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Final Report: Establishing Community Context

September 11th Memorial Program-2021/2022

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## Introduction

The past year, I had the opportunity to work at the New York City Department of Transportation's (NYC DOT) Strategic Planning Unit as a 9/11 Scholar. During my time at NYC DOT, I worked on two distinct projects: 1) performance measures to evaluate NYC DOT's planning work through an equity lens and 2) the development of Community Profiles to support community engagement and project development.

NYC DOT currently tracks multiple performance measures from an equity perspective, including where street improvement projects are implemented (by neighborhood), access to bike share, changes in fatalities by race and income, and many others. However, in 2021 an internal equity working group recommended 17 strategies to advance equity and 10 performance measures to evaluate the effectiveness of DOT's work in transportation equity. Measures allow us to meaningfully count, compare, and analyze the effects of policies and interventions. Without reliable measurement, DOT cannot be sure that strategies are having the intended impacts. The first half of the internship, my work focused on conducting and documenting a literature review and peer exchanges to identify best practices for equity performance measures. The end result was a list of potential measures that DOT could further explore, with supporting examples from peer organizations.

The second half of the internship focused on establishing a template for Community Profiles and developing 10 samples that DOT could then build upon. Community Profiles attempt to give a snapshot of information about a community. They can pull in demographic and economic data, or focus on a specific issue, like health. In New York City, the Department of Health and Mental Hygiene produces a Community Health Profile, the Department of City

Planning has a dashboard that displays data for NYC's communities, and the Community Boards often publish neighborhood needs assessments. The recommendation to develop Community Profiles came from an internal equity working group. The working group brainstormed strategies to advance equitable public engagement and identified Community Profiles as a potential resource. The profiles can help deepen the understanding of a community and save planners time and effort by providing them with some baseline information and data about a neighborhood. While DOT has strong relationships with many neighborhoods across the city, there are many others that have changed rapidly over time or that have a less robust history of partnership. Learning more about a neighborhood has been found to promote more effective communication, more trust in the government, and ultimately, more successful relationships. With this background, outreach and planning efforts will be better informed, more easily conducted, and even more closely connected to community needs.

## Part 1: Equity Performance Measures

Measurement, both of efforts and effects, is key to ensuring results-based accountability. To do this, it is important to clearly identify the relationship between the outcome DOT seeks to quantify, and the measure used to evaluate it. The equity working group identified several measures currently tracked by DOT and proposed several others that relate to five focus areas: mobility, project prioritization, public engagement, safety and security, and sustainability.

## Literature Review

### Mobility

The desired outcome for mobility is for all New Yorkers to have multiple travel options that are reliable and affordable. An internal equity working group identified three measures that may help assess mobility improvements: travel time reductions by project, shift towards more sustainable modes, and access to sustainable modes.

Travel time is a good measure of mobility because of its ease to collect and its clear relationship to individuals' movements. It is a commonly used measure for transportation organizations including Washington State DOT (WSDOT), Texas DOT (TxDOT), and the Chicago Metropolitan Agency for Planning (CMAP). Researchers and practitioners agree that as travel time decreases, mobility increases (Foth et al., 2013). Another metric identified by the working group was shift to sustainable modes of transportation, the number or rate of people converting from one mode of transportation to another with lower environmental costs. It aligns with the mobility outcome of providing multiple, affordable transportation choices. A similar measure identified by the working group is access to sustainable modes of transportation. This aligns with the DOT specified mobility outcome that New Yorkers have multiple travel options. This measure is useful for mapping inequalities in infrastructure but is limited when used alone because it speaks to built environment rather than to actual travel behaviors. When measures of access are used alongside measures of actual travel behavior, the two can shed light on the distribution of sustainable modes and how people are using them.

In addition to the availability of public transportation, some other measures for mobility include corridor throughput, travel time reliability, ownership of transportation means,

walkability metrics, trip frequency, transportation costs, and number of activities (Linovski et al., 2018; Martens et al., 2019). Of these measures, corridor throughput, travel time reliability, and walkability may be of particular relevance to DOT. Corridor throughput can be quantified in terms of vehicles or people. People throughput is the more useful measure for DOT and is the product of traffic volume and average vehicle occupancy divided by the number of lanes. Travel time reliability is determined by tracking daily travel times for routes or corridors. WSDOT does this by collecting travel time data from 288 separate 5-minute intervals. These two measures provide direct information about a key dimension of peoples' transportation experiences and have strong alignment with the mobility outcome of improved reliability. However, corridor throughput and travel time reliability measures require considerable data. Walkability is the ease with which people can reach desired destinations solely by walking. It is shaped by factors like the state of sidewalk repair, safety, infrastructure to support people with disabilities, and access to important destinations (Litman, 2018). This measure is useful in assessing mobility because it informs us about New Yorker's ability to reach important destinations without the assistance of fuel- or electricity-dependent vehicles. However, it is important to recognize that access measures cannot replace travel behavior measures. Additionally, walkability is a composite measure made from many inputs, so any assumptions built into the composite model will influence results.

### **Project Prioritization**

The desired outcome for project prioritization is to make decisions in a comprehensive and systematic way that improves access, safety, health, and quality of life for all New Yorkers.

Proposed measures relating to project prioritization equity are access to and use of DOT-created public spaces, access to sustainable modes, and investments in equity priority areas.

Access to DOT-created public spaces can be defined as the number of spaces within a fixed distance, like  $\frac{1}{4}$  mile. This aligns with the Working Group's desired outcome of improved access for all New Yorkers, as research finds that well-designed public spaces can serve to improve network connectivity in urban areas (Sas-Bojarska & Rembeza, 2016). By expanding access to public spaces, DOT can increase opportunities for walking and biking, help decrease pollution, and reduce safety risks. Similarly, access to green spaces could be used to further assess health benefits resulting from project prioritization. Research on the health benefits of urban public spaces dedicates significant attention to green spaces like parks, sporting fields, community gardens, and street trees. Urban green spaces are linked to public health improvements via air filtration, decreased noise pollution, and increased physical activity (Wolch et al., 2014).

In addition to measuring access to DOT-created public spaces, it is possible to measure usage of DOT-created public spaces by counting the number of individuals who pass through or spend time in an area that was built by DOT. For example, to measure the usage of public spaces created to improve foot traffic for business impacted by Covid-19, Seattle DOT tracked 20-minute observation counts of people passing through and people spending time in DOT-created public spaces. The primary strength of this measure is that it provides information about peoples' actual interactions with these spaces.

A final relevant measure identified by the working group is investments in equity priority areas. Equity priority areas are defined based on demographic characteristics, population and job density, and areas where there have been little to no investments. By concentrating new projects in areas that have been historically underserved, DOT can help address disparities in transportation access and safety. Based on this, there is observable alignment between our proposed criteria for equity priority areas and the project prioritization outcomes we want to measure. One limitation with this measure is that it does not provide direct information about changes in outcomes like community health and quality of life.

To quantify procedural efforts towards more equitable project prioritization, some transportation organizations have developed forms to assess equity in the planning process. One example of this comes out of University of South Florida's Center of Urban Transportation Research (CUTR) which released two tools to facilitate equity audits and appraisals. The Transportation Equity Audit Tool is a survey designed to highlight community transportation needs. It consists of a portion for planners to fill out, and a survey for community members. The Audit Tool asks about many similar concerns to those of NYC DOT: demographics, mobility, access to opportunity, environment, safety, active transportation, and investments/burdens. Based on survey responses, regions are given an equity score in each subject area. These scores, as well as the frequency with which this audit tool is used, can be compared across geographic areas, and serve as measures of equity in project prioritization processes.

### **Public Engagement**

The desired outcome for public engagement is that all New Yorkers are informed and feel empowered to shape transportation in their neighborhoods. The potential measures



proposed by the working group are assessing planning staff perception of equity, inclusion and public engagement at DOT, counts of individuals reached through engagement efforts, and public perceptions of DOT understanding of and responsiveness to community needs.

Communication via events, meetings, survey collection efforts, social media posts, and websites can spread knowledge about DOT projects and allow community members to share feedback. The Mid-America Regional Council (MARC) recommends tracking engagement counts across event and media types, and some organizations like the Saint Paul Metropolitan Council already track them. Counting the number of individuals who engage with DOT resources can help determine how many people received information about projects and how many people offered feedback. When paired with demographic information, it can also be used to assess whether community engagement demographics matched community demographics more broadly. As such, it would serve as a valid measure of equity in public engagement.

DOT can also track the number and diversity of communication forms (Beierle, 1998; Morris & Fragala, 2010; Karner & Marcantonio, 2018). The number of communication forms can be expressed simply as the number of different approaches DOT took for outreach on a project. It is useful in evaluating public engagement because more avenues for communication often translates to more accessible communication. MARC recommends measuring the number of outreach channels to supplement engagement counts, because differing communication channels can each favor different audiences. Some common channels include in-person meetings, social media, partner organizations, and paid advertising. One limitation with these measures is that they provide information about procedural engagement, but relatively little

about engagement quality. For this reason, they may benefit from the addition of measures that help evaluate the quality of public engagement. For example, the Saint Paul (MN) Metropolitan Council has developed an internal assessment tool that asks that projects' sponsors to describe engagement plans, tools, feedback, and impacts (Krapp et al., 2021). The engagement plan is awarded between 0 and 30 points and these points are added to the project's prioritization score. Points are awarded based on the number and quality of interactions with historically underserved populations, the clarity of engagement purpose, and the timing of engagement activities.

Additionally, one can measure community involvement and community acceptance rates (Karner & Marcantonio, 2018). The community acceptance rate is the proportion of sampled individuals who were satisfied with the quality of the outreach and the end project. Questions of satisfaction can be answered using survey data and are helpful in determining whether public engagement efforts addressed community concerns and informational needs. By asking survey participants directly, we can gain a strong sense of how community members feel about DOT efforts and impacts. For these measures, the sampling methodology for survey data collection is of particular importance.

Alternatively, some researchers argue that measures of influence are a more meaningful way to quantify community engagement (Rowe & Frewer, 2000). Correlational analyses and statistical tests can be used to determine if community demographics are associated with the likelihood or speed of DOT responses to complaints. These kinds of measures are useful because they allow DOT to differentiate between the procedural engagement of people

showing up or reaching out, and the effective engagement of bi-directional communication between DOT and New Yorkers. Beyond specific measures, though, research asserts that engagement assessments should consider community support or opposition, whether community-defined needs are being met, and how much influence was given to community feedback in generating project concepts (Krapp et al., 2021).

### Safety & Security

The desired outcome for safety and security is that all people can move freely and peacefully in NYC without fear of injury. The proposed measures for safety and security are evaluating all crash reductions, through an equity lens. Measures of fatality rates and collisions are strongly associated with safety and security, as they represent one of the most directly trackable forms of transportation harm. They are strong measures of this outcome and are used by many locales like WSDOT, TxDOT, and FDOT to assess safety.

One consideration put forth by the working group to improve safety is to explore the possibility of expanding automated enforcement options. Local and national instances of police racially profiling citizens and using excessive force have reignited the desire to reduce racial bias in law enforcement actions. Automated enforcement does not consider the demographic characteristics of individuals receiving enforcement actions, and for that reason, is likely to decrease any observed racial disparities in enforcement. Moreover, evidence from the NYC Red Light Camera Review Report found that over time, the cameras have issued fewer Notices of Liability (NOLs). This supports the notion that the cameras can reduce instances of bias in traffic enforcement and function as a deterrent for speeding in high-risk corridors. In a checklist for developing effective automated enforcement, the Insurance Institute for Highway Safety (IIHS)

and its partners state that racial and socio-economic equity are both important considerations. Decisions about the spatial distribution of safety cams, as well as about the pricing of NOLs, should be made so as not to disproportionately burden already marginalized communities. In terms of measurement, New York City is well positioned to be among the first to evaluate the effectiveness of safety cameras in reducing instances of bias in traffic enforcement, at a large scale. The newly effective local law 2021/045 passed by the City Council requires police to record and report information about traffic stops, including the demographic information of the people who were pulled over. Using NYPD data and safety camera data, DOT can compare demographics of individuals ticketed across both methods. Additionally, DOT could combine this data with spatial data to test whether the presence of safety cameras in an area is associated with differing frequency of police interaction, ticketing, or use of force during stops.

### Sustainability

The desired outcome for sustainability is that all New Yorkers live in safe, healthy, and resilient communities that can thrive in the face of environmental and economic change. Detailed in the Streets Plan and in Local Law 195 (LL195), DOT hopes to increase mode share for car sharing by 2%, for public transit by 4%, and for bicycling by 9% by the year 2050. Measuring sustainable mode shift is critical to these efforts. The working group proposed two potential measures which can help track equity in sustainability efforts: access to sustainable modes of transportation and sustainable mode shift.

Sustainable mode access and sustainable mode shift are valid measures of equity in sustainability as the constructs align well with the measure. A central trend in promoting sustainability is the reduction of disruptive noise, congestion, and pollution (Martens et al.,

2019). Sustainable mode shift is associated with these outcomes as well as decreased externalized travel costs per rider, and improved health. Sustainable mode shift, especially non-motorized, can help improve health outcomes by reducing health risks and increasing physical activity (Rastogi, 2011). Due to this strong relationship, both access to sustainable modes of transportation and sustainable mode shift serve as strong measures for sustainability.

Other measures of sustainability quantify environmental costs of transportation. For example, measures of air quality, energy use, and natural resource preservation all focus on the toll that transportation infrastructure can take on an environment (Ramani et al., 2012). Air quality can be measured directly by counting the prevalence of certain pollutants in the air. Alternatively, Ohio DOT (ODOT) uses a host of variables to estimate the environmental costs of peak hour excessive delays. Air quality measures provide excellent information about air pollution, which is strongly related to negative respiratory and circulatory health outcomes. However, air quality is only one facet of sustainability and should not be used as a sole measure.

Another measure of transportation sustainability is resilience to weather phenomena. For example, ODOT measures roadway ice and snow resilience by calculating the percent of routes that recover speeds within 10 MPH of the expected speeds within 2 hours of a snow event ending. This measure could help DOT to evaluate community resilience to environmental change. One limitation is that road recovery times do not indicate whether road conditions were maintained in an environmentally sustainable way. While the measure aligns well with

communities' resilience to environmental change, it does not account for environmental costs of DOT road maintenance efforts.

Additionally, road-miles of watershed and changes in the number of drainage/water crossing structures can serve as valuable sustainability measures (Ramani et al., 2012). Without proper roadside drainage and runoff pollution management, some New Yorkers may be left with routes that flood or are unsafe to use. Improved watershed management can also help improve the city's resilience to rising sea levels and increasingly frequent severe weather events. To measure these costs, ODOT tracks how many projects underwent stormwater pollution prevention reviews, collects state-of-repair data during stormwater pollution inspections, and tracks waste violations by ODOT contractors and projects. DOT can also track other sustainable design considerations, like the distribution of bioswales or more permeable surfaces to help manage water runoff. The city of Baltimore tracks the amount of green infrastructure built, upgraded, replaced, or rehabilitated in the previous 1-year period.

In terms of procedures that promote economic sustainability, other measures may provide more meaningful information. DOT can track the proportion of projects that incorporate sustainable project considerations like life cycle cost analyses, projections of maintenance costs, and projections of operation costs (Ramani et al., 2012). Similarly, DOT could track the proportion of projects that are energy star certified. Energy star certified projects are recognized for their sustainability and low environmental footprints. Each of these measures paints a limited picture of sustainability when taken alone, and therefore multiple measures are needed to gain a comprehensive understanding of DOT sustainability efforts.

## Literature Review Summary

There are many available measures to track desired DOT equity efforts and outcomes but determining which ones would be most advantageous to use is a complex decision.

Research warns that many transportation analyses suffer from a lack of alignment between constructs and measures; a murky relationship between what one wants to quantify and how one quantifies it (Lanzini & Khan, 2017). This leads to great variation in findings and can make cross-context comparisons difficult. To avoid this pitfall, DOT must clearly define outcomes and demonstrate an alignment between DOT's goals and their measures. Definitional clarity and measure alignment are the primary considerations for best practices in measure selection.

Beyond measuring desired outcomes well, effective equity interventions must also meaningfully describe how much inequality exists. Phrased differently, measuring efforts and impacts only requires data on inputs and outputs. However, measuring inequality requires information about the overall distribution of values within the data. It is important that DOT have the capacity to test for statistically significant differences in the distribution of outcomes across groups. By clearly defining what DOT seeks to measure, ensuring clear alignment between outcomes and measures, and using proper statistical methods to assess inequalities, DOT is ready to begin meaningful equity evaluations.

## Peer Exchange

The next step in this process was to conduct peer exchanges to better understand how transportation agencies across the country evaluate their work. The first step of this process was identifying potential contacts from among the organizations whose best practices were included in the literature review. Names, email addresses, phone numbers, organization names,

and position titles were compiled for each contact. In total, staff from ten different organizations were available and willing to discuss their measurement efforts.

After peer exchange partners were identified, a questionnaire template was developed to help structure the exchange process. The questionnaire was developed with guidance from internal stakeholders and recommendations from a Montana DOT Research Peer Exchange report. It prompts users to summarize key background information available online before meeting, in order to minimize redundancy during the exchanges. Questions focused on understanding which measures an organization uses, how the measures are operationalized, and any potential challenges or limitations to implementation. A copy of the peer exchange questionnaire was filled out for each organization we met with. Peer exchange advice ranged from personal anecdotes about their organizations' experiences with equity measurement, to general advice on implementation strategies, to specific recommendations about which software programs work best. Broadly, the takeaways from the peer exchanges fall into three categories: Selecting relevant measures, conducting evaluations, and communicating findings.

With regards to measure selection, peer exchange partners underscored the importance of clearly determining what inputs or outcomes DOT seeks to evaluate and ensuring stakeholder buy-in. Once this is accomplished, peers recommended developing a selection process or set of criteria to arrive at specific measures and variables. Some considerations mentioned by exchange partners include data reliability, future access, file sizes, and collection needs. Additionally, several peers stated that data quality should be a central consideration. Features like data cleanliness, update frequency, and the potential to disaggregate data in



different ways all influence how useful a measure is for equity evaluations. With these considerations in mind, it is possible to select appropriate and useful measures for analyses.

The second category of peer exchange advice concerned the data used for the evaluation process. When asked about their capacity to measure impacts at a project level rather than a neighborhood or network level, many peers cited challenges related to cost and data availability. Specifically, there are relatively few data sources that track desired transportation insights in enough detail to be used for project level evaluations. Additionally, the identified companies that generate this data often charge expensive annual fees. Another option mentioned in the peer exchanges was the production of transportation data. Still, this recommendation comes with many associated costs: data collection, data cleaning, and funding staff with the necessary skills to conduct analyses. Relatedly, many exchange partners stated the value in hiring or dedicating staff to oversee data management. For some, this is only a part of their job description while for others it is their sole focus. Lastly, peer exchange partners told us to expect complications. Nearly every staff member who participated in the exchanges offered anecdotes about unique or unexpected challenges to their measurement efforts. They recommend budgeting for unforeseen difficulties when developing project timelines.

The third category of peer exchange advice concerned equity measurement findings. The most important advice we received on the matter was to determine early in the evaluation process who we want to share findings with and how we want to share those findings. First, it is important to determine what findings will be shared internally and what findings will be shared outside of DOT. Next, it is important to determine how we will present those findings. This can be through online reports, community outreach events, or even through the publication of an

interactive data portal. It is important to keep in mind that some methods of disseminating information are more costly and time intensive than others. With an interactive data portal, for example, there are the initial data costs mentioned above, as well as costs for website development and maintenance.

### Performance Measures Next Steps

The literature review and peer exchanges resulted in the production of a list of potential equity measures and a document synthesizing the recommendations from peer organizations. A next step, based on this background, would be to finalize the selection criteria for DOT's equity measures. Once this is done, it can be applied to identified measures to produce a final list of measures to advance. After the desired measures have been chosen, DOT can gain access to the necessary data sources or begin data collection efforts. From here, evaluations may be conducted to test for significant disparities in transportation inputs or outcomes.

## Part 2: Community Profiles

In addition to the ideas put forth on Community Profiles from the equity working group, the Transportation Planning & Management (TP&M) Division within DOT conducted research on best practices for community context toolkit development and compiled a list of some existing data sources within DOT. Their work, synthesized in a final report, details their research process as well as their main findings. One important component of their work was the identification of existing, high-quality, community profile models. In addition to the NYC examples mentioned in the introduction, they found that Minnesota DOT produced profiles with cultural and transportation insights, the City of Providence produces a public-facing ArcGIS neighborhood snapshot tool, and Seattle produces neighborhood snapshots with demographic,

economic, and transportation snapshots. The report also Identified several sources of internal DOT data such as travel surveys and the location of street improvement projects.

One key takeaway from the community context toolkit report is that the early development and use of these profiles should be focused on parts of the city that are equity priority areas. As with the development of new projects, it is important to prioritize communities where DOT may have historically underinvested, as well as those where need for DOT intervention is especially high. The report recommended pairing quantitative and qualitative data. It recommends the inclusion of quantitative figures in addition to more qualitative data, like lists of community partners and recommendations for engagement strategies. A third takeaway is that the process for creating the Community Profiles needs to be standardized and crowdsourced. The data should be easily accessible to DOT staff, and the process for generating each Community Profile should be uniform.

The data points included in the community profiles leverage resources from the Mobility Management Program, like demographic data and the travel surveys conducted with people with disabilities and low income and limited-English proficient populations, and the Citywide Mobility Survey to create a Community Profile with a transportation lens for DOT. Once the process was established and the data was collected, Community Profiles were produced for 10 Neighborhood Tabulation Areas (NTAs).

### Community Profile Data

The Community Profiles include data that fall into the following categories: people, economic indicators, neighborhood resources, travel surveys insights, and relevant Mobility Management

Resources. This information corresponds with insight categories shown in the Community Profile visual document. The following section describes the variables chosen for inclusion.

## People

To understand the neighborhood context, it is important to understand who lives in the neighborhood. These data points specifically highlight information about marginalized and underserved populations to get planners thinking about these groups as well as their particular needs and vulnerabilities. It also helps inform what accommodations might be necessary during the outreach process, like getting interpreters if there is a large percentage of limited English speakers in a neighborhood. The Mobility Management at DOT extracts and maps American Community Survey data for traditionally underserved communities. This data was used to populate the Community Profiles. The following data points are included in the Community Profiles:

- **Total Population:** This is the total population in the Neighborhood Tabulation Area (NTA). It helps benchmark the other neighborhood numbers and percentages.
- **Race and Ethnicity:** This data describes the racial and ethnic breakdown at the NTA level (Hispanic/Latino, White, Black or African American, Native American or as Alaska Natives, Asian, Other or Two or More Races)
- **People with Disabilities (PWD):** This data includes the total number and percent of people with ambulatory, vision, hearing, and cognitive disabilities at the NTA level.
- **Limited English Proficiency Populations (LEP):** This data shows the number and percentage of limited English speakers in an NTA. Data also include the prevalence at which different languages or linguistic groups are spoken. The top 2-3 languages spoken at the NTA level are included in the Community Profiles.
- **Older Adults:** This data presents the total number of people and the total number of adults age 65 or older at the NTA level.
- **Population 18 and Under:** This is the school-age population, an important data point for DOT teams that work with and plan for this portion of the population.

## Economic Indicators

Economic indicators provide information about a neighborhood's wealth and about potential financial barriers to quality transportation. These data points can help planners

quickly evaluate some of the academic and economic investments that have been made in a community. With this information, planners are better equipped to recognize wealth-related transportation inequities, to tailor engagement to a neighborhood's residents, and to meet the needs of low-income residents. The economic data was extracted from the American Community Survey (ACS) at the Census Tract level and then aggregated to the NTA level. Data was extracted for all the Census Tracts in New York City. For high school graduation rate, unemployment rate, median income, poverty rate, and car availability, values are presented alongside the New York City average for context. The following data points are included in the Community Profiles:

- **High School Graduation Rate:** This data contains detailed information on High School Graduation Rate for population 25 and over by NTA.
- **Unemployment Rate:** This data contains unemployment rate for civilian labor force, 16 years and over by NTA.
- **Median Household Income:** The Median Income figure in the Community Profiles is the weighted average of the median incomes for the Census Tracts that comprise each NTA.
- **Poverty Rate:** This data presents the total population and the number of people below the poverty line, at the NTA level.
- **Car Availability:** This data contains information on access to a vehicle for occupied housing units at the NTA level.
- **Rental Rate:** This data contains information on occupied housing units and renter-occupied housing units at the NTA level.

#### Other Data

In addition to the Census data, information on public housing and heat vulnerability was included.

- **New York City Housing Authority (NYCHA) Developments:** NYCHA Development count is the number of New York City Housing Authority developments located within an NTA.
- **Heat Vulnerability:** Heat vulnerability index is an attempt to summarize the most important factors associated with adverse health effects during extreme heat events. It uses social and environmental factors to determine the relative risk of NYC neighborhoods for heat-related death during and immediately following extreme heat events and ranks NTAs according to quintile of risk.

## Neighborhood Resources

Neighborhood resources are useful qualitative data that offer a point of departure to deepen knowledge about the NTA. This section provides information about a neighborhood's landscape by highlighting local media sources, current or recent DOT project reports for the area, citywide transportation initiatives, and additional quantitative data portals. Results for these lists were identified using Google searches, the DOT "Current Projects" website page, and through the recommendations of internal knowledge holders.

- **News and blogs:** This is a short list of local news sources and blogs which provide coverage of the NTA.
- **Neighborhood reports/resources:** This is a short list of recent transportation project reports and outreach event reports for the Community District (CD) housing the NTA.
- **Citywide reports/resources:** This is a short list of citywide transportation initiatives.
- **Data tools:** This is a short list of data portals where planners can gain deeper knowledge about an NTA's built environment, community health factors, and demographic information.

## Travel Surveys

The Community Profiles also include information from three NYC DOT travel surveys: the Travel Survey of People with Disabilities, the Travel Survey of People with Low-Income and People with Limited English Proficiency, and the Citywide Mobility Survey. The first two surveys provide insights specifically from people with disabilities, people with low incomes, and people with limited English proficiency. Including these insights centers their voices as planners learn about an area and helps DOT understand their transportation preferences and needs. The Citywide Mobility Survey is an annual survey that explores travels trends across the NYC. The Community Profiles leverage data from the 2019 version of the survey. This information is useful as stand-alone figures to understand how people from different neighborhoods travel across NYC, and as additional context for some of the results from the first two surveys.

## Mobility Management Resources

The Mobility Management Facilities list stores and summarizes information about the companies, community groups, and organizations within different New York City zip codes. This list leverages existing DOT data collection efforts and provides planners with a starting point for potential outreach. The facilities listed in the Community Profiles, while not exhaustive, are meant to be reflective of community based, business, and public safety activity within the NTA. Accompanying this information are a selection of recommended engagement strategies. These strategies, developed by the Mobility Management Program, can help planners to improve the quality and accessibility of their outreach. They call attention to common participatory barriers that people face, and underscore ways that DOT can circumvent those barriers.

## Community Selection Process

The goal of this project is to showcase the potential usefulness of Community Profiles. Thus, it was important to be strategic in selecting which communities would first be profiled. Several considerations were made throughout this process to ensure that the profiles would be broadly circulated for internal feedback, that they would provide information about historically underserved areas or groups, and that they covered multiple parts of New York City. The primary considerations in community selection were the New York City Streets Plan Priority Investment Area (PIA) tier ranking and Street Improvement Project (SIP) count, diversity in SIP type, and borough. Communities were selected at the NTA level.

PIA tier is a number from 1 to 3 which ranks an NTA's level of priority for future DOT projects. PIA tier is determined by ranking an NTA's racial and economic demographic information, job and population density, and DOT investments from the past decade.

Neighborhoods with the highest concentration of people of color and poverty, as well as most densely populated and employment, and with the least investments rank highest. We primarily focused on communities in PIA tier 1 because these communities are the highest priority for DOT, and we hoped that the additional background information provided by the Community Profiles would make it easier for teams to begin or continue projects in these areas.

The number and types of Street Improvement Projects (SIPs) being completed in NTAs across the city was also a consideration. SIPs include projects such as bike lanes, intersection re-designs, pedestrian improvements, and neighborhood loading zones. Areas with more SIPs offered excellent opportunities to share the Community Profiles and to gauge their helpfulness. Busy teams could gain a sense of neighborhood demographics, basic economic information, and multiple mobility survey insights in a single, concise document. Additionally, SIP diversity was an important selection criterion because as more teams reviewed and utilized the document, an increasingly full perspective of its usefulness emerged. While some teams were offered multiple profiles for projects in different neighborhoods or boroughs, 7 separate TP&M teams were offered at least one Community Profile to use and to review.

Lastly, in selecting NTAs for the initial 10 Community Profiles, borough diversity was a consideration. Specifically, an effort was made to ensure that no single borough received attention to the neglect of the others. However, NTAs in Staten Island were not included among the initial 10 communities to profile because they did not rank highest based on the criteria.

### **Community Profile Components**

The Community Profile proof of concept resulted in two main products: the data folder and the visual Community Profile documents. Data assembly for the folder involved collecting



and organizing all necessary information into a centralized resource. Profile assembly focused on presenting information by neighborhood in a clear, easy to use format. The goal was to assemble data and profiles for 10 NTAs, then to receive feedback from internal stakeholders about their usefulness. This feedback would determine what changes and additions are made to the Community Profiles in the next stages of their development.

The storage and organization of data into a central location is important for two main reasons. First, it streamlines the data collection process for planners by pulling together data from several sources and arranging it neatly in a single location. This is one of the primary benefits of the Community Profiles. Second, it ensures data transparency and accountability when users have access to the raw data, the analyses, and the final results. The data cited in the Community Profiles came from several locations, including the Mobility Management Program, the American Community Survey (ACS), and the New York City Open Data Portal. Some of these sources provided data that was already cleaned for use, while others required the assistance of data analysis software. Data from these sources was pulled for all of NYC, with relevant figures saved in the data documents for all NTAs, all Community Districts, or all Citywide Mobility Survey zones. Collecting data in this way eliminates the need to revisit data sources and facilitates uniform data analysis. The data was stored in a shared folder for the project team.

Once the data were compiled into a central folder, it was possible to input the information into the Community Profile template document. The goal of the template is to expedite profile production and to ensure uniformity across Community Profiles. In the template, information is grouped into the following categories: People, Neighborhood

Numbers, News & Blogs, Learn More, Travel Survey Insights, Mobility Management Facilities, and Engagement Strategies. Each visual document presents information relevant to one NTA.

### Community Profiles Next Steps

The goal of this work was to develop Community Profiles that provide planners with relevant information about a neighborhood, and its residents, as a way to promote equitable public engagement. This was accomplished by building Community Profiles based on best practices identified from across the US, and by aligning specific profile insights with equity work at the NYC DOT. Once the desired facts and figures were identified, relevant data, codebooks, and analyses were assembled into a shared project folder. This folder can be thought of as the back end of the Community Profiles. The information was then used to populate a Community Profile for each of the 10 chosen NTAs, which can be thought of as the front end of the project. Once these two components were put together, Community Profiles were sent out for internal feedback which helped to strengthen and refine them. In all, 10 complete Community Profiles were produced as a proof of concept for the usefulness of the tool.

The next step in the development of the Community Profiles is to finish responding to reviewer feedback, to determine which changes will be integrated into the visual documents, and to fully implement the desired changes. This includes formally addressing questions and concerns, as well as conducting a follow-up with reviewers to ensure that the updated Community Profiles addressed the feedback to their satisfaction. Another potential next step is the production of additional Community Profiles. This could be done to learn about neighborhoods of interest or to produce an exemplar for an additional team's review. From

here, DOT will reflect on what the final form of the Community Profiles should look like, be it an online portal or a series of discrete documents, and begin steps towards a full rollout.

## Conclusion

During my time as a fellow in the September 11<sup>th</sup> Memorial program, I worked on two projects which gave me an opportunity to expand my knowledge and to strengthen my research skills. The equity measures project gave me the chance to learn about the wide range of approaches that different organizations take to measuring transportation inputs and outcomes. The literature review and ensuing peer exchanges pushed me to think wholistically about program evaluations, and about factors beyond data availability that inform the selection of high-quality measures. Additionally, the community profiles project helped me to learn about data-driven community engagement, and how to communicate information effectively. This project was an opportunity for me to better understand the many considerations that go into promoting equitable public engagement. It is not only important to understand who makes up a community, but also to understand their needs and priorities, how best to communicate with them, and their usual travel behaviors. Additionally, the Community Profile production process taught me about the importance of data transparency and reliability in equity work. Clear, replicable data are foundational to building knowledge about a community, and to building trust in DOT interventions.