



EQUITY ANALYSIS REPORT

Volume 2: Regional Transportation Investments

NOVEMBER 2023

About the Southern New Hampshire Planning Commission

The **Southern NH Planning Commission (SNHPC**) is one of nine regional planning commissions in the State of New Hampshire. SNHPC was formed under New Hampshire Statutes in 1966 and serves as the coordinating agency for the planning initiatives of fourteen (14) communities in the southern New Hampshire region.

The Commission is also the **Metropolitan Planning Organization (MPO)** for the region, responsible for conducting transportation planning in a cooperative, comprehensive, and continuous manner. Federal regulations stipulate that highway construction funds in urbanized areas can only be utilized by states with an MPO in place.

SNHPC Communities

Town of Auburn Town of Bedford Town of Candia Town of Chester Town of Deerfield Town of Derry Town of Francestown Town of Goffstown Town of Hooksett Town of Londonderry City of Manchester Town of New Boston Town of Weare Town of Windham

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The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(b)(6)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

1. Introduction

What is Transportation Equity?

According to the Federal Highway Administration, transportation equity "seeks fairness in mobility and accessibility to meet the needs of all community members."¹ Equitable transportation systems provide affordable, reliable mobility options that facilitate social and economic opportunities – particularly for communities that have been traditionally underserved. In this way, "equity" is not synonymous with "equality." Instead, it means being responsive to every community's unique connectivity needs to ensure **greater fairness in transportation planning processes and outcomes**.



Figure 1.1: Visualizing Equality vs Equity

While equality is about treating everyone the same – in this case of the top image, giving everyone the same bicycle regardless of their size or ability – an equitable transportation model tailors solutions to unique circumstances to achieve better outcomes (see bottom image).

Image courtesy of City of Fort Collins, CO

¹ Retrieved from <u>https://www.planning.dot.gov/planning/topic_transportationequity.aspx</u>, November 2023.

Understanding Federal Requirements

As a Metropolitan Planning Organization (MPO), SNHPC oversees the region's long-term transportation planning efforts and programs federal transportation funds. One of the Commission's roles is to verify that transportation funding is distributed equitably across the region. This report provides an analysis of how the Commission's work impacts transportation equity in our region.

Focusing on transportation equity ensures SNHPC adheres to several **federal requirements**, including Title VI of the Civil Rights Act, which bars discrimination based on race, color, or national origin under federally-funded initiatives; Executive Order 12898, which directs pubic agencies to address disproportional health and environmental impacts, particularly for minority and low-income populations; and Executive Order 13166, which calls for improved access to services for people with limited English proficiency (LEP).

Shaping our Equity Analysis Workplan

There is no single approach to analyzing transportation equity. This report builds upon previous research and lays the foundation for further analysis as the MPO continues to shape equity priorities with the fourteen communities the Commission serves in the greater Manchester region.

In 2022, SNHPC published an <u>initial equity analysis</u> that analyzed Census Tract-level demographic data to define the **Equity Area** for our region. The Equity Area is the geographic area with the greatest concentration of residents who belong to Title VI/Environmental Justice (EJ) federally protected classes, or who may otherwise experience vulnerabilities that impact their transportation options (See Chapter 2 of this document for more details). The 2022 analysis also explored key health, safety, and transportation disparities between the Equity Area and the rest of the region.

This report takes our understanding of transportation equity one step further by analyzing the **distribution of transportation investments** in the SNHPC region. This analysis advances our understanding of how financial resources are allocated, so SNHPC can take deliberate steps to ensure transportation investments are distributed fairly and effectively respond to the needs of community members living in the equity area.

While the distribution of financial investments is a key indicator of equity, this analysis has clear limitations since it does not evaluate the variable impacts of each transportation project, (e.g. whether impacts are positive or negative, and for whom). Future equity analysis efforts will be required to help SNHPC understand which impacts are most important to community members (particularly those living in the Equity Area) and calculate project costs and benefits accordingly.

2. Defining the SNHPC Equity Area

SNHPC's 2022 equity analysis report identified an Equity Area for our region using guidance published by the National Academy of Sciences in the report titled "Equity Analysis in Regional <u>Transportation Planning Processes</u>." The Equity Area was defined through a systematic scoring process that documented the proportion of individuals in each Census Tract who either 1) belong to a Title VI/EJ federally protected class; or 2) are otherwise considered to be vulnerable, resulting in a higher likelihood of mobility challenges. This section provides a high-level summary of the analysis; more details can be found in SNHPC's <u>2022 Equity Analysis report</u>.

Federally Protected Classes

Federal laws specifically protect members of the following groups from discrimination:

- 1. Racial and ethnic minorities, per Title VI of the Civil Rights Act of 1964 and E.O. 12898
- 2. People living below the poverty line, per E.O. 12898
- 3. People with **limited English proficiency (LEP)**, per Title VI of the Civil Rights Act and E.O. 13166

Since SNHPC is a recipient of federal transportation funds, the Commission is legally obligated to ensure our region's plans, programs, and activities equitably respond to the needs of these groups.

Other Vulnerable Groups

New Hampshire's "Law Against Discrimination", as defined in RSA 354-4, provides civil protections to the additional classes of age, sex, gender identity, marital status, family status, and physical or mental disability. Considering this mandate, SNHPC expanded the regional equity analysis to include the following vulnerable groups, who have a higher likelihood of experiencing mobility challenges.

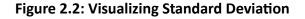
- 4. Seniors age 65 and older
- 5. People with disabilities, which may include physical or cognitive impairments
- 6. People living in **no-vehicle households**, meaning there is no vehicle available for household transportation needs

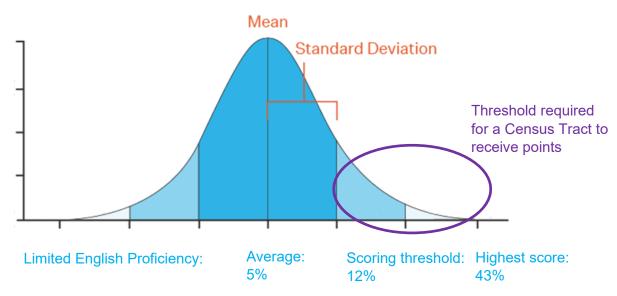
Scoring Process

In order to identify the region's Equity Area, SNHPC staff examined 2020 Census data and applied a scoring threshold to evaluate each Census Tract in our region according to the six categories described above. If a Census Tract scored more than one standard deviation above the regional rate for a particular category, it received points according to the scale shown in Figure 2.1. Federally protected categories were given a higher, 2-point weighting as compared to other vulnerable groups.

| Community Group | Scoring Threshold | Points Assigned |
|-----------------|---------------------------------|------------------------------|
| Minority | | 2 Points (Title VI/EJ Class) |
| Poverty | | 2 Points (Title VI/EJ Class) |
| LEP | One Standard Deviation Above | 2 Points (Title VI/EJ Class) |
| Senior | the SNHPC Regional Rate | 1 Point (Vulnerable) |
| Disability | Kare | 1 Point (Vulnerable) |
| No Vehicle | | 1 Point (Vulnerable) |
| | | Data source: US Census |

Figure 2.1: Scoring Applied to SNHPC Census Tracts





Standard deviation represents a statistical variation from the mean (or average).

In the case of the SNHPC equity analysis, for any given demographic category, a Census Tract had to score at least one standard deviation above the regional average in order to receive points.

Using the example of Limited English Proficiency (LEP), the average rate for the SNHPC region as a whole is 5%. To meet the scoring threshold of one standard deviation, a Census Tract must have at least 12% of the population qualifying as LEP. The very highest scoring Census Tract in the region has an LEP rate of 43%.

Image adapted from Cuemath.com

As shown in Figure 2.3, a total of twelve Census Tracts scored 4 or more points, meeting the threshold for inclusion in the region's Equity Area.

| Tract ID | Minority | Poverty | LEP | Senior | Disability | No Vehicle | Total Score |
|----------|------------------------------------------------------------------------------------------|---------|-----|--------|------------|---------------|----------------|
| 14 | 2 | 2 | 2 | 0 | 1 | 1 | 8 |
| 13 | 2 | 2 | 2 | 0 | 1 | 0 | 7 |
| 15 | 2 | 2 | 2 | 0 | 0 | 1 | 7 |
| 20 | 2 | 2 | 2 | 0 | 0 | 1 | 7 |
| 24 | 2 | 2 | 2 | 0 | 1 | 0 | 7 |
| 3 | 2 | 2 | 0 | 0 | 1 | 1 | 6 |
| 17 | 2 | 0 | 2 | 0 | 1 | 1 | 6 |
| 19 | 2 | 2 | 2 | 0 | 0 | 0 | 6 |
| 2004 | 2 | 2 | 0 | 0 | 0 | 1 | 5 |
| 2.02 | 0 | 2 | 0 | 0 | 1 | 1 | 4 |
| 16 | 2 | 0 | 2 | 0 | 0 | 0 | 4 |
| 21 | 2 | 0 | 0 | 0 | 1 | 1 | 4 |
| Censu | Census Tracts Above Meet the Criteria for the Equity Analysis Area (Score of 4 or More) | | | | | | <u>More)</u> |

Figure 2.3: Highest-scoring Census Tracts

All twelve Census Tracts that comprise the Equity Area are located in central Manchester and happen to have a contiguous boundary, as seen in the map in Figure 2.4. The Equity Area is approximately 6.8 square miles, comprising about 1% of the region's total land area. This geographic boundary provides a foundation for the analysis in the remainder of this report.

Figure 2.4: Map of SNHPC Equity Area



3. Understanding the MPO Planning Process

As the federally designated **MPO** for the greater Manchester region, SNHPC is responsible for conducting transportation planning in a cooperative, comprehensive, and continuous manner. SNHPC regularly develops and updates a range of interconnected planning documents to address federal and state requirements to ensure the Southern New Hampshire region can effectively program funding for a wide array of transportation improvement projects throughout the region. This section described key transportation planning documents and concepts that have been used to inform this equity analysis.

Metropolitan Transportation Plan

The **Metropolitan Transportation Plan (MTP)** serves as the long-range (20+ year) transportation planning document for the region and describes how the SNHPC will achieve an effective multimodal transportation system to meet the region's transportation, economic development, and sustainability goals. The MTP is a federally required document that is **fiscally constrained**, meaning the funding for projects and programs is reasonably expected to be available given anticipated transportation revenues.

The current MTP was adopted in 2021 and contains the SNHPC's adopted policies, goals, and project proposals to improve the regional transportation system through the year 2045 and is used as the foundation for this equity analysis. The MTP informs other transportation planning documents, including:

• <u>Ten-Year Transportation Improvement Plan.</u> Also known as the **Ten-Year Plan or TYP**, this document is required by the State of New Hampshire under RSA 228:99 and RSA 240. The TYP follows a 10-year planning horizon and reflects the first 10 years of the MTP. Inclusion in the TYP is considered a **funding commitment**.

Projects that are part of the MTP but not included in the TYP represent the last 10+ years of the regional long-range transportation plan, often referred to as the "**Out Years.**" Many of these projects remain somewhat aspirational until specific funding sources are identified and allocated, at which point they may move into the TYP or TIP (described below). Other projects do have funding identified, but may appear in the Out Years simply because their timeline extends beyond the 10-year horizon of the TYP.

 <u>Transportation Improvement Program</u>. Also known as the TIP, this federally-required shortrange plan identifies priority projects as well as funding for implementation over the next four years – forming the first four years of the TYP. Projects that are approved in SHNPC's TIP are then incorporated into the State Transportation Improvement Plan (STIP) and proceed to implementation. This equity analysis primarily **focuses on the MTP adopted in 2021**, since it is the foundational, federally required transportation planning document that sets the stage for further plans and implementation.

Note on the Analysis: State vs MPO Control

All transportation projects anticipated to utilize federal funds must be included in the MTP. This means that the SNHPC region's MTP includes many projects that are directly controlled by the New Hampshire Department of Transportation (DOT) or transit authorities, including federal limited access highways and funding for transit operations. In the current MTP used for this equity analysis, State-controlled projects represent roughly half of the total number of projects, and three quarters of the total project cost. Examples of each type of project are shown in the table below.

| Sample MPO Controlled Projects | Sample State DOT Controlled Projects | | |
|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Windham 40665*: Intersection Improvements, Roulston Road and NH Route 28 (\$1,356,600**) | Central Turnpike 41821: Paving on the F.E. Everett Turnpike (\$3,798,500) Manchester MAN-07: Construction of | | |
| • Weare WEA-02: Traffic Calming and Pedestrian Improvements in Weare Village Center (\$1,169,200) | Noise Barrier on F.E. Everett Turnpike Southbound between MP 18.9 and 19.2 (\$591,100) | | |

*Projects with a 5-digit numeric code can be found in the current TYP. Projects with an alpha-numeric code (ABC-00) represent the Out Years of the MTP and are not included in the current TYP.

**All dollar values listed in this report reflect 2021 dollars.

Project Categories

For the purpose of this analysis, MTP projects have been separated into five different categories:

- Bicycle & Pedestrian
- Debt Service
- Highway & Bridge
- Study
- Transit

This section provides a brief description and project examples from each category.

Bicycle & Pedestrian

These projects provide non-motorized transportation options, and include improvements related to sidewalks, multi-use trails, bike paths, pedestrian safety, and complete streets. Examples include:

- Londonderry 42508: Construct a 1 Mile Multi-use Path Along the Side of Harvey Road, Webster Road, and Grenier Field Road (\$953,800)
- **Deerfield DEER-02:** Traffic Calming and Bicycle/Pedestrian Improvements on NH Route 107 in Deerfield Town Center (\$2,293,800)

Debt Service

These funds are used to pay down the debt on projects that have already been completed. For the current MTP, all debt service projects are for debt incurred during the widening of I-93 between Salem and Manchester. Examples include:

- Salem-Manchester 14800B: I-93 Exit 5 Interchange Reconstruction Debt Service for Project 14633F (\$34,858,000)
- Salem-Manchester 14633: Debt Service Project for I-93 Capacity Improvements Northern Projects (\$172,674,300)

Highway & Bridge

These projects primarily serve motorized transportation, whether via highway or bridge. Note that the term "highway" refers to the road system as a whole, including limited-access expressways like the Interstate system as well as state and local roads. Examples include:

Limited-Access Expressway:

- **Derry-Londonderry 13065:** I-93 Exit 4A Preliminary Design, Final Design, ROW, and Construction of New Interchange and Connecting Roadway (\$64,534,700)
- Auburn AUB-02: Construction of Noise Barrier on NH Route 101 Eastbound between MP 61.6 and 62.0 (\$687,500)

Non-Limited Access Expressway:

- **Candia 41592:** Safety and Operational Improvements on NH Route 27/NH Route 43/Raymond Road (\$4,871,500)
- New Boston NEWB-03: Shoulder and Drainage Improvements on NH Route 13 from New Boston Village Center to the Goffstown Town Line (\$3,113,200)

<u>Study</u>

These projects refer to any transportation study such as an engineering study or corridor study. Examples include:

• **Bedford-Goffstown 41859**: Corridor Study of NH Route 114 from NH Route 101 in Bedford to Henry Bridge Road in Goffstown (\$385,000)

• **Bedford BED-07**: Engineering Study of Grade Separated Design Alternatives at the Intersection of NH Route 101/NH Route 114/Boynton Street (\$237,300)

<u>Transit</u>

These projects refer to capital, operations, and preventative maintenance funding for fixed route public transportation systems, demand response services, and mobility management services. Examples include:

- MTA/CART MTA 5307: MTA/CART Operating, ADA, Capital Preventative Maintenance, and Planning Activities Utilizing FTA Section 5307 Funding (Matched by Local Funding) (\$91,236,700)
- Region 8/9 RCC 5310: Transit Services for Seniors and Individuals with Disabilities in Greater Manchester and Greater Derry-Salem Area as Determined by the Region 8/9 Coordinating Council for Community Transportation (Matched by Local Funding) (\$9,758,300)

Note on the Analysis: Overlapping categories

Certain projects may have components that overlap across categories. For the purpose of this equity analysis:

- When the **majority** of a project's components fall into a single category, all costs are assigned to that category. For example, a major road widening that also includes tangential construction of sidewalks is categorized under Highways & Bridges.
- In a limited number of cases, when project components are fairly **evenly split** between two categories, then the project costs are distributed 50-50 across both categories. One example would be MAN-03, which entails both traffic capacity improvements and a substantial bicycle and pedestrian component.

4. Transportation Investment Analysis

The following analysis compares transportation investments within the Equity Area to investments outside of the Equity Area to better understand how resources are distributed. Also, where possible, the analysis identifies potential opportunities for supporting more equitable transportation planning and resource allocation in our region.

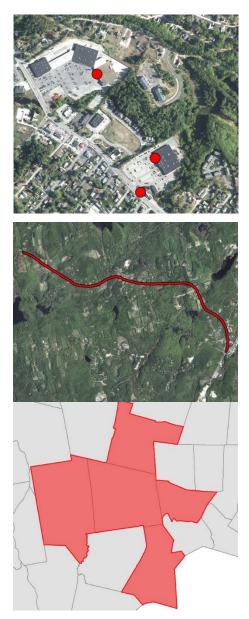
Methodology

To assess the **geographic distribution** of various investments, all projects in the MTP were mapped and represented as either a point, line, or polygon.

<u>Point.</u> For projects best represented by a single point, the total funding was assigned to that point. If a project consists of multiple points, the funding was distributed equally among the points. Transit projects require additional consideration because not all stops are served equally. In this case, funding is distributed to each point proportional to the number of buses that stop there. The example shown at right reflects the project *Capital Vehicle and Equipment for MTA Supported by NHDOT Section 5339 Program Allocation for Small Urban Providers*.

<u>Line</u>. For projects best represented as a line, funding was assigned on a dollar per mile basis. The example shown at right reflects the project *Pavement Rehabilitation on NH Route 136 from NH Route 13 to Francestown Town Line*.

<u>Polygon.</u> For projects best represented as a polygon, funding was assigned on a dollar per square mile basis. The image at right reflects the project *Transit Services for Seniors and Individuals with Disabilities in CART Service Area Utilizing FTA Section 5310 Funding*.



All projects were then assigned to either: **1) the Equity Area** (as shown in Figure 2.4 of this document); or **2) the Rest of the Region.** A 200-foot buffer was used for each geographic area to account for data inconsistencies, so there is a small degree of overlap in projects between the two areas.

Investment totals were then summed for each geographic area and each project type. Not surprisingly, total investment figures are much higher in the Rest of the Region compared to the Equity Area, since it captures a much larger geographic area. Meanwhile, a focus on the density of investments favors the Equity Area, since it is home to a lot of regional transportation infrastructure. Ultimately, SNHPC determined that **a per capita investment analysis** was the most useful measure for assessing transportation investment patterns. Figure 4.1 provides further insight.

Figure 4.1 – Arriving at a per capita approach to the investment analysis

| Total MTP Investment | | | | |
|----------------------|--------------------|--|--|--|
| Equity Area | Rest of the Region | | | |
| \$143.6 million | \$956.7 million | | | |
| | | | | |

| Total MTP Investment per Square Mile | | | |
|--------------------------------------|---------------|--|--|
| Equity Area Rest of the Regior | | | |
| \$23 million | \$1.7 million | | |

| Total MTP Investment per capita | | | |
|---------------------------------|--------------------|--|--|
| Equity Area | Rest of the Region | | |
| \$3,332 | \$3,896 | | |

Option 1: Total investment by geography

Given the disparities in geographic size (6 square miles for the Equity Area compared to 557 square miles for the Rest of the Region), this option skews the analysis in favor of the Rest of the Region

Option 2: Total investment by project density

The central portion of Manchester comprising the Equity Area is home to a higher density of development and associated transportation investments, some of which serve the region as a whole (e.g. transit, Interstate). As shown, this option over-emphasizes investments in the Equity Area

Option 3: Total investment per capita

A per capita analysis accounts for population density and provides the most straightforward comparison of how transportation investments impact residents who live in the SNHPC region. ****Per capita figures are used throughout the remainder of this analysis.***

| ALL MTP PROJECTS | | MPO CONTROLL | ED MTP I | PROJECTS | |
|----------------------------------|----------------|-----------------------|----------------------------------|----------------|-----------------------|
| | Equity Area | Rest of the Region | | Equity Area | Rest of the Region |
| | \$3,332 | \$3,896 | | \$1,080 | \$1,015 |
| All Pr | ojects | | All P | rojects | |
| Bicycle & Pedestrian | \$589 | \$1 <i>57</i> | Bicycle & Pedestrian | \$589 | \$1 <i>57</i> |
| Debt Service | \$0 | \$908 | Debt Service | \$0 | \$0 |
| Highway & Bridge | \$2,385 | \$2,393 | Highway & Bridge | \$311 | \$795 |
| Study | \$6 | \$13 | Study | \$0 | \$6 |
| Transit | \$352 | \$425 | Transit | \$180 | \$57 |
| Highway & Bi | ridge Pro | jects | Highway & I | Bridge Pr | ojects |
| Limited-Access Expressway | \$1,543 | \$1,309 | Limited-Access Expressway | \$0 | \$0 |
| Non-Limited-Access Expressway | \$842 | \$1,084 | Non-Limited-Access Expressway | \$311 | \$795 |

| Figure 4.2 – Per capita transportation investment by project ty |
|-----------------------------------------------------------------|
|-----------------------------------------------------------------|

Observations

MTP project investment per capita was roughly equal between the Equity Area and the rest of the region both for all projects, as well as for those projects under the purview of the MPO. However, differences in resource allocation emerge when projects are broken down into categories. (See Figure 4.3.) When looking at all MTP projects:

Key distinctions:

- **Bike & Pedestrian** The Equity Area received nearly four times as much funding per capita in this category. This makes sense, given the higher density of development and associated sidewalk infrastructure located in central Manchester.
- **Debt Service** The Rest of the Region had \$908 worth of debt service per capita compared to \$0 in the equity area. Notably, debt service represents about 20% of total MTP funding.

Subtle variations:

• **Highway & Bridge** – This is the dominant category of spending, representing roughly two thirds of the funding programmed in the MTP. Interestingly, per capita investments on

highway and bridge projects were nearly identical between the two geographies, with slight variations to note:

- The Equity Area received more funding for limited-access expressways, largely due to substantial work programmed for I-293.
- The Rest of the Region received more funding for non-limited access expressways such as improvements to State and local routes. However, when debt service on limited-access expressways is considered, limit-access expressway investment in the rest of the region outpaces that within the Equity Area by 44%.
- **Study** While only a very small fraction of the MTP budget, per capita allocations for transportation studies were twice as high in the Rest of the Region.
- **Transit** Per capita transit resources were roughly 20% higher in the Rest of the Region. This may be due to economies of scale achieved by running fixed route service in dense urban areas as compared to demand response services in more rural environments.

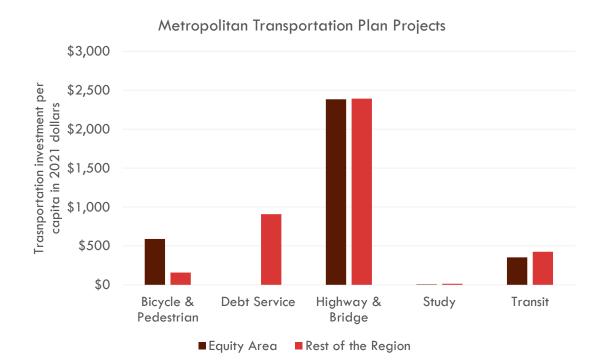


Figure 4.3: Visualizing MTP allocation by project category; All projects

Shifting Perspective: MPO-controlled Projects

As SNHPC reflects on opportunities to reinforce equitable transportation investments, it can be helpful to look specifically at the projects that the MPO controls (see Figure 4.4). As noted earlier, MPO-controlled projects represent roughly half of the projects in the MTP, and about one quarter of the total project costs. In this case, debt service and limited-access expressways are removed from consideration since neither are the responsibility of the MPO. Observations of note include:

- The Equity Area remains heavily favored for Bicycle & Pedestrian projects.
- For Highway & Bridge projects, the rate of investment is more than twice as high for the Rest of the Region.
- Transit investments within the Equity Area are nearly three times higher than in the Rest of the Region.

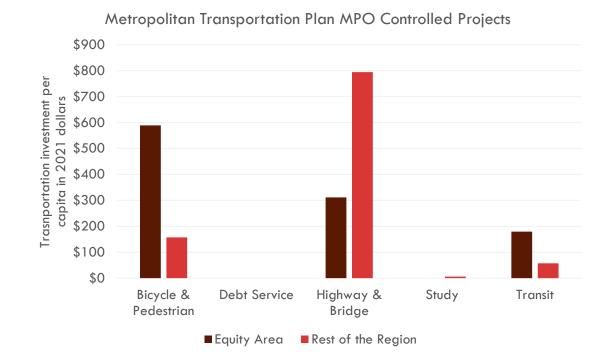


Figure 4.4: Visualizing MTP allocation by project category; MPO-controlled projects

Shifting Perspective: Investments over Time

While funding distribution is remarkably even within and outside the Equity Area during the MTP planning horizon, disparities appear when examining investments over time. While the TYP is a statewide requirement that does not impact federal planning requirements, it provides an easy way to break the MTP into two separate temporal pieces – the Ten-Year Plan (TYP) and the Out Years. As noted in Chapter 3, the TYP covers the first 10 years of the MTP, reflecting projects that have an identified funding source and are likely to be implemented.

When looking at all TYP projects, funding levels are consistent between the two geographies (See Figure 4.5). Similar to the MTP, distinctions appear between project categories. For example, more per capita funding is allocated for Bicycle & Pedestrian and Highway & Bridge projects within the Equity Area; while more is allocated to Debt Service, Study, and Transit projects in the Rest of the Region.

| Total TYP Investment per capita – ALL projects | | | | | |
|------------------------------------------------------|--------------------------------|--|--|--|--|
| Equity Area | Equity Area Rest of the Region | | | | |
| \$2,035 | \$2,028 | | | | |
| Total TYP Investment per capita – MPO- controlled | | | | | |
| Equity Area | Rest of the Region | | | | |
| \$72 | \$195 | | | | |

Figure 4.5: TYP investments per capita

However, when only **MPO-controlled TYP projects** are considered (see Figure 4.6), the 10-year horizon reveals a much more uneven distribution of spending, largely due to two main categories:

- More than three times as much spending is allocated for Highway & Bridge projects in the Rest of the Region. In part, this is not surprising as the Equity Area only contains a fraction of the region's overall federal-aid roadway mileage.
- A higher proportion of spending is allocated for Transit projects in the Rest of the Region. This is largely a technicality since the Equity Area is primarily served by the Manchester Transit Authority's (MTA) fixed-route network over which the MPO has no control. Instead, the MPO, as lead agency for Regional Coordinating Council 8, is responsible for programming funding for demand response and mobility management services which primarily operate outside of Manchester and MTA's fixed-route system.

Such disparities in TYP funding patterns should be monitored over time to see if they persist in future updates or are simply a one-time occurrence.

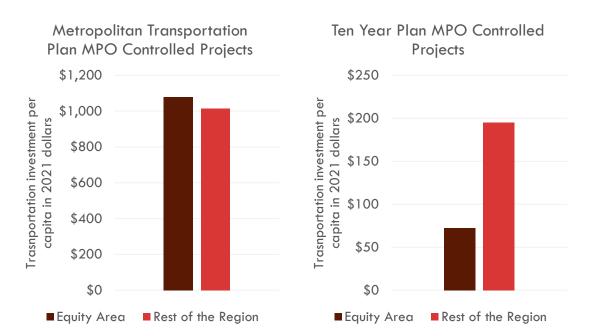


Figure 4.6: Visualizing allocation of MPO-controlled projects: MTP vs TYP

Limitations of this Analysis

This transportation investment analysis has several major limitations which must be kept in mind.

Geographic allocations do not account for the cost variation of different project components.

Certain sections or aspects of projects can cost significantly more than others. For example, if a roadway project includes a bridge, the length of the bridge is going to be substantially more expensive than other parts of the project which only require roadwork. Hypothetically, a geographic cost breakdown might account for these differences, but for most projects no detailed breakdown exists.

Geographic allocations do not account for regional project impacts.

Investment costs have been allocated based on geography alone, yet many projects affect populations who do not live immediately next to them. For example, a new road project completed in one part of the region may facilitate a faster commute for an individual living ten miles away. This is a common problem in geospatial analysis at smaller scales, and there is no easy solution for overcoming this limitation.

The MTP represents a snapshot in time.

Projects can change – and have changed – since the MTP was adopted in 2021. Project timelines shift, grants may be awarded, projected revenues may grow or decrease. For example, several projects listed in the MTP (MAN-12, MAN-13, and MAN-14) were unfunded at the time of adoption and placed in the Out Years. Then, in November 2021, Manchester was awarded a federal RAISE grant encompassing these projects, which moved them into the TYP. Given the fluid and unpredictable nature of transportation funding, caution should be used when drawing conclusions from a single MTP. Multiple years must be considered before long-term patterns are assessed.

A neutral investment analysis does not capture potential project benefits or harms.

This investment analysis only helps us understand how much money is being allocated to projects in a particular geographic area. No determination is made as to whether they are high-value investments, or whether they benefit or harm the residents living near the projects.

For example, construction of a limited-access expressway is very expensive, and therefore equates to a high transportation investment in a defined area. However, that project may a) create transportation benefits that extend well beyond the immediate geographic location; and b) create negative environmental externalities for people living nearby – including noise, pollution, and physical separation of neighborhoods. Determining the benefits or harms of a project is a much more difficult task which will need to be addressed in future additions to this Equity Analysis.

In Summary: Key Takeaways and Opportunities

This transportation investment analysis brings SNHPC another step closer to understanding the equity landscape of the greater Manchester region. It illuminates four key takeaways that may be used to guide future transportation planning efforts:

- 1. The MTP reveals a relatively equal distribution of transportation investments in our region. Comparable per capita costs in the Equity Area versus the Rest of the Region indicate that transportation projects planned for our region are relatively effective at responding to the needs of all residents. While improvements can always be made, the MPO appears well-positioned to build upon what's already working for the region.
- 2. There are important variations in investments based upon project categories. These differences reflect variations in local context and may be helpful for further enhancing SNHPC's equity efforts. For example, Bike & Pedestrian investments are more heavily weighted in the Equity Area, which makes sense given the area's population density and development patterns. SNHPC should continue to reinforce these types of investments, since safe and efficient pedestrian and bicycle infrastructure expands transportation opportunities for all users including those who can't or don't drive.

Transit investments are also particularly important for supporting equitable mobility, and this category could be worth analyzing further to better understand various subcategories of investment. By continuing to promote transportation choices, SNHPC can help respond to some of the needs of the Equity Area's residents.

- 3. Since this report reflects a snapshot in time, ongoing analysis will be needed to uncover investment trends. Given the findings in this report, SNHPC may want to carefully monitor MPO-controlled projects in the MTP, TYP, and TIP, to ensure that projects proposed for the Equity Area effectively move from concept to completion.
- 4. The next phase of this work will require a closer look at the distribution of project benefits and harms. A more nuanced analysis will be necessary to understand how various projects may support or detract from the needs of residents living in the Equity Area. In the next phase of analysis, collaboration with the community members will be essential particularly with members of federally protected classes or otherwise vulnerable groups. Meaningful public participation can help ensure the next phase of analysis reflects the needs and concerns of the region's most vulnerable community members. It can also help SNHPC identify viable, community-supported transportation projects and programs to help address any disparities that emerge.