulders.
- › ROW: 35 feet currently paved; assume more is available.
- › Posted speed limit: 45 mph.
- › AADT: 6,000.
- › Transit: none.
- › Sidewalks: sporadic, walking paths in the suburban residential areas (private?). Off-street path connection past Hawk Park to Kinglet Ridge development.
- › Bike lanes: none; shoulders are narrow/soft or absent.
- › Vision Zero Network: No.
- › Schools: Pinecrest Elementary, and Newsome High School is west of the study area.
- › Parks: none.
- › Other: Proposed section of Cross-County Greenway west of Boyette Road; Proposed unpaved trail connection between Alderman’s Ford and South Alafia crosses Lithia Pinecrest Road near Lane Acres Drive; Park & Ride to the west at FishHawk Sports Complex.

### Photo 2 Lithia Pinecrest Existing Conditions



**Table 3 Lithia Pinecrest - Health Indicators**

Asthma	High Cholesterol	Obesity
High blood pressure	Chronic heart disease	No physical activity
Poor mental health	Poor physical health	Diabetes
Note: Indicators in <b>red</b> are found in higher-than-average rates in the study area.		

**Recommendations and themes:**

- › Treatments that can reduce the high percentage of car commuters.
  - Separated greenway or wide shoulders to allow bike and equestrian use, connections to future greenway network. FDOT design criteria call for 5-foot paved shoulders to accommodate bikes.
  - Wide shoulders would also accommodate farm equipment.
- › Treatments that increase intersection density.
  - Connections across the road in locations of trailheads or other access points to increase intersection density for those on foot or on bike.
  - Equestrian amenities, especially around the proposed unpaved trail crossing.
- › Treatments that incentivize non-car commutes.
  - Gauge interest in car or vanpooling (TBARTA).
- › Other
  - Investigate the possibility of centerline treatments (flexible bollards?) in locations of head-on crashes or in cases of cars trying to overtake slower vehicles.
  - Raised reflectors (small physical barrier) to protect users on the shoulder.

## FDOT Suggestions

Figure 14 Example 3



Example 3: 1 - Midblock crossing. 2 – Refuge island. 3 – Rectangular rapid flash beacons (RRFB). (Source: Florida Department of Transportation Complete Streets Explorer Tool, [flcompletestreets.com](http://flcompletestreets.com).)

## US 301, Big Bend Road – Sun City Center Boulevard

Context Classification: C3R (Suburban Residential)

Theme: Active Suburbs

### Existing Conditions:

- › Partial EJ-designation.
- › Land use: Big box retail at both ends. Walled suburban residential developments in between.
- › Cross section: 3 lanes each direction, recent construction.
- › ROW: 170 feet, varies.
- › Posted speed limit: 55.
- › AADT: 54,000.
- › Transit: none.
- › Sidewalks: 5.5 feet, on both sides.
- › Bike lanes: 5 feet, on both sides.
- › Vision Zero Network: No.
- › Schools: None.
- › Parks: None.
- › Other: Existing greenway (South Coast Greenway) along the northbound side. Narrow sidewalk along southbound side. Proposed connection south to Manatee County, no existing or proposed connection to CBD; Conceptual proposed greenway along 19<sup>th</sup> Ave NE.

### Photo 3 US 301 Existing Conditions





**Table 4**      **US 301 - Health Indicators**

Asthma	High Cholesterol	Obesity
High blood pressure	Chronic heart disease	No physical activity
Poor mental health	Poor physical health	Diabetes
Note: Indicators in <b>red</b> are found in higher-than-average rates in the study area.		

## Recommendations

- › Treatments that reduce crashes (for all users) and make facilities more appealing. Treatments that increase intersection density. Treatments that incentivize non-car commutes.
  - Shade trees to make the greenway more appealing.
  - Safe crossings for residential developments – midblock signalized full stop crossings to increase intersection density for bikes and pedestrians.
  - Median with grass, trees, and native plants to reduce conflict and provide environmental benefits (some sections already have this).
  - Pedestrian and cyclist connections between the greenway and adjacent housing to increase intersection density and permeability of neighborhoods.

## FDOT Suggestions

**Figure 15**    **Example 4**



*Example 4: 1 – Full stop pedestrian signal. 2 – Refuge island. 3 – Midblock crossing. (Source: Florida Department of Transportation Complete Streets Explorer Tool, [flcompletestreets.com](http://flcompletestreets.com).)*

**W Platt/W Cleveland, S Armenia Avenue – S Rome Avenue**

Context Classification: C5 (Urban Center)

Theme: Pedestrians in a Bustling Neighborhood

**Existing Conditions**

- › No EJ designation.
- › Land use: mixed-use. Multi-family residential, shopping, and restaurants. Near university – high student population.
- › Cross section: Two one-way streets, 2 lanes each, on-street parking, separated bike lanes
- › ROW: approx. 55 ft.
- › Posted speed limit: 35 mph.
- › AADT: 13,500 / 6,200.
- › Transit: Bus 19 along both segments, 60-min. headway. Connection between two transfer centers.
- › Sidewalks: yes, often interrupted by parking and/or building frontage, often immediately adjacent to the road, inconsistent quality.
- › Bike lanes: unidirectional painted separated bike lanes on each road, connect to Bayshore Boulevard to the east; Bike lanes are on the outside of on-street parking.
- › Vision Zero Network: No.
- › Schools: In proximity to Mitchell Elementary School and the University of Tampa.
- › Parks: None.
- › Other: Bikeshare station east of Rome Ave; road diet and other treatments completed in spring/summer 2015.

**Table 5 W Platt/W Cleveland - Health Indicators**

<b>Asthma</b>	High Cholesterol	Obesity
High blood pressure	Chronic heart disease	No physical activity
<b>Poor mental health</b>	Poor physical health	Diabetes
Note: Indicators in <b>red</b> are found in higher-than-average rates in the study area.		

**Recommendations**

- › Treatments that reduce crashes (for all users) and make facilities more appealing.
  - Safety improvements for pedestrian crossings at signalized intersections (S. Howard Ave. and S. Armenia Ave. Intersections), potentially including a pedestrian phase (“scramble”).
  - Consistent pedestrian crossings at all signalized intersections, possibly colorful painted crossings to reflect community character.
  - Improved bus shelters.
  - Consistent sidewalk treatments – high-quality sidewalks along both sides of both streets, buffered where possible.
  - Vertical protection for bike lanes.
- › Treatments that reduce traffic proximity and air pollution

- Increase tree canopy.
- › Treatments that increase intersection density.
  - Consider adding marked pedestrian crossings at Rome Avenue and one additional intersection (Albany or Fremont). Currently ~0.5 miles between marked pedestrian crossings.
- › Other
  - The above are also traffic calming solutions that may reduce travel speed.

