APPENDIX C:
ENVIRONMENTAL JUSTICE TECHNICAL ANALYSIS

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I. INTRODUCTION TO ENVIRONMENTAL JUSTICE

A. Definition of Environmental Justice

The U.S. EPA's Office of Environmental Justice defines environmental justice as follows:

"*The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including racial, ethnic, or socio-economic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies*."

B. Regulatory Framework for Environmental Justice

Recognizing that the impacts of federal programs and activities may raise questions of fairness to affected groups, President Clinton, on February 11, 1994, signed Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. MORPC has extended this target population to also include people with disabilities.

Environmental justice, while not a new requirement, amplifies the provisions found in the three-decade old Title VI of the Civil Rights Act of 1964. Title VI of the Civil Rights Act of 1964 prohibits discriminatory practices in programs and activities receiving federal funds. The transportation planning regulations, issued in October 1993, require that metropolitan transportation planning processes be consistent with Title VI. MORPC complies with Title VI by preparing and submitting Title VI documentation reports, as directed by ODOT. MORPC also has a Title VI assurance resolution currently in force, which states that MORPC complies with Title VI and US DOT-related requirements. Finally, MORPC operates a Disadvantaged Business Enterprise Program per US DOT requirements and provides periodic reporting to ODOT.

The executive order also refocuses attention on the National Environmental Protection Act (NEPA), a 30-year-old law that set policy goals for the protection, maintenance, and enhancement of the environment.

Environmental justice strengthens Title VI by requiring federal agencies to make achieving environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. The Ohio Department of Transportation developed DOT Order 5610.2 to address environmental justice and to respond to Executive Order 12898.

The Policy of DOT Order 5610.2 is to:

"*Promote the principles of environmental justice through the incorporation of those principles in all DOT programs, policies, and activities. This shall be done by fully considering environmental justice principles throughout planning and decision-making processes in the development of programs, policies, and activities, using the principles of the National Environmental Policy Act of 1969 (NEPA), Title VI of the Civil Rights Act of 1964, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and other DOT statutes, regulations, and guidance that address or affect infrastructure planning and decision-making; social, economic, or environmental matters; public health; and public involvement*."

C. MORPC's Approach to Environmental Justice

MORPC in its response to this very important challenge devised a process to assess the impacts of the transportation planning process, the regional transportation plan and the Transportation Improvement Program on the target populations. MORPC identified three principles to ensure environmental justice considerations were properly integrated into the transportation planning process.

- Adequate public involvement of low-income and minority populations in regional transportation decision making.
- Assess whether there were disproportionately high and adverse impacts on low-income and minority populations resulting from federal programs.
- Assure that the low-income and minority populations receive a proportionate share of benefits of federal transportation investments.

MORPC assembled an Advisory Task Force and completed an initial preliminary assessment in April 2000, which addressed each of the three principles. This initial assessment also established EJ analysis as an ongoing aspect of MORPC's planning work program and that each Transportation Improvement Program (TIP) and Metropolitan Transportation Plan (MTP) update will include a quantitative environmental justice analysis.

This appendix provides demographic information for the MORPC area and the results of applying the quantitative measures to the set of projects included in the 2020-2050 Metropolitan Transportation Plan (MTP). The public involvement environmental justice issues are discussed in the public participation components of the MTP.

II. DEMOGRAPHICS

The population of Central Ohio is diverse. To protect people from being overlooked or taken advantage of in the course of regional transportation planning, special populations are identified to protect them from disproportional impact from transportation projects. This effort is part of the Environmental Justice process that MPO's use in preparing regional transportation plans. The EJ target populations include minorities and people in poverty (low-income).

Demographic data were sought regarding characteristics of these target populations for the MORPC Transportation Study Area. The selected data were distributed into MORPC's Traffic Analysis Zones (TAZs). This was done so that the data could be further analyzed through the travel demand model. The analysis resulted in the identification of planning measurements that were used to identify a geographic target area of high densities of these target populations to test effects of changes to the transportation system on these populations.

A. Data Set Review

The 2014-2018 American Community Survey (ACS) from the U.S. Census contains comprehensive information detailed for pertinent data sets at low geographical levels. The 2014-2018 ACS was used to calculate Target Populations which include people in poverty and minority population. These data are reported at the census tract level. An equivalency table was created between the census tracts and the MORPC Traffic Analysis Zone (TAZ) geography to transfer data from census tract to TAZ geographies. Characteristics of the Census Tract data available from the ACS were applied to 2018 estimated populations of the TAZ. Averages of regional totals for the target populations were calculated to identify concentrations of these populations in the study area. Using the breakpoint at which areas fall above or below the average for the study area alerts planners to special areas of consideration when analyzing the effects of changes to the transportation system.

B. EJ Target Populations

Demographic data for the special populations used in the Environmental Justice analysis were estimated for year 2018 using the methodology mentioned above. An equivalency between the census block group and MORPC Traffic Analysis Zone (TAZ) geographies was developed to report the data at TAZ level. The totals and averages for the demographic variables identified for measuring environmental justice are shown on Figures II-1 and II-2. The data are displayed in two ways on each map. They are density maps, where dots on the map represent people or households. These graphics show concentrations of the target populations. These dots are overlaid on a thematic display in which the traffic zones are shaded based on how the characteristics of the traffic zone compare the threshold for that specific variable.

Details regarding the special populations that include minorities and people in poverty are described below. Table II-1 is a comparison between the percentages of these target populations in MORPC MPO area and the entire state of Ohio.

Table II-1: 2018* Environmental Justice Target Populations in Central Ohio and State Totals

Special Population	MORPC MPO Area	State of Ohio
Minority Population	30.19%	18.71%
Population in Poverty	14.63%	14.54%

*Sources: using percentages from 2014-2018 American Community Survey as 2018 approximates

Minority Populations

People considered minorities are identified in the census as people of African-American, Hispanic/Latino, Asian American, American Indian and Alaskan Native, Native Hawaiian and other Pacific Islander. The minority population in the MORPC MPO area was 30.19 percent of the total population in 2018.

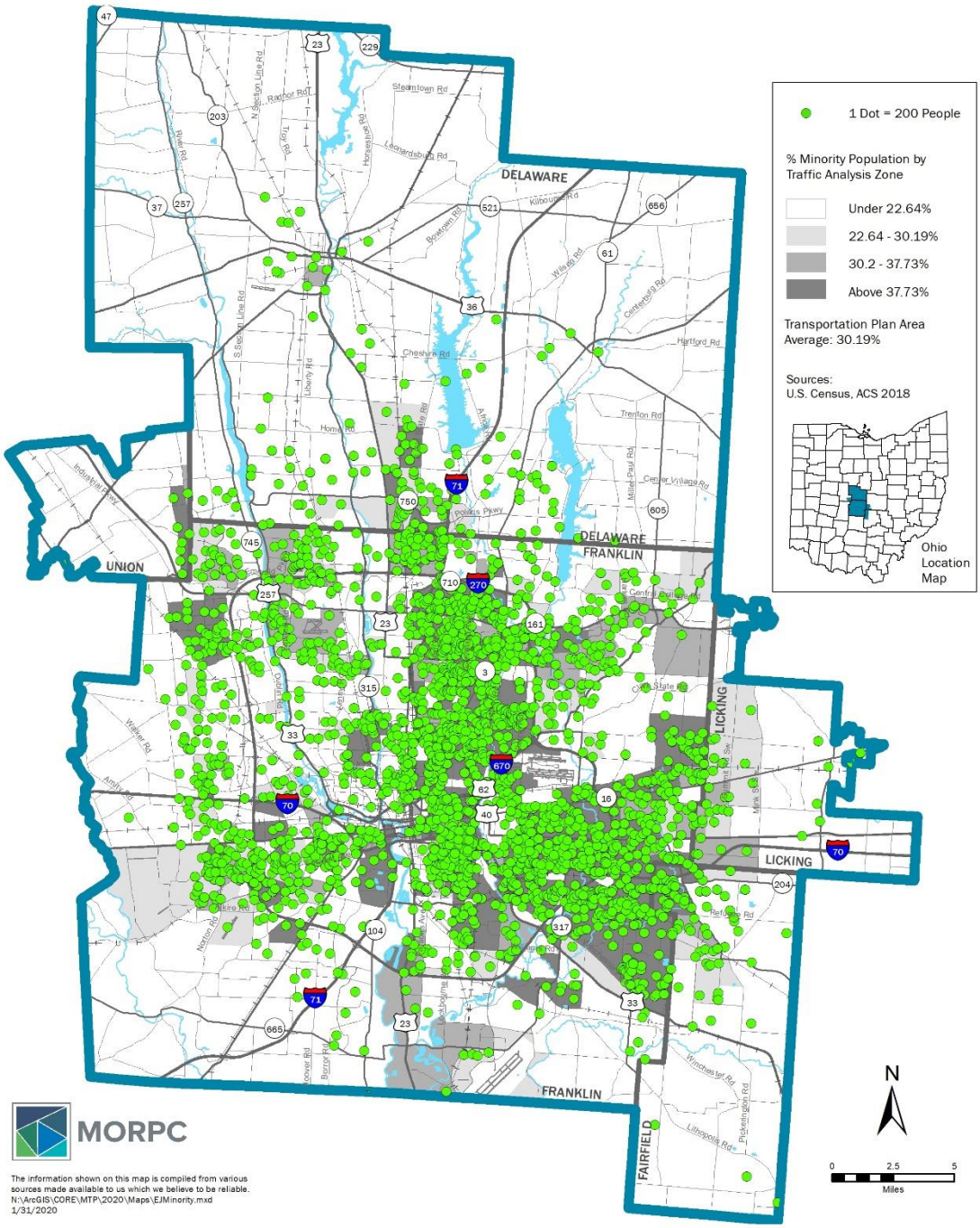
Most higher percentages of minority populations were located in the central parts of the city rather than in the outlying areas including neighborhoods in and around downtown Columbus, the Near East Side, Ohio State University, the Short North, the Linden area, Whitehall, and in the near northeast. In addition, neighborhoods around Eastland Shopping Center and in the south in the area of Groveport Road and SR 104 had much higher percentages of minority populations than the average for the study area. Neighborhoods around Polaris and Dublin have seen much growth in minority populations.

Low-Income Population

Low-income population was identified as people living below the level of poverty. The national poverty guidelines are issued annually by the Department of Health and Human Services. National poverty thresholds vary based on family size. About 14.6 percent of the population within the MORPC MPO area was living below the level of poverty in 2018. Approximately 50 percent of the people in poverty were concentrated in areas that exceeded the threshold. The highest concentration of people living in poverty was in the communities near the Columbus central business district, including the Ohio State University (OSU) area. Areas along Cleveland Avenue, West Broad Street, and East Main Street west of the City of Bexley also showed high concentrations of people living below the poverty level.

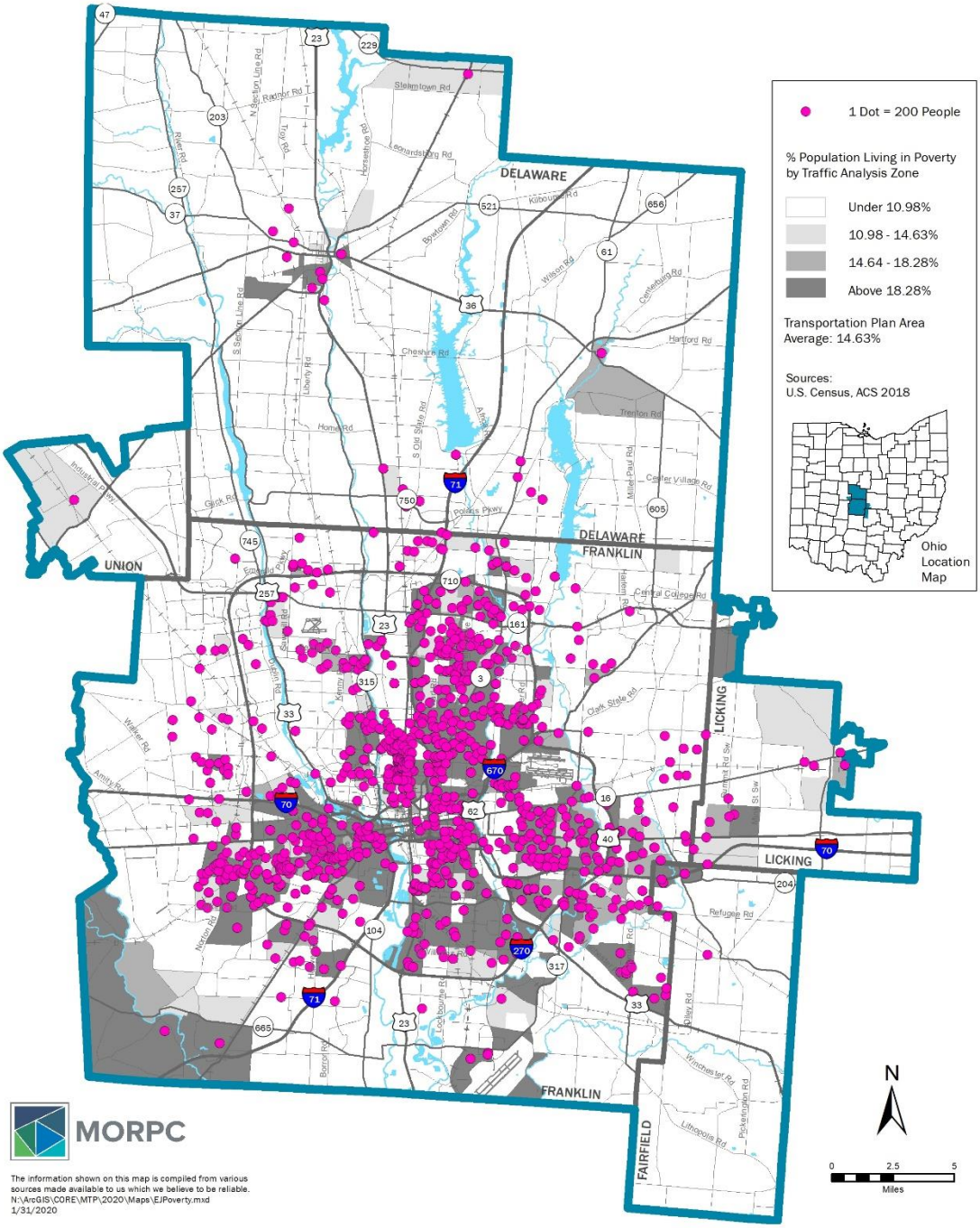
C. Distribution of Target Populations

Figure II-1: Environmental Justice Distribution of Minority Population by TAZ (2018)



Sources: 2014-2018 American Community Survey

Figure II-2: Environmental Justice: Distribution of Population in Poverty by TAZ (2018)



Sources: 2014-2018 American Community Survey

III. QUANTITATIVE MEASURES METHODOLOGY

This section describes the environmental justice measures MORPC has identified and applied to the set of projects in the Transportation Improvement Program. These measures should provide some information on whether or not the transportation investments being made in the region are having disproportionate adverse impacts on the target populations and if the benefits from these investments are equitably distributed.

A. Identification of Measures

In order to identify if there are any adverse or disproportionate impacts on the target populations, measures are needed. Measures compare the relative treatment of the target populations and non-target populations in the planning process and the Transportation Improvement Program. They are not intended to measure how the implementers carry out the plan.

Characteristics of Measures:

- should be meaningful
- should be able to be applied or determined
- may be quantifiable or qualitative
- may be applied to compare targeted areas to other areas or to compare target populations to the other populations throughout the region
- some may be mode-specific (they are either unavailable for some modes or have little meaning)

B. Measures considered

While developing the list of possible measures it seemed that there were different types of measure data that could be developed. The types of measure data are:

- Population based
- Geographic based
- Visual

Population-based measures best address the environmental justice definition in that they provide information on the target population regardless of where they are located. Population-based measures take into consideration small pockets of target populations within non-target populations.

Geographic-based measures, on the other hand, provide information specific to a geographic area. Some information such as congested vehicle miles of travel can only be reported for an identified geographic area. The data reported within these areas are applicable to all of the populations that reside in the particular area. Thus, for an environmental justice analysis identification of the geographic area(s) of interest is very important. The geographic area(s) should have higher than average percentages of the target population and in total account for a large majority of the target population.

The goal of the population- and geographic-based measures is to be able to provide a series of numbers that can be compared to determine if there are environmental justice concerns. There are, however, some data that just can't be boiled down to a number for comparison. These can be classified as visual data. The visual data are usually in the form of maps.

It is not possible to identify one measure that will determine if there are environmental justice issues. However, it is necessary to look at a variety of measures that provide information on different issues. Likewise some measures may only be applicable for autos while others may be transit measures.

Some measures are accessibility measures while others reflect estimated travel. For example, the number of jobs within 20 minutes is a measure of accessibility to jobs. However, average work trip length is based on the estimated pattern of trip making. Estimates of congested vehicle miles of travel are another example of a travel measure.

Some measures could be either an accessibility measure or a travel measure depending on how they are calculated. For example, average travel time to CBD, if based on the estimated pattern of trip making, would be a travel measure. However, if it were calculated based on the average as if everyone made a trip to the downtown, it would be an accessibility measure.

C. Measurements Identified for Application

During the preliminary environmental justice completed in 2000 various measures were identified as appropriate environmental justice measures. Based on the data and methodologies available now, the measures were narrowed down for application in the EJ analysis, which will be described in more details in the next section. Over time additional measures may be developed depending on the available data and methodology.

D. Measurement Methodology

All of the measures described in this section were developed from MORPC's latest activity-based travel demand forecasting model process. The travel demand forecasting process takes basic land use and transportation system information and estimates travel patterns and volumes on the transportation system.

The activity-based model needs land uses and socioeconomic data aggregated at traffic analysis zones (TAZs). There are 1,618 TAZs in MORPC's transportation planning area. From this information the number of trips generated by each TAZ is estimated. In the travel demand modeling chain, the model micro-simulates daily activities for each individual household. The activity locations will be chained together to form a tour, which would start and end at the same base location (i.e., home or workplace). These tours for each person are then aggregated into the trips by modes at the TAZ level. Then trips made in a vehicle are "assigned" to the highway network taking into account the characteristics of the highway network. Similarly, trips made by transit are assigned to the transit network. The results provide estimates of the daily number of vehicles or passengers on the network facilities.

MORPC compiles comprehensive land use sets regularly. The most current set is for 2018. In addition, MORPC reviews local land use plans, regional population projections and other information to create future horizon year estimates of the data. Our horizon year is 2050.

For most measures, data for three different scenarios are presented. The first represents the 2018 conditions. The next two represent projected 2050 conditions under two transportation system assumptions. The first scenario is the No-Build condition that means no other projects are completed except for those currently in construction today. The other scenario assumes all of the projects in the Transportation Improvement Program are constructed.

The following describes measures in more detail and the methodology used to develop the value of the various measures. Section IV presents the results of the measures.

Estimating 2050 Target and Non-Target Populations by Zone

In order to create the population-based measures, it is necessary to estimate the target and non-target population within each TAZ. However, in the land use variables for 2050 only total population by TAZ is developed. The most recent data are from the 2014-2018 American Community Survey. Thus, it was necessary to develop a procedure to estimate 2050 target populations by zone.

In estimating the target populations by traffic zone, it was assumed that the total regional percentage for each population would be the same percentage as the 2018 percentage. For example, the regional percentage in poverty in 2018 was 14.6 percent. Thus, for the forecasted 2050 populations, it was assumed that the regional poverty percentage would remain at 14.6 percent.

By using the 2018 zonal percentages as a starting point, adjustments were made to zones throughout the region in order to achieve the same regional percentage as in 2018. The adjusted population was spread throughout the region based on this starting distribution of the particular target population. For example, assume 10,000 additional poverty population is needed for the horizon year 2050 to achieve the same 14.6 percent as in 2018. If, in the starting 2050 distribution, one TAZ had 1 percent of the total poverty population, an additional 100 (=10,000*.01) poverty persons were added to the zone. Likewise, a zone with 0.1 percent of the total poverty population received an additional 10 (=10,000*0.001) poverty persons. During this process, it was ensured that total target population did not exceed the total population of each zone.

Average Number of Job Opportunities Close

This measure estimates the average number of jobs there are within a specified travel time. The number of jobs by TAZ is one of MORPC's standard variables. First, the model was used to estimate peak period auto travel times and peak and off-peak transit travel times from each TAZ to every other TAZ. This is commonly referred to as a travel-time skim. Next, for each TAZ based on the skim, the total number of jobs within 20 minutes by auto and 40 minutes by transit were calculated. Finally, a weighted average of the number of jobs was calculated based on the number of each population group within each TAZ.

Average Number of Shopping Opportunities

This measure estimates the average number of shopping attractions there are within a specified travel time. Shopping attractions is an item that is estimated through the modeling

process. As stated previously, in the MORPC's model, the base travel unit of modeling is a tour that is a closed chain of trips starting and ending at the same base location and connecting activity locations in between. Each activity location has a trip purpose. One shopping attraction is added to a zone wherever an activity with shopping purpose occurs. Therefore, the shopping attractions are not a measure of the number of stores, but a measure of how many trips these stores attract on a typical day. This measure is developed in the same manner as job opportunities. Auto and transit travel-time skims were first developed, the total number of attractions within various travel times was calculated and a weighted average of the number of attractions was calculated based on the number of each population group within each TAZ. A 20-minute auto travel time and a 40-minute transit travel time were selected as the thresholds.

Average Number of Non-Shopping Opportunities

This measure estimates the average number of non-shopping attractions there are within a specified travel time. These attractions are for quality-of-life trips such as doctor's appointments, going to the bank and other non-shopping errands from home (namely, the purposes of the tours are other maintenance, discretionary and eating out in the model). Once again this is an item that is estimated through the modeling process and it is not a measure of the number of places, but a measure of how many trips these places attract on a typical day. This measure is developed in the same manner as shopping opportunities. Auto and transit travel-time skims were first developed, the total number of attractions within various travel times was calculated and a weighted average of the number of attractions was calculated based on the number of each population group within each TAZ. A 20-minute auto travel time and a 40-minute transit travel time were selected as the thresholds.

Percent of Population Close to a College

This measure estimates the percentage of population groups that are within a specified time to the closest college. A travel-time threshold of 20 minutes for auto and 40 minutes for transit were selected to match the thresholds used for job opportunities. The following colleges were used: Ohio State, Columbus State, Capital, Columbus College of Art & Design, Otterbein, DeVry Institute of Technology, Franklin, Mount Carmel College of Nursing, and Ohio Dominican. The measure was developed by using the travel-time skims to identify the travel time from every zone to each college. The minimum time was then determined and the population for each group was summed for all the zones that were less than 20 minutes for auto and 40 minutes for transit.

Percent of Population Close to a Hospital

This measure estimates the percentage of population groups that are within a specified time to the closest hospital. A travel-time threshold of 20 minutes for auto and 40 minutes for transit was selected to match the thresholds used for other home-based opportunities. The following hospitals were used in the analysis for all scenarios: Grady Memorial Hospital, Dublin Methodist Hospital, Mount Carmel St. Ann's Hospital, Mount Carmel New Albany Surgical Hospital, Riverside Methodist Hospital, the Woods at Parkside Hospital, Ohio State University Hospital, Select Specialty Hospital - Columbus, Doctors Hospital, Mount Carmel West Hospital, Grant Medical Center, Ohio State University Hospital East, Nationwide Children's Hospital, Mount Carmel East Hospital, Regency Hospital, OhioHealth Westerville

Medical Campus, Mount Carmel Grove City Medical Center, and Ohio Health Medical Campus at Hill Road. Hospitals were chosen not for the purposes of transport to emergency rooms, but because hospitals usually have complexes of medical offices in their vicinity. The original task force suggested using the various outpatient clinics and other small medical facilities, but these are too numerous and cannot be predicted into the future.

The measure was developed in the same manner as percent of population close to colleges. Travel-time skims were used to identify the travel time from every zone to each hospital. The minimum time was then determined and the population for each group was summed for all the zones that were less than 20 minutes for auto and 40 minutes for transit.

Percent of Population Close to a Major Retail Destination

This measure estimates the percentage of population groups that are within a specified time to the closest major retail destination. A travel-time threshold of 20 minutes for auto and 40 minutes for transit was selected to match the thresholds used for shopping opportunities. The following major retail destinations were used in the analysis: Polaris Fashion Place area, Tuttle Crossing Mall area, Easton Square area, Sawmill & SR 161 area, North Pointe Plaza area, Carriage Place area, Graceland area, Columbus Square area, Stone Ridge Plaza area, Westpointe Plaza area, Consumer Square west area, Lennox Town Center area, Eastland Mall area, Chantry Square area, and Taylor Square area.

The measure was developed in the same manner as percent of population close to colleges. Travel-time skims were done to identify the travel time from every zone to each major retail destination. The minimum time was then determined and the population for each group was summed for all the zones that were less than 20 minutes for auto and 40 minutes for transit.

Average Travel Time from Home to Mandatory (Work, University and School) Destinations

Through the modeling process, different activity locations are associated with different activity purposes. One of these purposes is mandatory purposes as Work, University and School. The previous measures discussed were accessibility measures. This measure, however, is a measure of average travel estimate from persons' home to their mandatory activity destinations. Instead of tracing through all the other possible activity locations, the measure is a direct travel time measure between home and mandatory destinations, by travel mode, for different population groups.

To compute this measure, first the different-period travel-time skims were matched up with each mandatory activity arrival time simulated in the model. The direct travel time from individuals' home to their mandatory destinations was added up for EJ and Non-EJ population groups, respectively. Then, the travel time was averaged on each originating home zone. Finally, the average travel time was weighted by population group in each home zone.

It should be noted that when estimating the average travel time for each mode it is calculated only when the specific travel mode was made to reach the destination in the model, by individuals in the exact population groups. However, certain travel mode may not always be available by the transit when traveling directly from home to mandatory destinations, which would then be thrown out when estimating this measure for transit.

Average Travel Time from Home to Shopping Destinations

This measure is similar to the measure "Average Travel Time from Home to Mandatory (Work, University, and School) Destinations". The only different is the activity purpose is shopping. This measure is a direct travel time measure between home and shopping destinations, by travel mode, for different population groups.

This measure is estimated in the same manner, as is the measure "Average Travel Time from Home to Mandatory (Work, University, and School) Destinations".

Average Travel Time from Home to Other Destinations

There are still other activities that are neither shopping nor work related. These include going to the doctor, bank, restaurant, recreation and other errands. We grouped all these activities as other purposes. This measure is a direct travel time measure between home and other destinations, by travel mode, for different population groups.

This measure is estimated in the same manner, as is the measure "Average Travel Time from Home to Mandatory (Work, University, and School) Destinations".

Average Travel Time from Home to All Destinations

This measure includes all the destinations (except home itself). This measure a direct travel time measure between home and all destinations, by travel mode, for different population groups. The measure is estimated in the same manner, as were the three previous measures.

Average Travel Time to Columbus CBD

The average travel time to the Columbus CBD is a measure of the accessibility to the downtown. It is determined by using the travel-time skims and determining the time from each zone to the statehouse in the downtown. A weighted average for each population group was then calculated based on the population in each zone. For transit average travel time to the CBD, only the zones that have walk access to transit are included in the average.

Transit Accessibility to Columbus CBD

This measure determines the percentage of each population group that has access to the CBD by transit because the entire region does not have transit service. This measure is determined by identifying zones that have walk access to transit service accessible to CBD area. Then the population within these zones for each group is summed and the percentage of the total population for the group calculated.

Congested Vehicle Miles of Travel during Peak Hours

This measure is a geographic measure. Before preparing this measure it is necessary to define a geographic target area. The geographic target area should constitute a large portion of the target population groups, have higher than average percentages of target population

groups, and be defined in such a way that it is whole with smooth boundaries. The area defined will be discussed in the application section.

This measure estimates the percentage of travel in the target and non-target areas that are either moderately or highly congested during the peak hours that includes both AM and PM peak periods.

Transportation Investments

This is also a geographic measure. The location of projects that have been included in the Transportation Improvement Program was compared to the geographic target areas and the total dollar amount of these highway investments calculated.

Displacements from Highway Projects

During the preparation of the Metropolitan Transportation Plan, all projects were qualitatively assessed as to the possible number of displacements resulting from the project. There are no projects in the target area with likely high displacements. As the projects proceed through the environmental process, the number of displacements will be determined and any environmental justice issues will be addressed at that time.

IV. ANALYSIS AND RESULTS

This section presents the results of applying the measures to the three scenarios, year 2018, year 2050 No-Build and year 2050 MTP. Much of the data are presented through charts with the data tables included in Attachment A.

A. Average Number of Job Opportunities Close

Figures IV-1 through IV-3 shows the target populations on average have access to much more jobs than non-target populations do by either auto or transit. Also, when compared to the 2050 No-Build, 2050 MTP populations have access to more jobs by auto and the gains appear to be relatively uniform across all of the population groups. When compared to the 2050 No-Build, 2050 MTP populations have access to more jobs by both peak and off-peak period transit travel and the gains appear to be relatively uniform across all of the groups. This increase by transit travel is mainly due to the improved level of service along roadways. With regard to this measure it would appear that there are no adverse impacts on the target populations and no prominent disproportionate impacts among the population groups.

Figure IV-1

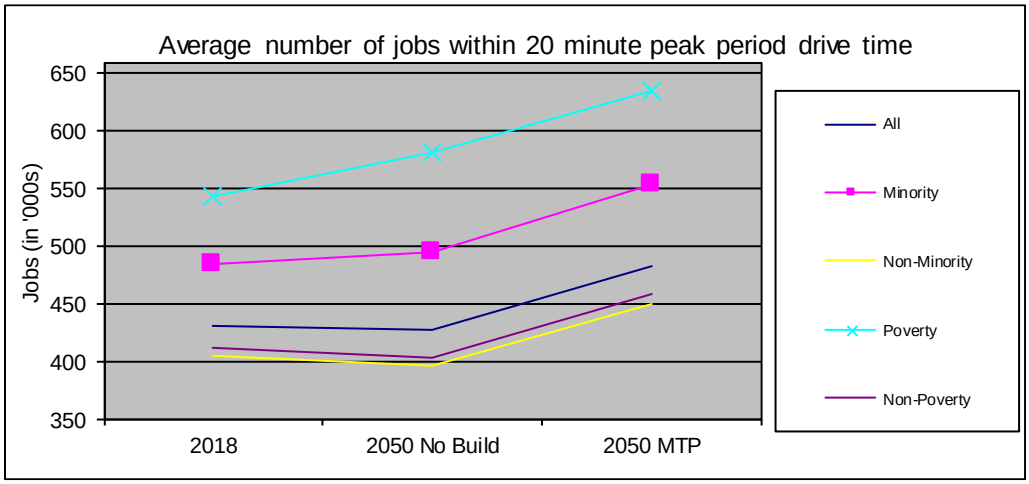


Figure IV-2

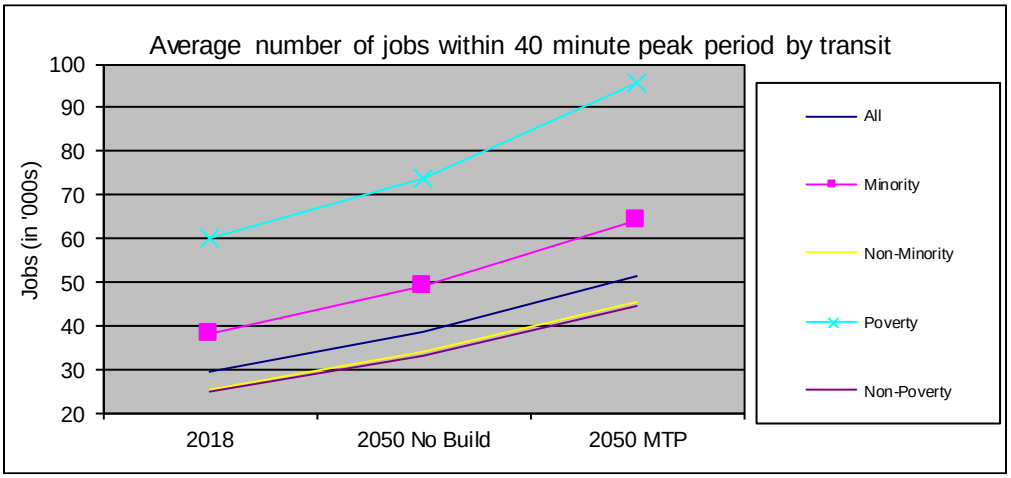
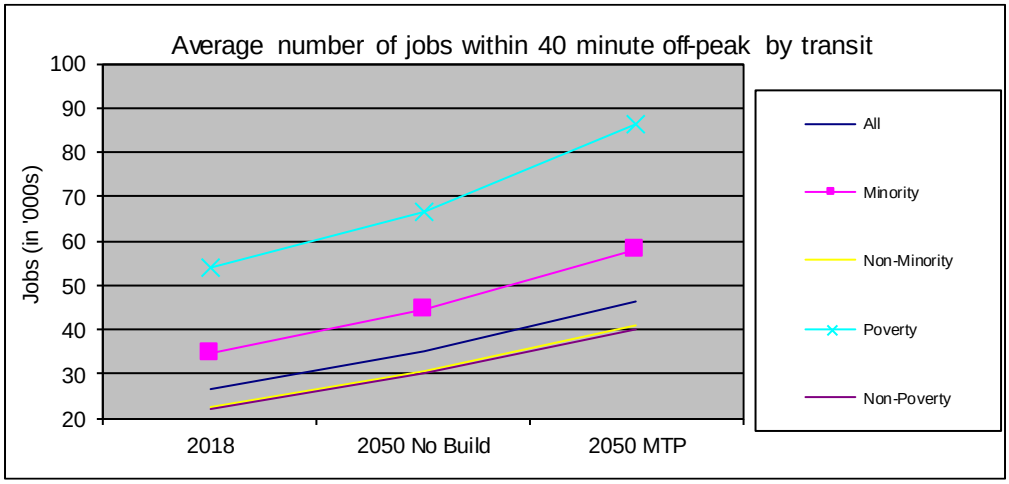


Figure IV-3



B. Average Number of Shopping Opportunities

Figures IV-4 through IV-6 show that the target populations on average have access to more shopping opportunities than non-target populations do by either auto or transit. Also, when compared to the 2050 No-Build, 2050 MTP populations have access to more shopping opportunities by auto and the gains appear to be relatively uniform across all of the population groups, except for poverty population. However, the poverty population still has much more shopping opportunities than all other population groups. When compared to the 2050 No-Build, 2050 MTP populations have access to more shopping opportunities by both peak and off-peak period transit travel and the gains appear to be relatively uniform across all of the groups. This increase by transit travel is mainly due to the improved level of service along roadways. With regard to this measure, it would appear that there are no adverse impacts on the target populations and no prominent disproportionate impacts among the population groups.

Figure IV-4

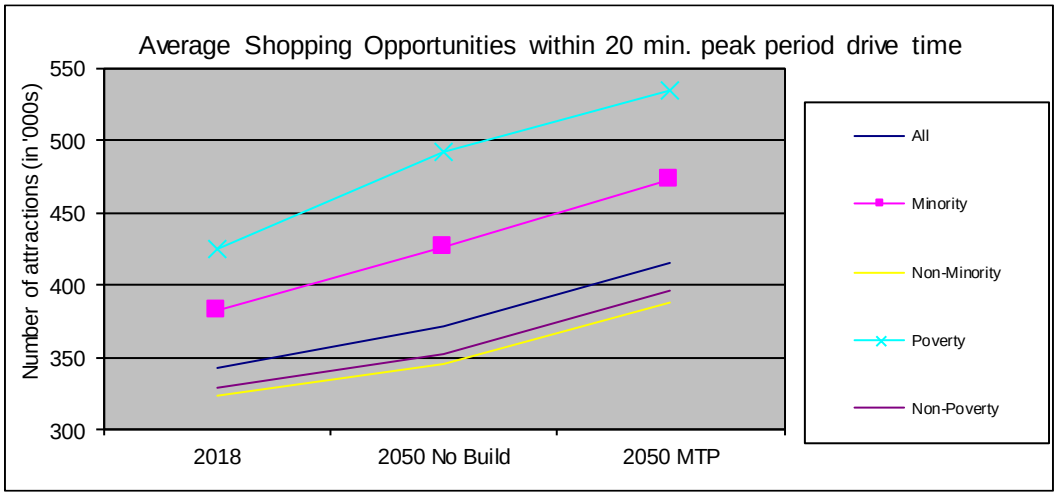


Figure IV-5

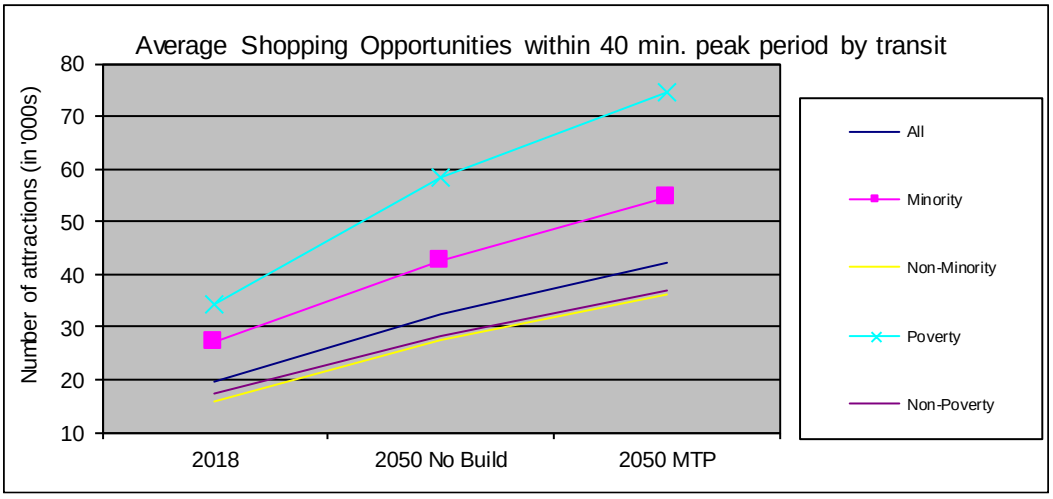
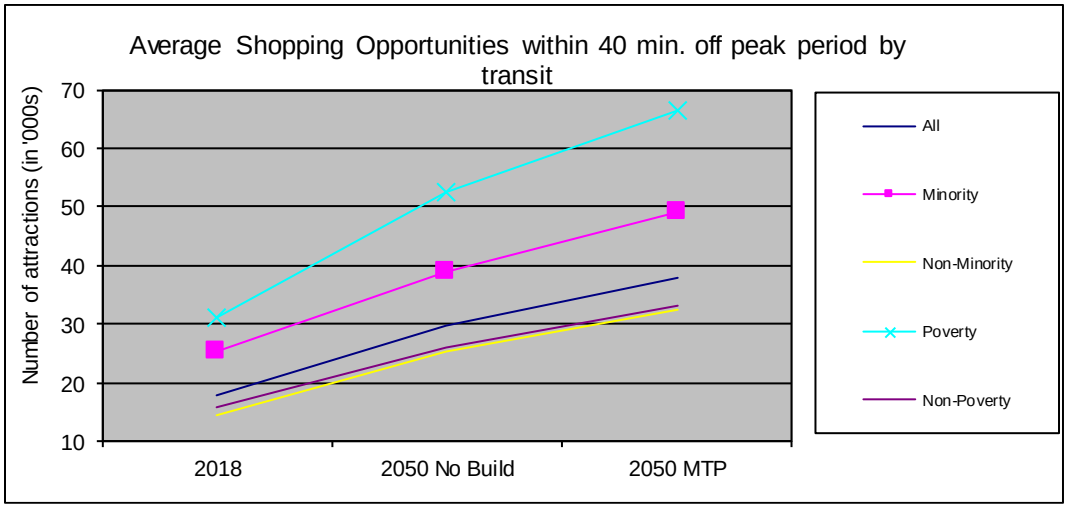


Figure IV-6



C. Average Number of Non-Shopping Opportunities

Figures IV-7 through IV-9 show that the target populations on average have access to more opportunities for non-shopping trips than the non-target populations. Also, when compared to the 2050 No-Build, 2050 MTP populations have access to more opportunities by auto and the gains appear to be relatively uniform across all of the population groups. When compared to the 2050 No-Build, 2050 MTP populations have access to more opportunities by both peak and off-peak period transit travel and the gains appear to be relatively uniform across all of the groups. This increase by transit travel is mainly due to the improved level of service along roadways. With regard to this measure it would appear that there are no adverse impacts on the target populations and no prominent disproportionate impacts among the population groups.

Figure IV-7

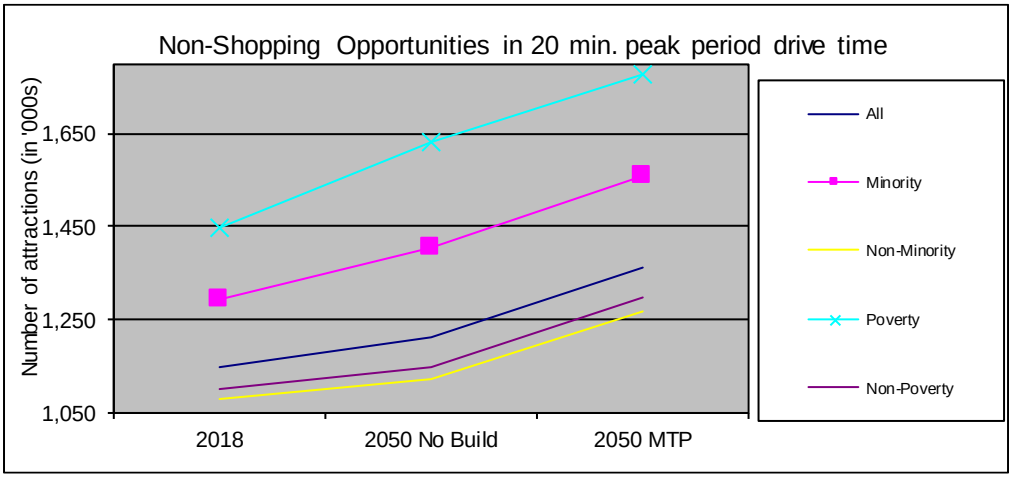


Figure IV-8

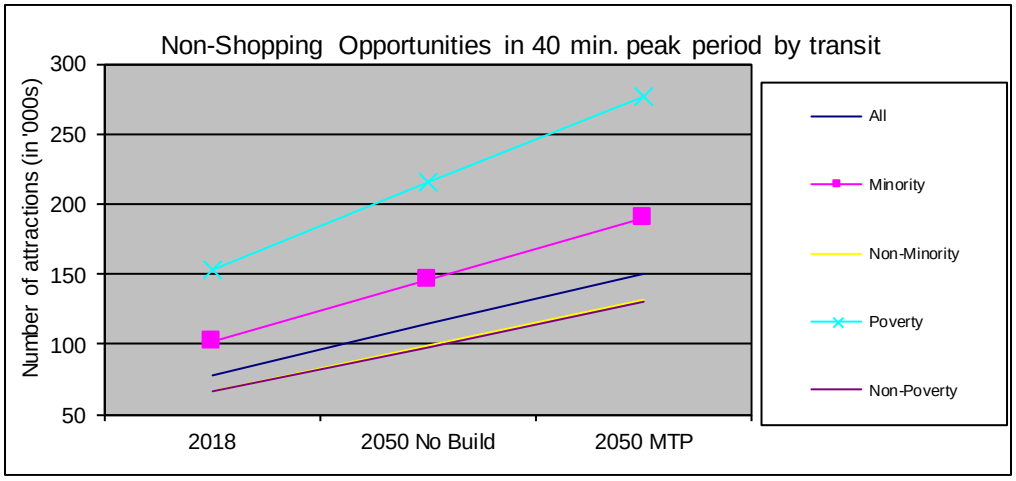
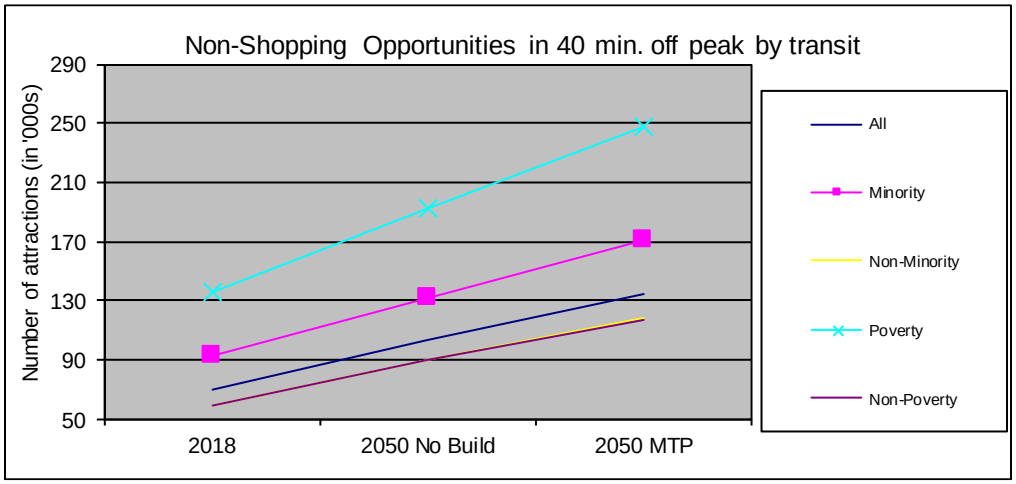


Figure IV-9



D. Percent of Population Close to a College

Figures IV-10 through IV-12 shows a higher percentage of target populations within 20 minutes of auto drive time or 40 minutes of transit time to a college than are non-target populations. When compared to the 2050 No-Build, a higher percentage of 2050 MTP populations is within 20 minutes' auto drive time to a college and the gains appear to be relatively uniform across all the population groups. When compared to the 2050 No-Build, there are no gains or slightly increase in 2050 MTP populations that are within 40 minutes' both peak and off-peak transit travel time to a college and the changes appear to be relatively consistent between target and non-target populations. With regard to this measure it appears that there would be no disproportionate negative impacts on the target populations.

Figure IV-10

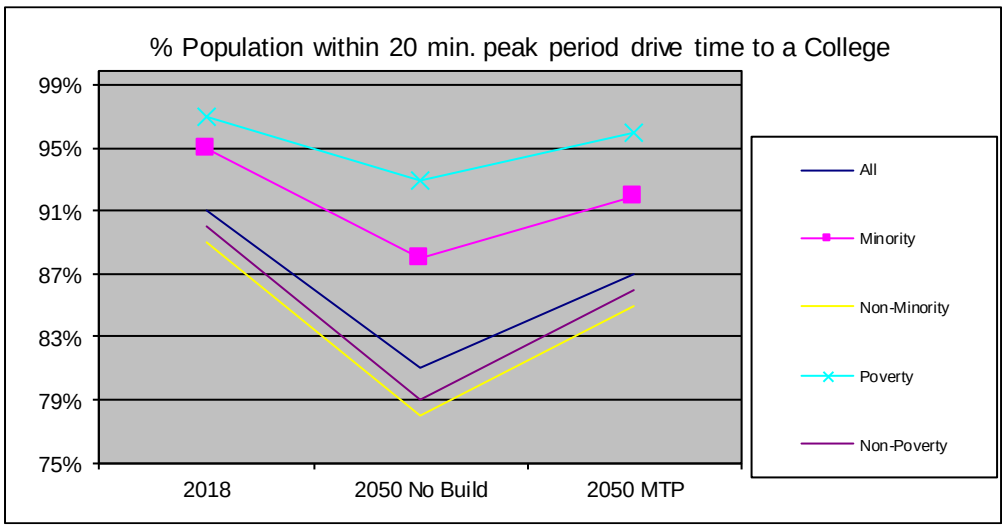


Figure IV-11

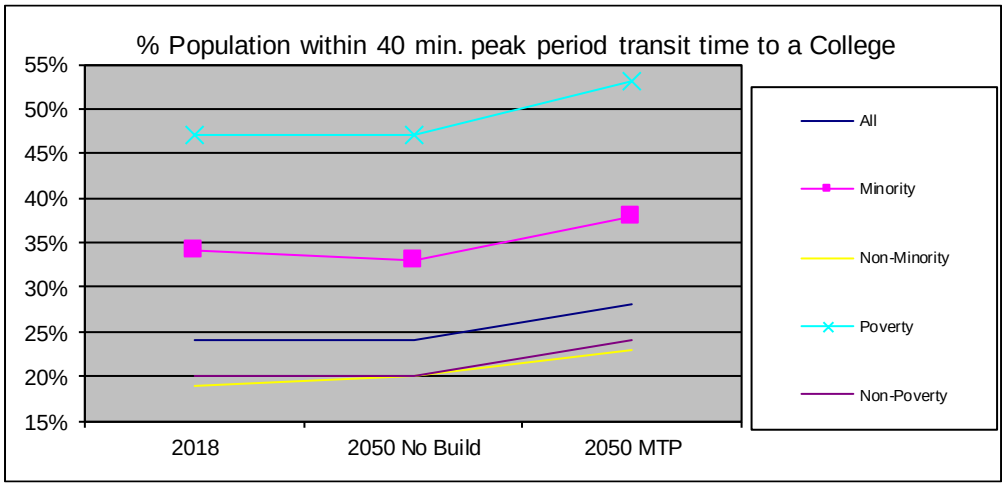
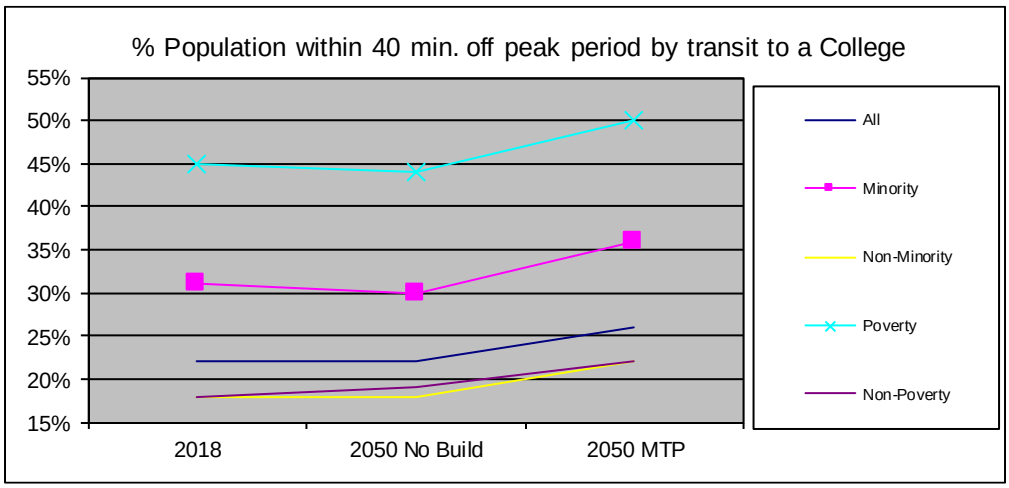


Figure IV-12



E. Percent of Population Close to a Hospital

Figures IV-13 through IV-15 shows a higher percentage of target population is within 20 minutes of auto drive time or 40 minutes of transit time to a hospital than non-target populations. Also, when compared to the 2050 No-Build, a higher percentage of 2050 MTP populations is within 20 minutes to a hospital by auto and the gains appear to be relatively uniform across all of the population groups. When compared to the 2050 No-Build, a similar percentage of 2050 MTP populations is within 40 minutes' both peak and off-peak transit travel time to a hospital and the changes appear to be relatively consistent between target and non-target populations. With regard to this measure it appears that there would be no disproportionate negative impacts on the target populations.

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Figure IV-13

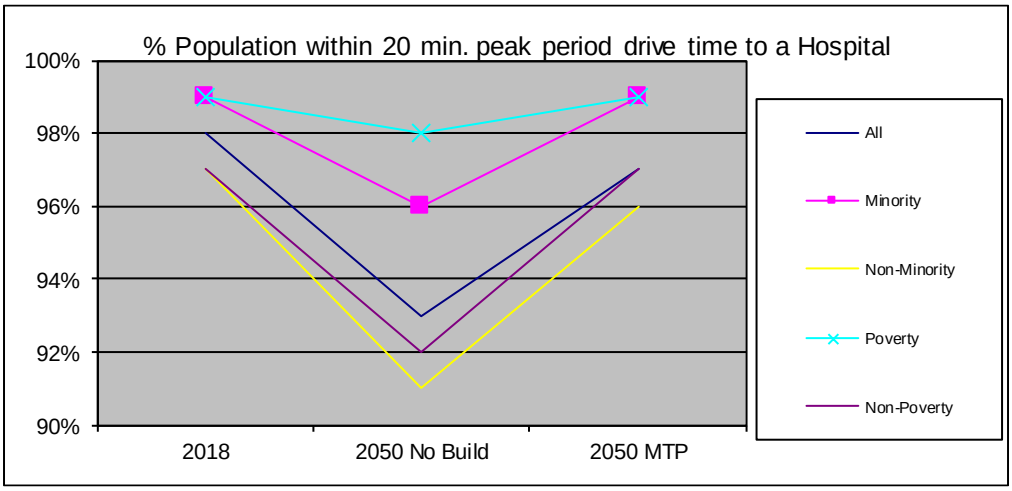


Figure IV-14

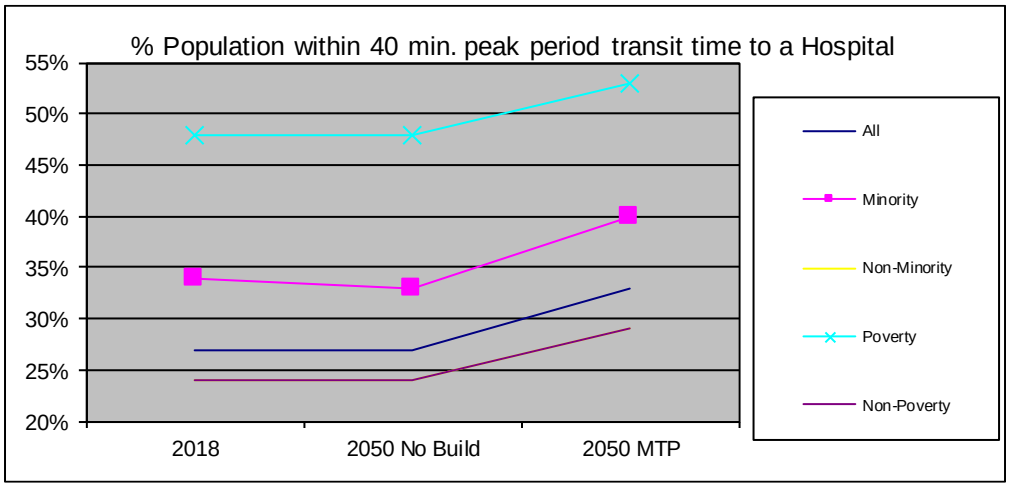
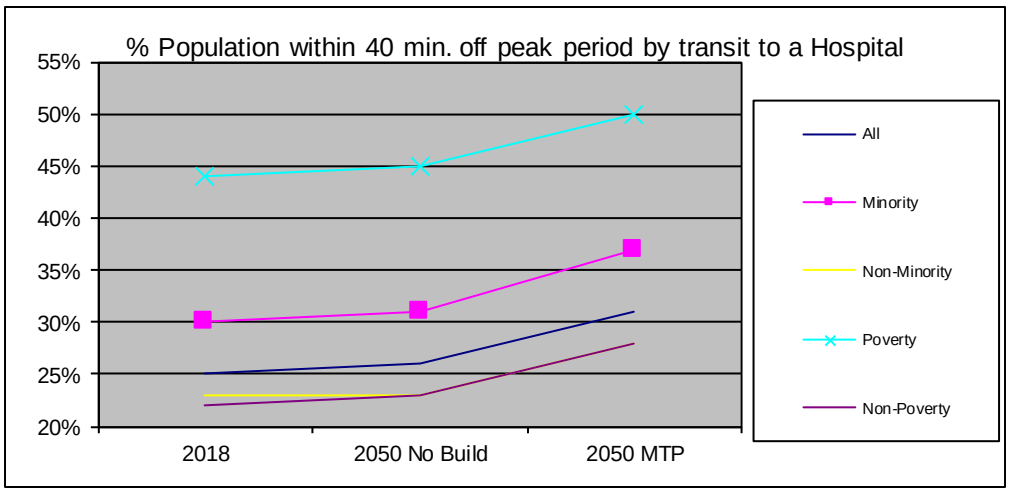


Figure IV-15



F. Percent of Population Close to a Major Retail Destination

Figures IV-16 through IV-18 shows higher percentages of target populations within 20 minutes of auto drive time or 40 minutes of transit time to a major retail destination than are non-target populations. When compared to the 2050 No-Build, a same or slightly higher percentage of 2050 MTP populations is within 20 minutes to a major retail destination by auto or transit and the gains appear to be relatively uniform across all of the population groups. With regard to this measure it would appear that there are no adverse impacts on the target populations and no prominent disproportionate impacts among the population groups.

Figure IV-16

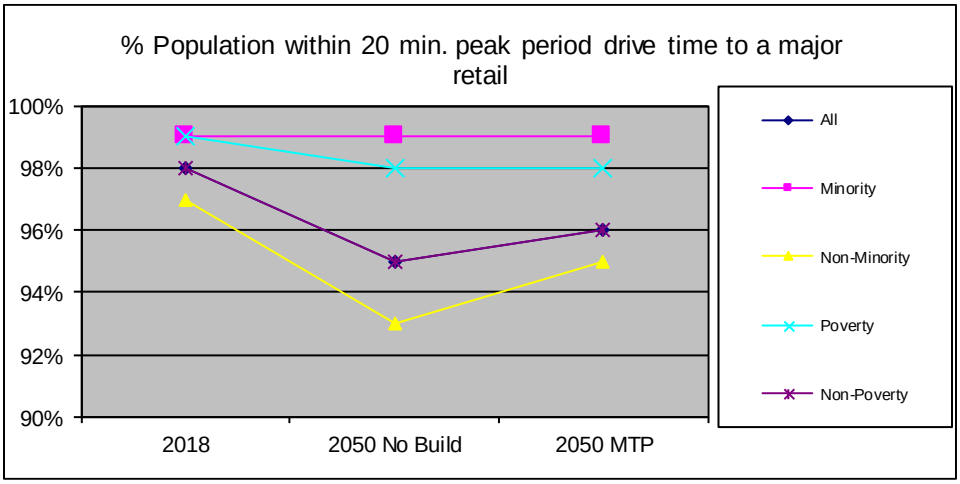


Figure IV-17

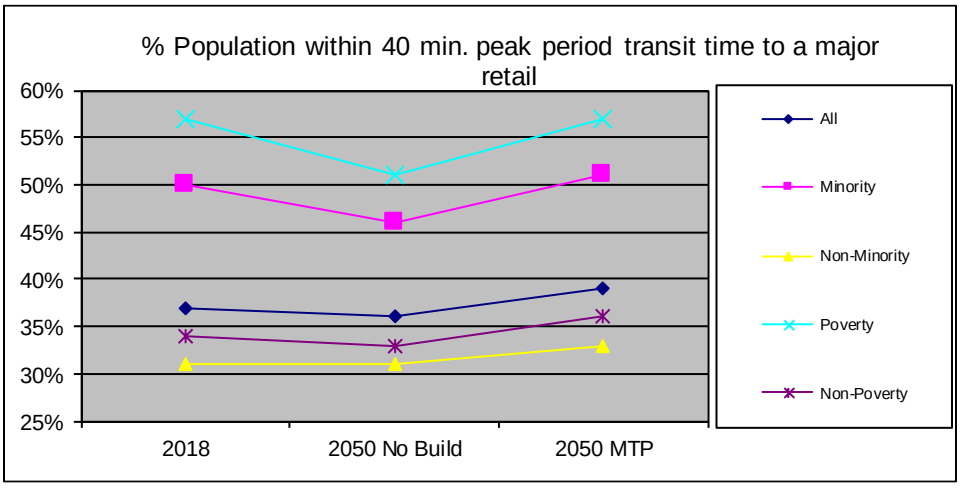
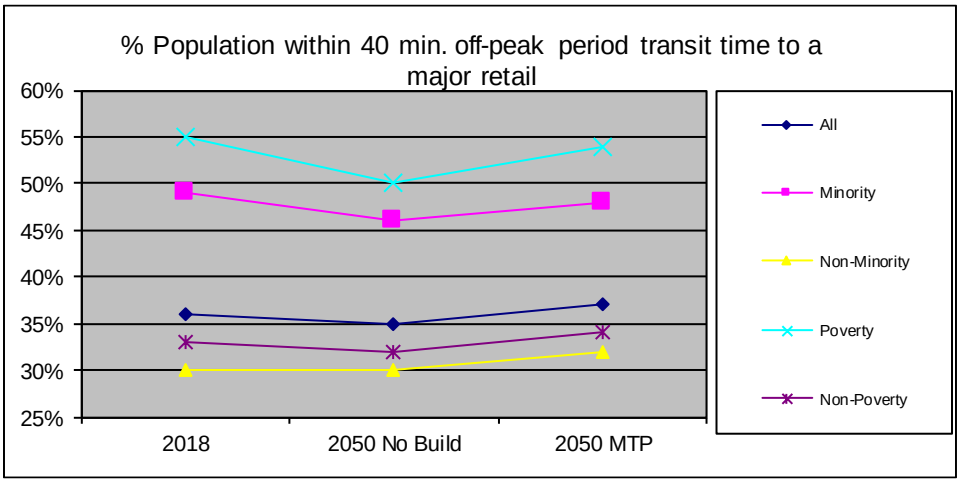


Figure IV-18



G. Average Travel Time from Home to Work, University and School Destinations

Figures IV-19 through IV-20 shows the average travel time between one's home and their work, university or school destination for target populations is less than that for non-target populations. Also, when compared to the 2050 No-Build, auto and transit travel time decreases for 2050 MTP populations and the improvements appear to be relatively uniform across all of the population groups. With regard to this measure it appears that there would be no disproportionate negative impacts on the target populations.

Figure IV-19

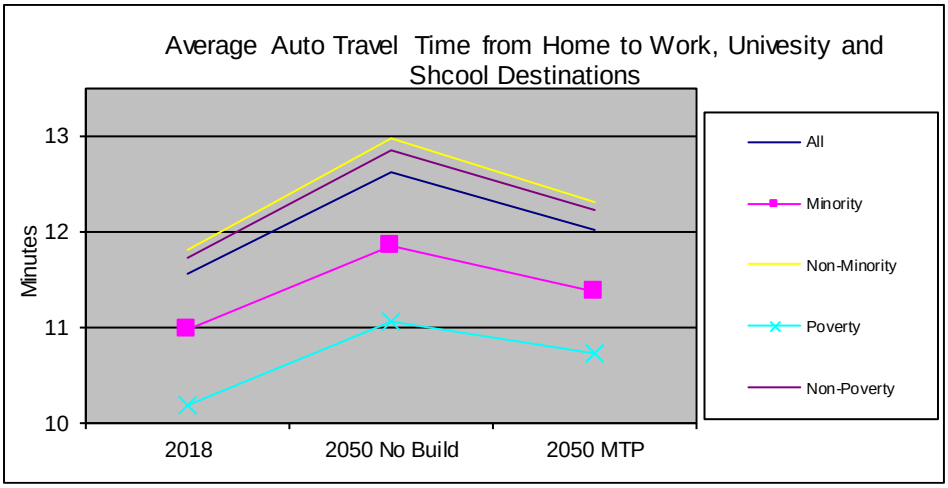
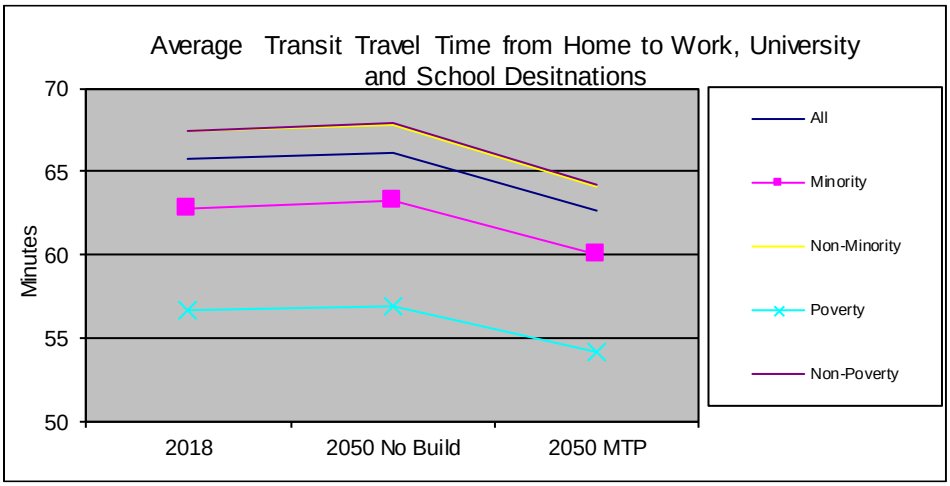


Figure IV- 20



H. Average Travel Time from Home to Shopping Destinations

Figures IV-21 through IV-22 shows the average travel time between one's home and their shopping destination for target populations is less than or similar to that for non-target populations. Also, when compared to the 2050 No-Build, auto travel time decreases for 2050 MTP populations and the improvements appear to be relatively uniform across all of the population groups. When compared to 2050 No-Build, transit travel time decreases slightly or remains the same for 2050 MTP populations. With regard to this measure it would appear that there are no adverse impacts on the target populations and no prominent disproportionate impacts among the population groups.

Figure IV-21

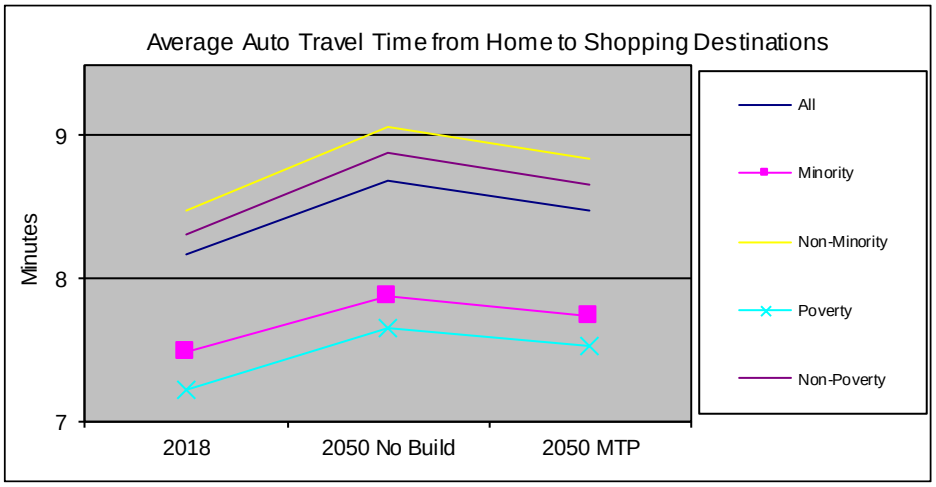
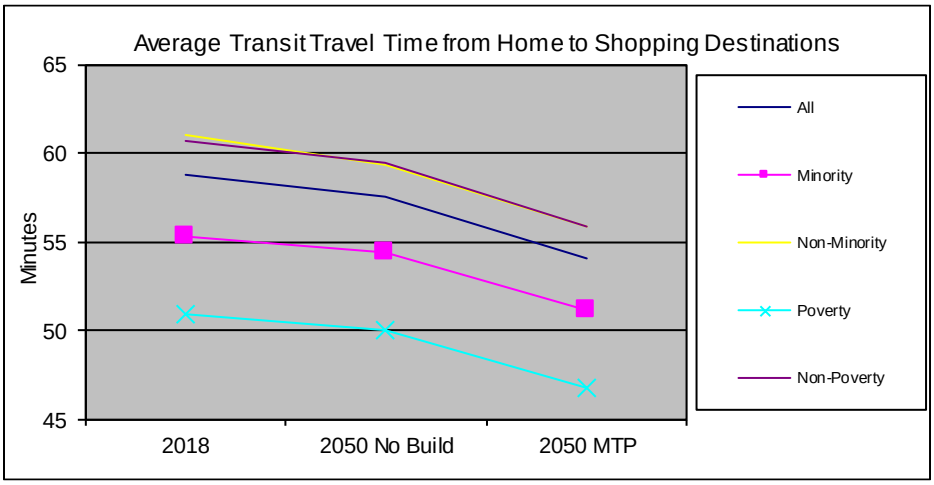


Figure IV- 22



I. Average Travel Time from Home to Other Destinations

Figures IV-23 through IV-24 shows the average travel time between one's home and their destination for other purposes for target populations is less than or similar to that for non-target populations. Also, when compared to the 2050 No-Build, both auto and transit travel time decreases for 2050 MTP populations and the improvements appear to be relatively uniform across all of the population groups. With regard to this measure it appears that there would be no disproportionate negative impacts on the target populations.

Figure IV-23

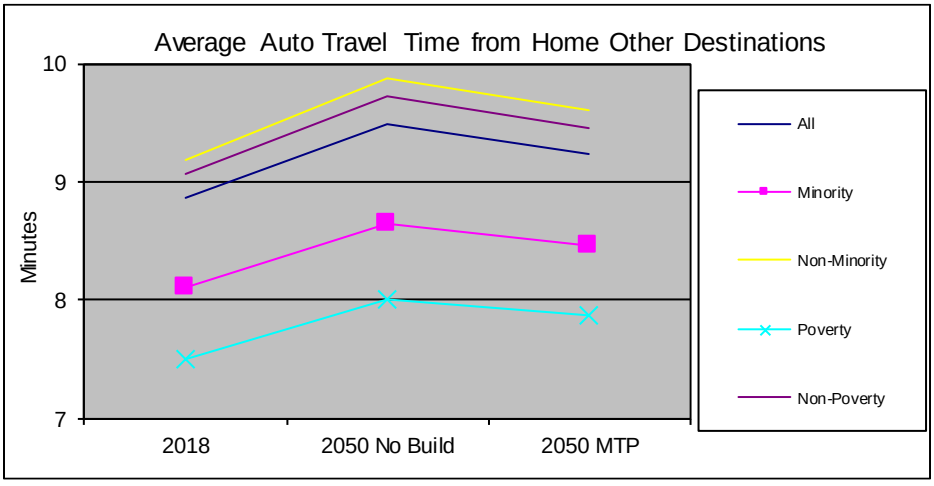
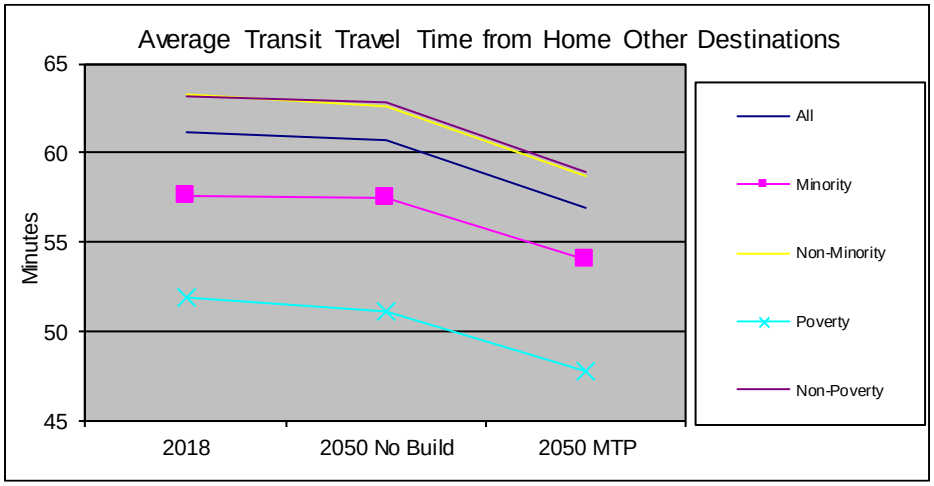


Figure IV-24



J. Average Travel Time from Home to All Destinations

Figures IV-25 through IV-26 shows the average travel time between one's home and all their destinations for target populations is less than that for non-target populations. Also, when compared to the 2050 No-Build, both auto and transit travel time decreases for 2050 MTP populations and the improvements appear to be relatively uniform across all of the population groups. With regard to this measure it appears that there would be no disproportionate negative impacts on the target populations.

Figure IV-25

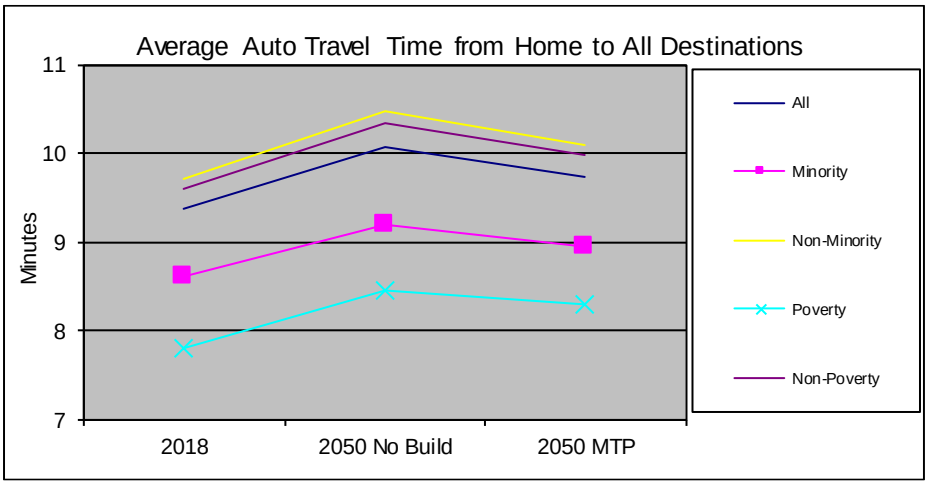
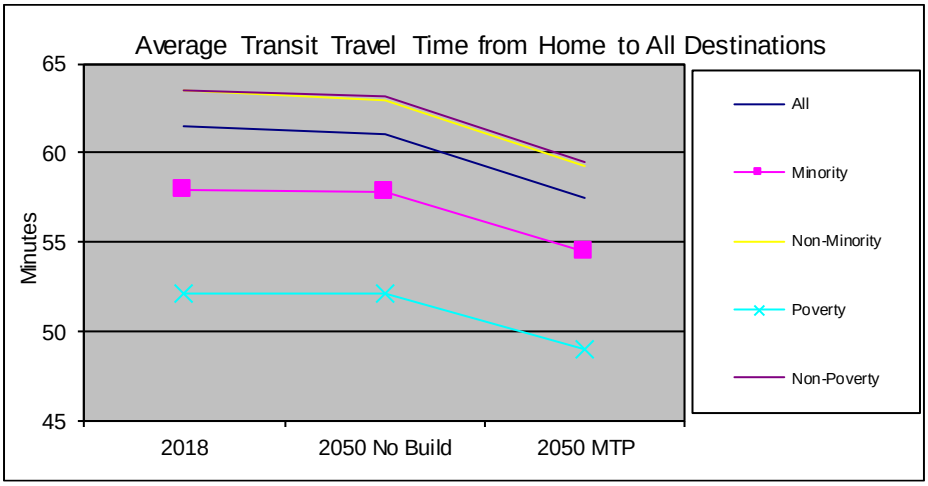


Figure IV-26



K. Average Travel Time to Columbus CBD

Figure IV-27 to IV-30 shows that for each scenario the average travel time to the Columbus CBD is less for the target populations than for non-target populations. Also, when compared to the 2050 No-Build, peak auto travel time to CBD decreases for 2050 MTP populations while off-peak auto travel time to CBD remains the similar. When compared to 2050 No-Build, peak transit travel time decreases for all 2050 MTP populations while off-peak transit travel time remains the same or slightly decreases. The improvements appear to be relatively uniform across all of the population groups. With regard to this measure it would appear that there are no adverse impacts on the target populations and no disproportionate impacts among the population groups.

Figure IV-27

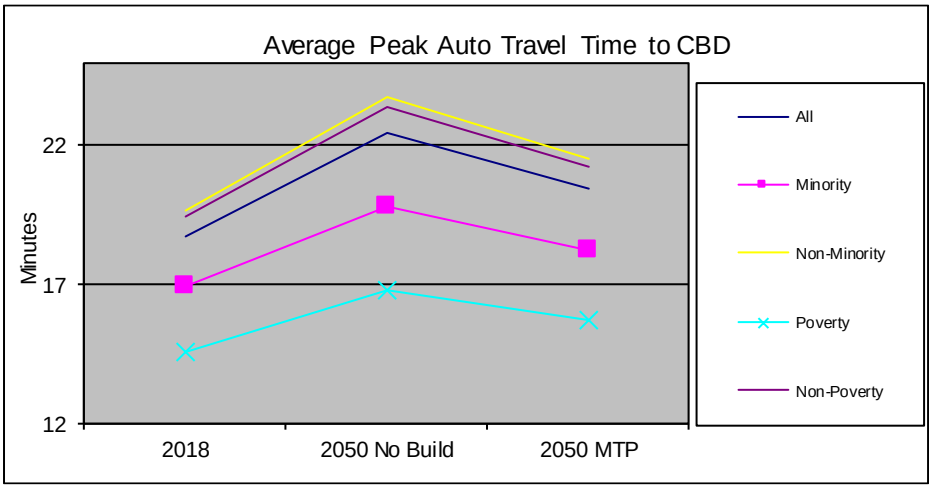


Figure IV-28

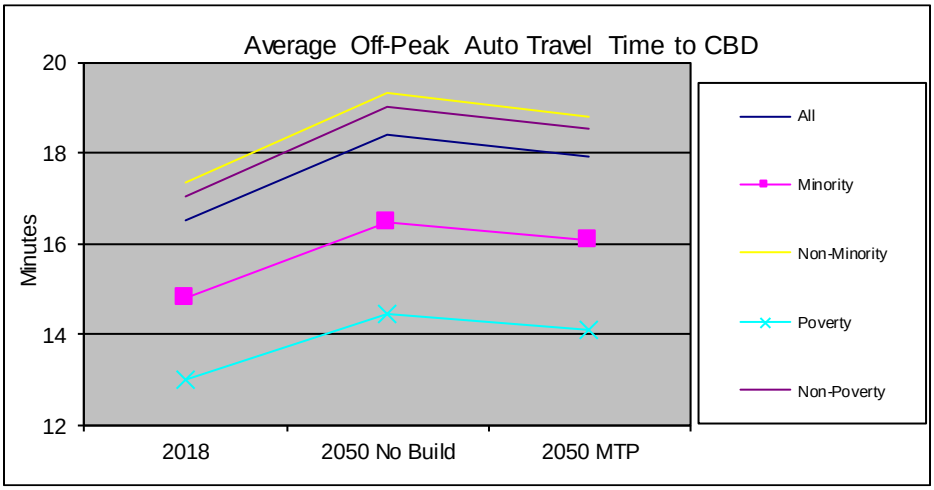


Figure IV-29

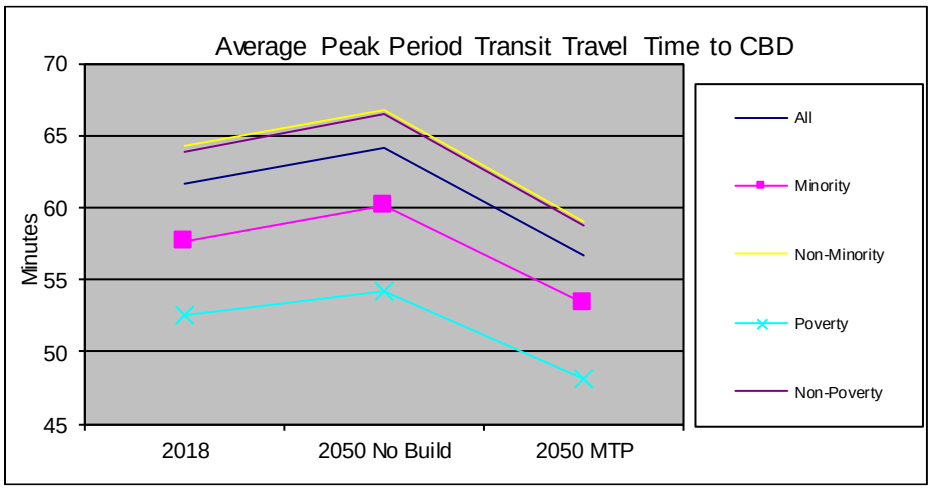
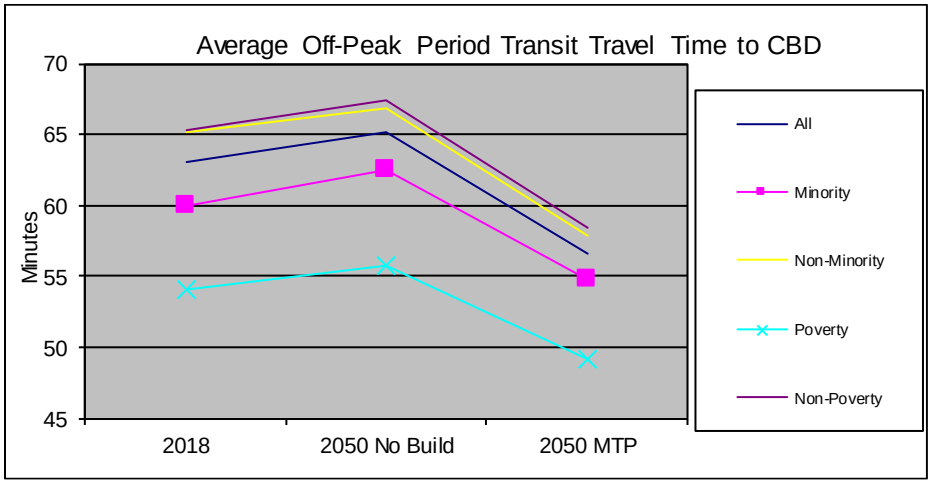


Figure IV-30



L. Transit Accessibility to Columbus CBD

Figures IV-31 and IV-32 show the percent of population that is accessible to the Columbus CBD by transit. This figure shows that for each scenario the percent of population accessible to the Columbus CBD is higher for the target populations than for non-target populations. When compared to the 2050 No-Build, a similar percentage of 2050 MTP population is accessible to the CBD during peak hours and it appears to be relatively uniform across all of the population groups. With regard to this measure it appears that there would be no disproportionate negative impacts on the target populations.

Figure IV-31

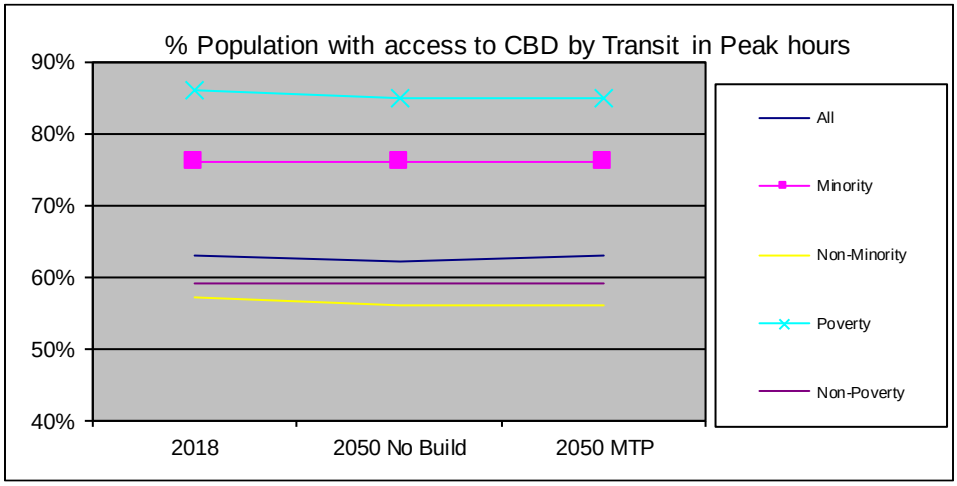
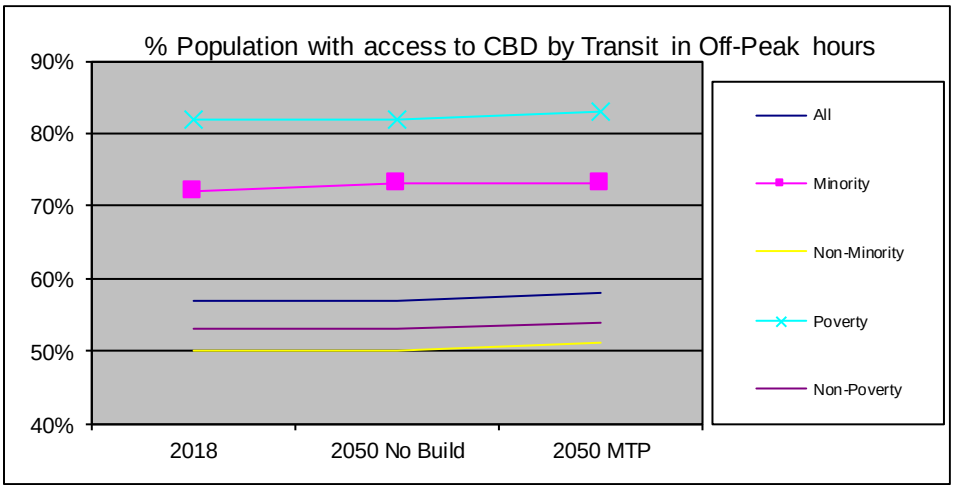


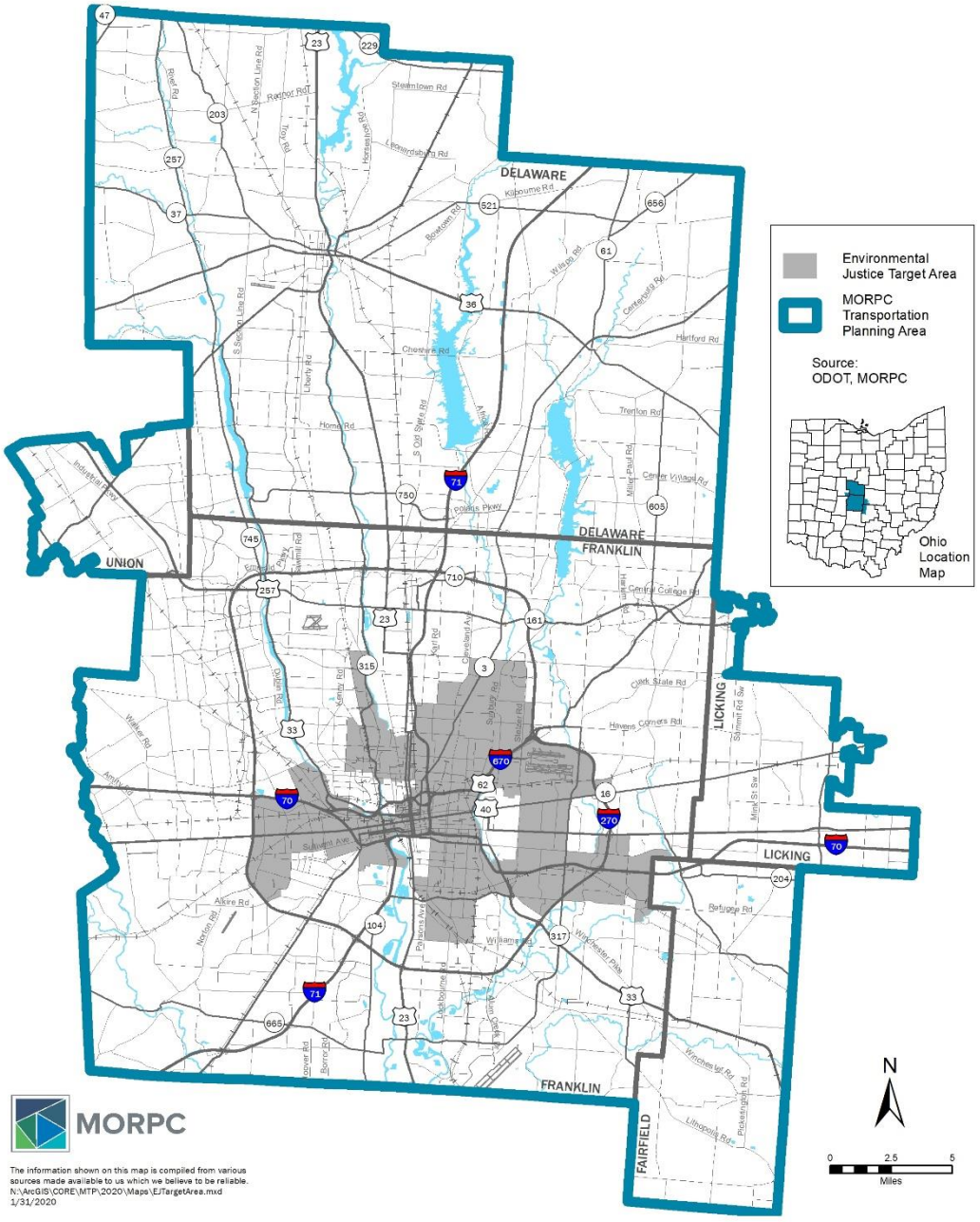
Figure IV-32



M. Congested Vehicle Miles of Travel during Peak Hours

Figure IV-33 shows the geographic target area that was identified. This target area generally includes areas that fall above twice the regional average for minority or poverty populations. The shape of the area is irregular, falling roughly between Morse Road and Bethel Road on the north and the southern boundary follows Refugee Road going down along Alum Creek Road and following Williams Road. The western and northern edges are roughly around I-270. Bexley and neighborhoods in the near south of Columbus are excluded. This area includes the majority of the target populations in 2018.

Figure IV-33 Geographic Target Area



Figures IV-34 and IV-35 shows that for the year 2018, 2050 No-Build and 2050 MTP scenarios, the percent of congested vehicle miles during peak hours is higher for target populations than for non-target populations. When comparing all three scenarios together, percent of congested VMT and the respective scenario improvements appear to be relatively uniform for the Target and Non-target areas. Also, when compared to the 2050 No-Build, percent congested VMT traveled in 2050 MTP decreases for both Target and Non-target areas. With regard to this measure it would appear that there are no adverse impacts on the target populations and no disproportionate impacts among the population groups.

Figure IV-34

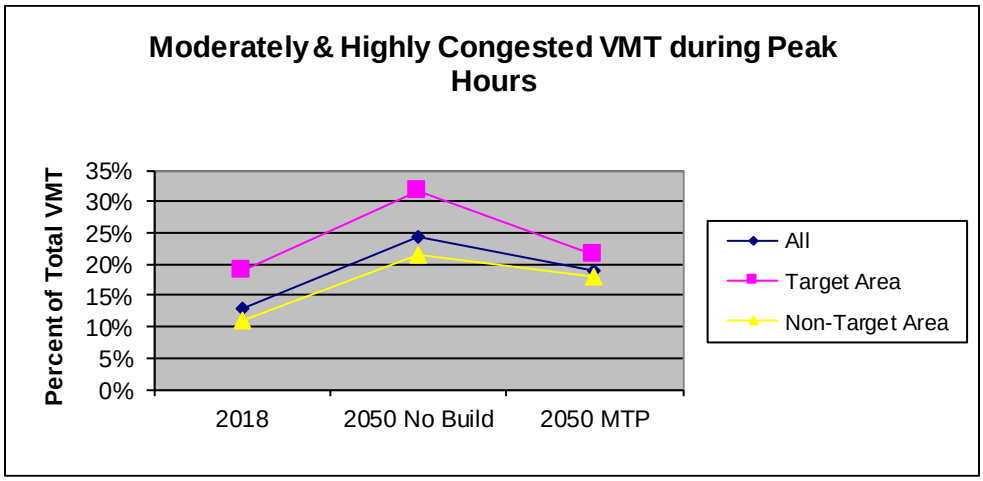
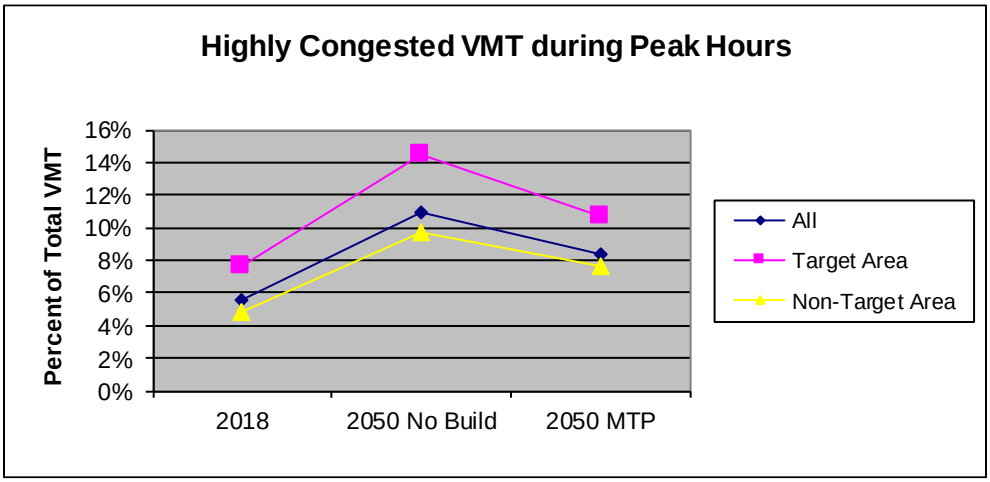


Figure IV-35



N. Transportation Expansion Investments

Millions of dollars are spent on transportation projects in the Central Ohio area. These include maintenance projects and major transportation projects are projects that add capacity to the transportation system. Major projects are projects that would include additional lanes and new or reconfigured interchanges.

Table IV-2 shows the amount of estimated transportation funding included in the Transportation Improvement Program. The target area totals include only location-specific projects. This does not include the region-wide transit funds or studies. These funds are included in the total and thus, by default in the non-target area value. However, many of these activities do benefit the target area. Most of the population growth in the Columbus area is occurring outside the outer belt, especially in Delaware County. To accommodate the growth in the outer areas, more transportation projects are needed and expected in these growing areas.

Table IV-2

		Plan Funding	Proportion
Location-Specific Projects*	Target Area	$ 2,557,567,000	9%
	Non-Target Area	$ 4,715,388,000	16%
Region-Wide Projects/Activities**		$ 21,683,849,000	75%
Total		**$ 28,956,804,000**	**100%**

*related to highway capacity expansion

**including COTA service expansion and other general funding (e.g., maintainance and studies) which would be used throughout the whole region

It is important to note that these cost estimates include only the large projects of the transportation system and do not include most local agencies' routine maintenance costs. Because a significant portion of the target area is heavily developed, there are fewer capacity expansion projects in the area. Furthermore, it is worth noting that transportation investments in a particular area may provide increased benefits beyond that area. Therefore, it may be more worthwhile to assess the benefits and the displacements and disruptions of a transportation project to a particular area than the amount of dollars spent.

O. Displacement from Projects

The projects on MORPC's MTP have been submitted for inclusion by ODOT, local agencies, or municipalities. In general, ODOT or the local community has reviewed a transportation project prior to the project's submission to MORPC. Therefore, it is somewhat unlikely that a project that has a high amount of displacement would be submitted for inclusion on the MTP without significant public involvement and analysis. As the projects proceed through the environmental process, the number of displacements will be determined and any environmental justice issues will be addressed at that time.

V. Summary

A variety of quantitative measures was presented in the previous section. Many measures are provided because one measure cannot capture all aspects of an environmental justice analysis. And in fact, these measures in total cannot take into account all things that can be considered with regard to environmental justice issues. These measures, however, are developed to provide some insight on whether significant environmental justice issues are present.

In general, the quantitative analysis did not indicate disproportionate impacts to environmental justice or other target populations. Furthermore, the benefits realized from the projects were proportionate with regard to both the environmental justice and other target populations and the non-environmental justice and other non-target populations. It is important to keep in mind that this was done at a systems level and additional refinement will be made as the various projects go through additional project development process steps.

Attachment A- Data Tables

Average Number of Jobs within 20 minute peak period drive time

	2018	% of Total	2050 No Build	% of Total	2050 MTP	% of Total	% Over No Build
All	430,025	47%	427,165	36%	483,301	41%	13%
Minority	484,202	53%	494,509	42%	553,441	47%	12%
Non-Minority	404,304	44%	395,192	33%	450,000	38%	14%
Poverty	543,198	59%	580,592	49%	634,963	53%	9%
Non-Poverty	411,966	45%	402,685	34%	459,102	39%	14%

Average Number of Jobs within 40 minute peak period time by transit

	2018	% of Total	2050 No Build	% of Total	2050 MTP	% of Total	% Over No Build
All	29,538	3%	38,714	3%	51,398	4%	33%
Minority	38,192	4%	49,051	4%	64,031	5%	31%
Non-Minority	25,429	3%	33,806	3%	45,401	4%	34%
Poverty	60,086	7%	73,928	6%	95,487	8%	29%
Non-Poverty	24,663	3%	33,095	3%	44,364	4%	34%

Average Number of Jobs within 40 minute off-peak period time by transit

	2018	% of Total	2050 No Build	% of Total	2050 MTP	% of Total	% Over No Build
All	26,387	3%	35,122	3%	46,402	4%	32%
Minority	34,513	4%	44,382	4%	58,000	5%	31%
Non-Minority	22,528	2%	30,726	3%	40,896	3%	33%
Poverty	54,080	6%	66,492	6%	86,202	7%	30%
Non-Poverty	21,968	2%	30,117	3%	40,052	3%	33%

Total Jobs 2018 = 918,489 2050 = 1,189,510

Average Number of Shopping Attractions within 20 minute peak period drive time

	2018	% of Total	2050 No Build	% of Total	2050 MTP	% of Total	% Over No Build
All	342,503	41%	371,173	33%	415,550	37%	12%
Minority	382,786	46%	426,868	38%	473,044	42%	11%
Non-Minority	323,379	39%	344,730	30%	388,253	34%	13%
Poverty	425,394	51%	491,896	43%	534,449	47%	9%
Non-Poverty	329,277	40%	351,911	31%	396,579	35%	13%

Average Number of Shopping Attractions within 40 minute peak period time by transit

	2018	% of Total	2050 No Build	% of Total	2050 MTP	% of Total	% Over No Build
All	19,636	2%	32,488	3%	42,067	4%	29%
Minority	27,311	3%	42,659	4%	54,584	5%	28%
Non-Minority	15,992	2%	27,659	2%	36,124	3%	31%
Poverty	34,374	4%	58,235	5%	74,625	7%	28%
Non-Poverty	17,284	2%	28,380	3%	36,872	3%	30%

Average Number of Shopping Attractions within 40 minute off-peak period time by transit

	2018	% of Total	2050 No Build	% of Total	2050 MTP	% of Total	% Over No Build
All	17,984	2%	29,644	3%	37,879	3%	28%
Minority	25,276	3%	38,968	3%	49,152	4%	26%
Non-Minority	14,521	2%	25,216	2%	32,527	3%	29%
Poverty	31,206	4%	52,385	5%	66,631	6%	27%
Non-Poverty	15,874	2%	26,015	2%	33,292	3%	28%

Shopping attractions 2018 = 827,112 2050 = 1,134,325

Average Number of Non-Shopping Attractions within 20 minute peak period drive time

	2018	% of Total	2050 No Build	% of Total	2050 MTP	% of Total	% Over No Build
All	1,148,335	42%	1,212,038	33%	1,360,752	37%	12%
Minority	1,292,610	47%	1,402,502	38%	1,557,935	42%	11%
Non-Minority	1,079,838	39%	1,121,610	30%	1,267,134	34%	13%
Poverty	1,447,107	52%	1,631,558	44%	1,774,974	48%	9%
Non-Poverty	1,100,661	40%	1,145,101	31%	1,294,660	35%	13%

Average Number of Non-Shopping Attractions within 40 minute peak period time by transit

	2018	% of Total	2050 No Build	% of Total	2050 MTP	% of Total	% Over No Build
All	77,911	3%	114,415	3%	150,053	4%	31%
Minority	102,258	4%	146,250	4%	190,138	5%	30%
Non-Minority	66,352	2%	99,301	3%	131,023	4%	32%
Poverty	152,753	6%	215,633	6%	276,708	7%	28%
Non-Poverty	65,969	2%	98,265	3%	129,845	3%	32%

Average Number of Non-Shopping Attractions within 40 minute off-peak period time by transit

	2018	% of Total	2050 No Build	% of Total	2050 MTP	% of Total	% Over No Build
All	69,365	3%	103,328	3%	134,861	4%	31%
Minority	91,958	3%	131,672	4%	171,042	5%	30%
Non-Minority	58,639	2%	89,871	2%	117,683	3%	31%
Poverty	135,844	5%	192,460	5%	247,855	7%	29%
Non-Poverty	58,757	2%	89,106	2%	116,832	3%	31%

Total Non-Shopping Attractions 2018 = 2,757,688 2050 = 3,715,539

Percent of Population within 20 minute peak period drive time to a College

	2018	2050 No Build	2050 MTP
All	91%	81%	87%
Minority	95%	88%	92%
Non-Minority	89%	78%	85%
Poverty	97%	93%	96%
Non-Poverty	90%	79%	86%

Percent of Population within 40 minute peak period time to a College by transit

	2018	2050 No Build	2050 MTP
All	24%	24%	28%
Minority	34%	33%	38%
Non-Minority	19%	20%	23%
Poverty	47%	47%	53%
Non-Poverty	20%	20%	24%

Percent of Population within 40 minute off-peak period time to a College by transit

	2018	2050 No Build	2050 MTP
All	22%	22%	26%
Minority	31%	30%	36%
Non-Minority	18%	18%	22%
Poverty	45%	44%	50%
Non-Poverty	18%	19%	22%

Colleges included are:

THE OHIO STATE UNIVERSITY
COLUMBUS STATE COMMUNITY COLLEGE
CAPITAL UNIVERSITY
COLUMBUS COLLEGE OF ART & DESIGN
OTTERBEIN COLLEGE
DEVRY INSTITUTE OF TECHNOLOGY
FRANKLIN UNIVERSITY
MOUNT CARMEL COLLEGE OF NURSING
OHIO DOMINICAN COLLEGE

Percent of Population within 20 minute peak period drive time to Hospital

	2018	2050 No Build	2050 MTP
All	98%	93%	97%
Minority	99%	96%	99%
Non-Minority	97%	91%	96%
Poverty	99%	98%	99%
Non-Poverty	97%	92%	97%

Percent of Population within 40 minute peak period time to Hospital by transit

	2018	2050 No Build	2050 MTP
All	27%	27%	33%
Minority	34%	33%	40%
Non-Minority	24%	24%	29%
Poverty	48%	48%	53%
Non-Poverty	24%	24%	29%

Percent of Population within 40 minute off-peak period time to Hospital by transit

	2018	2050 No Build	2050 MTP
All	25%	26%	31%
Minority	30%	31%	37%
Non-Minority	23%	23%	28%
Poverty	44%	45%	50%
Non-Poverty	22%	23%	28%

Hospitals included in all scenarios are:
Grady Memorial, Dublin Methodist, Mount Carmel St. Ann's, Mount Carmel New Albany Surgical, Riverside Methodist, the Woods at Parkside, Ohio State University, Select Specialty - Columbus, Doctors, Mount Carmel West, Grant Medical Center, Ohio State University East, Nationwide Children's, Mount Carmel East, Regency, and OhioHealth Westerville Medical Campus, Mount Carmel Grove City Medical Center and Ohio Health Medical Campus at Hill Rd.

Percent of Population within 20 minute peak period drive time to Major Retail

	2018	2050 No Build	2050 MTP
All	98%	95%	96%
Minority	99%	99%	99%
Non-Minority	97%	93%	95%
Poverty	99%	98%	98%
Non-Poverty	98%	95%	96%

Percent of Population within 40 minute peak period time to Major Retail by Transit

	2018	2050 No Build	2050 MTP
All	37%	36%	39%
Minority	50%	46%	51%
Non-Minority	31%	31%	33%
Poverty	57%	51%	57%
Non-Poverty	34%	33%	36%

Percent of Population within 40 minute off-peak period time to Major Retail by Transit

	2018	2050 No Build	2050 MTP
All	36%	35%	37%
Minority	49%	46%	48%
Non-Minority	30%	30%	32%
Poverty	55%	50%	54%
Non-Poverty	33%	32%	34%

Major Retail Locations included are:

Polaris Fashion Place area, Tuttle Crossing Mall area, Easton Square area, Saw mill & SR 161 area, North Pointe Plaza area, Carriage Place area, Stone Ridge Plaza area, Westpointe Plaza area, Graceland area, Columbus Square area, Consumer Square west area, Lennox Town Center area, Eastland Mall area, Chantry Square area, and Taylor Square area.

Average Auto Travel Time from Home to Work, University and School Destinations (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	11.6	12.6	9%	12.0	4%	0.6	5%
Minority	11.0	11.9	8%	11.4	4%	0.5	4%
Non-Minority	11.8	13.0	10%	12.3	4%	0.7	5%
Poverty	10.2	11.1	9%	10.7	5%	0.3	3%
Non-Poverty	11.7	12.9	10%	12.2	4%	0.6	5%

Average Transit Travel Time from Home to Work, University and School Destinations (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	65.7	66.1	1%	62.6	-5%	3.6	5%
Minority	62.7	63.2	1%	60.0	-4%	3.2	5%
Non-Minority	67.4	67.8	1%	64.1	-5%	3.8	6%
Poverty	56.6	56.9	0%	54.2	-4%	2.7	5%
Non-Poverty	67.4	67.9	1%	64.2	-5%	3.7	5%

Average Auto Travel Time from Home to Shopping Destinations (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	8.2	8.7	6%	8.5	4%	0.2	2%
Minority	7.5	7.9	5%	7.7	3%	0.1	2%
Non-Minority	8.5	9.1	7%	8.8	4%	0.2	3%
Poverty	7.2	7.7	6%	7.5	4%	0.1	2%
Non-Poverty	8.3	8.9	7%	8.7	4%	0.2	2%

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Average Transit Travel Time from Home to Shopping Destinations (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	58.8	57.5	-2%	54.1	-8%	3.5	6%
Minority	55.3	54.4	-2%	51.1	-8%	3.3	6%
Non-Minority	61.0	59.4	-3%	55.9	-8%	3.5	6%
Poverty	50.9	50.0	-2%	46.8	-8%	3.2	6%
Non-Poverty	60.6	59.4	-2%	55.9	-8%	3.5	6%

Average Auto Travel Time from Home to Other Destinations (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	8.9	9.5	7%	9.2	4%	0.3	3%
Minority	8.1	8.7	7%	8.5	4%	0.2	2%
Non-Minority	9.2	9.9	7%	9.6	4%	0.3	3%
Poverty	7.5	8.0	7%	7.9	5%	0.1	2%
Non-Poverty	9.1	9.7	7%	9.5	4%	0.3	3%

Average Peak Transit Travel Time from Home to Other Destinations (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	61.2	60.7	-1%	56.9	-7%	3.8	6%
Minority	57.6	57.5	0%	54.0	-6%	3.5	6%
Non-Minority	63.2	62.6	-1%	58.7	-7%	3.9	6%
Poverty	51.8	51.1	-1%	47.7	-8%	3.4	7%
Non-Poverty	63.2	62.8	-1%	58.9	-7%	3.9	6%

Average Auto Travel Time from Home to All Destinations (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	9.4	10.1	7%	9.7	4%	0.3	3%
Minority	8.6	9.2	7%	8.9	4%	0.3	3%
Non-Minority	9.7	10.5	8%	10.1	4%	0.4	4%
Poverty	7.8	8.5	8%	8.3	6%	0.2	2%
Non-Poverty	9.6	10.3	8%	10.0	4%	0.4	3%

Average Transit Travel Time from Home to All Destinations (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	61.5	61.1	-1%	57.5	-7%	3.6	6%
Minority	57.9	57.8	0%	54.4	-6%	3.4	6%
Non-Minority	63.5	63.0	-1%	59.3	-7%	3.7	6%
Poverty	52.1	52.1	0%	49.0	-6%	3.1	6%
Non-Poverty	63.5	63.2	0%	59.5	-6%	3.7	6%

Average Peak Auto Travel Time from Home to CBD (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	18.8	22.5	20%	20.5	9%	2.0	9%
Minority	16.9	19.8	17%	18.2	8%	1.6	8%
Non-Minority	19.6	23.7	21%	21.5	10%	2.2	9%
Poverty	14.6	16.8	15%	15.7	8%	1.1	6%
Non-Poverty	19.4	23.4	20%	21.2	9%	2.1	9%

Average Off-Peak Auto Travel Time from Home to CBD (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	16.5	18.4	11%	17.9	8%	0.5	3%
Minority	14.8	16.4	11%	16.1	9%	0.4	2%
Non-Minority	17.3	19.3	11%	18.8	8%	0.5	3%
Poverty	13.0	14.4	11%	14.1	8%	0.4	2%
Non-Poverty	17.1	19.0	11%	18.5	9%	0.5	3%

Average Peak Transit Travel Time from Home to CBD (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	61.7	64.1	4%	56.7	-8%	7.4	11%
Minority	57.7	60.1	4%	53.3	-8%	6.8	11%
Non-Minority	64.3	66.7	4%	59.0	-8%	7.7	12%
Poverty	52.5	54.1	3%	48.1	-8%	6.0	11%
Non-Poverty	63.9	66.4	4%	58.7	-8%	7.7	12%

Average Off-Peak Transit Travel Time from Home to CBD (minutes)

	2018	2050 No Build	% Inc Over 2018	2050 MTP	% Inc Over 2018	v.s. 2050 No-Build Min Saved	v.s. 2050 No-Build %Saved
All	63.0	65.1	3%	56.6	-10%	8.5	13%
Minority	60.0	62.5	4%	54.7	-9%	7.8	12%
Non-Minority	65.1	66.9	3%	57.9	-11%	9.0	13%
Poverty	54.1	55.7	3%	49.2	-9%	6.5	12%
Non-Poverty	65.3	67.4	3%	58.4	-10%	9.0	13%

Percent of Population with Access to CBD by Transit in the Peak Hours

	2018	2050 No Build	2050 MTP
All	63%	62%	63%
Minority	76%	76%	76%
Non-Minority	57%	56%	56%
Poverty	86%	85%	85%
Non-Poverty	59%	59%	59%

Percent of Population with Access to CBD by Transit in the Off Peak Hours

	2018	2050 No Build	2050 MTP
All	57%	57%	58%
Minority	72%	73%	73%
Non-Minority	50%	50%	51%
Poverty	82%	82%	83%
Non-Poverty	53%	53%	54%

Percent of Vehicle Miles Traveled by Level of Congestion during Peak Hours

	Level of Congestion	**2018**	**2050 No Build**	**2050 MTP**
All	Moderate + High	13%	24%	19%
	High	6%	11%	8%
Target Area	Moderate + High	19%	32%	21%
	High	8%	14%	11%
Non-Target Area	Moderate + High	11%	22%	18%
	High	5%	10%	8%