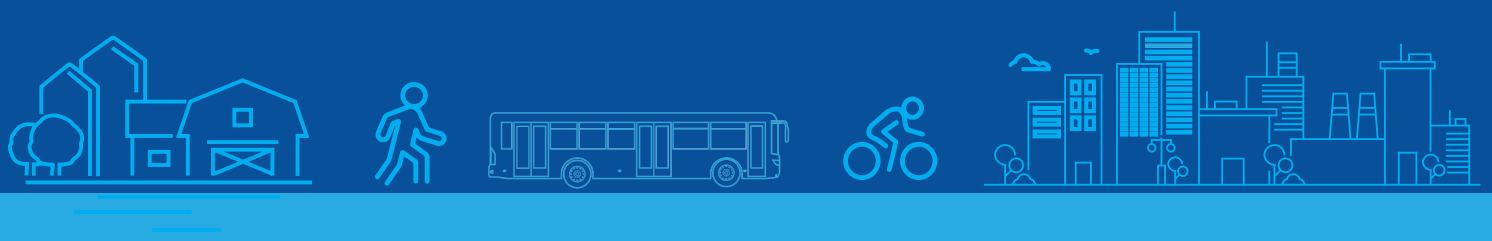
November 2026

# Integrated Mobility Division
# CONTENT STANDARDS FOR MICROTRANSIT/ SHARED MOBILITY STUDY



Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION

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# 1.0 INTRODUCTION AND PURPOSE

This chapter discusses the purpose, background, and audience for a Microtransit/Shared Mobility study.

## 1.1 PURPOSE OF THE GUIDELINES

The following document outlines the content required for the development of a microtransit/shared mobility study. It is expected that jurisdictions pursuing microtransit or shared mobility study will only focus on this element; in some cases, the study may include analysis of the fixed route system to have a comprehensive picture of how transit operates in the jurisdiction.

## 1.2 ORGANIZATION OF THE GUIDELINES

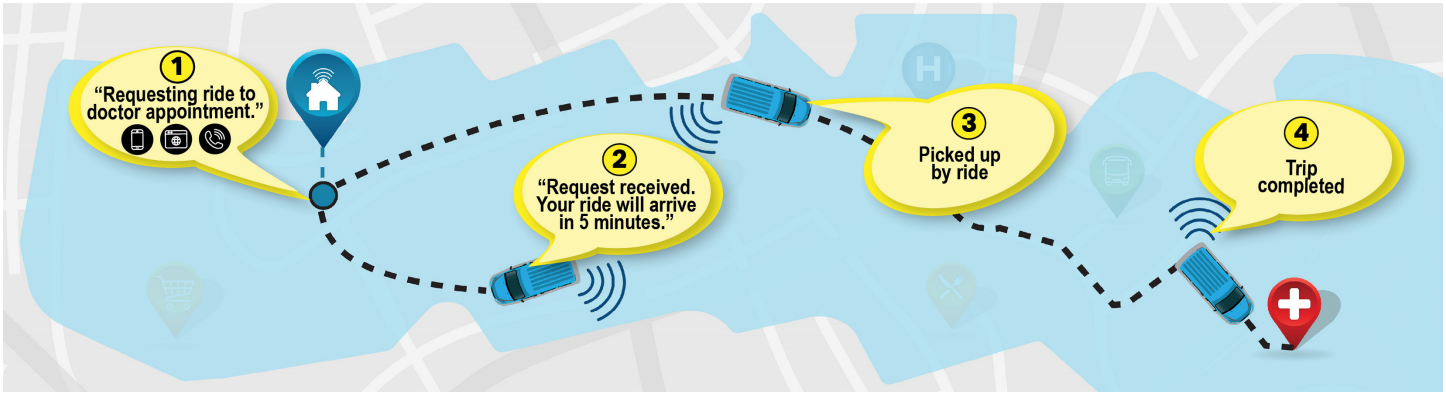
The first two chapters of the guidelines, provide information needed to correctly develop a scope for the project.

Chapter 3 provides guidance on the content of the microtransit feasibility study. The Table of Contents would contain the following elements:

1. Title Page
2. Acknowledgements
3. Table of Contents & Index of Maps, Tables, Figures and/or
4. Charts
5. Executive Summary
6. Local Context/Project Background
7. Public and Stakeholder Engagement
8. Vision and Goals
9. Needs Assessment and Gap Identification
10. Cost Estimation and Ridership Demand
11. Feasibility and Implementation
12. Cost Estimation and Ridership Demand
13. Feasibility and Implementation

## 1.3 AUDIENCE

This document is intended for use by the consultants preparing a plan with funds received through the NCDOT Microtransit Feasibility Studies.



# 2.0 GETTING STARTED

This chapter discusses elements of the scope and resources available that consultants should consider when initiating the development of the study.

## 2.1 SCOPING CONSIDERATIONS

In the initial phase of the Microtransit Feasibility Study, consultants will meet with the transit agency and Integrated Mobility Division (IMD) staff to define the scope of the project.

## 2.2 CONSIDERATIONS BY GEOGRAPHICAL SCALE

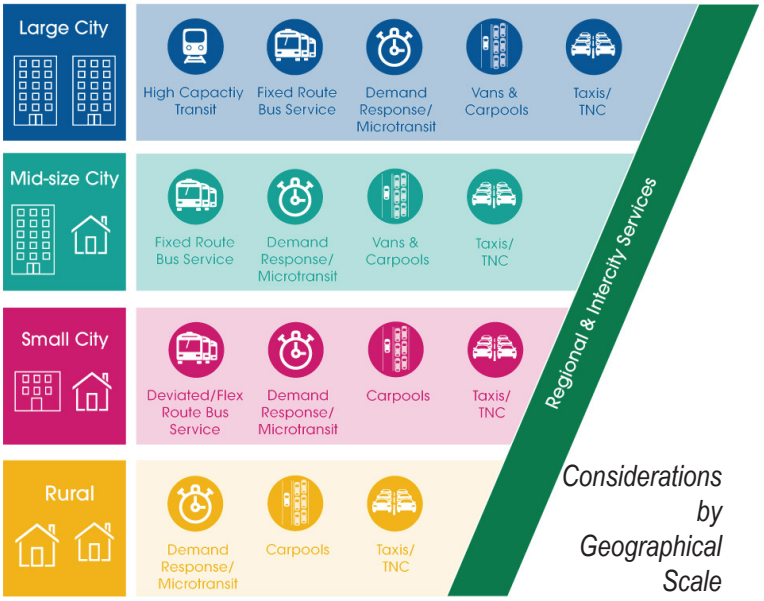
Geographic scale encompasses the population, density, development level, and character of a particular region or study area. As shown in Figure 1-1, geographic scale is broken down into four types:

Large City – High density area with a central business district (CBD)/downtown core and demand to support high-capacity transit, fixed-route bus service, demand-response/microtransit, vans and carpools, and taxis/Transportation Network Companies (TNCs).

Mid-Size City – Dense area with CBD and surrounding residential areas with demand to support fixed-route bus service, demand-response/microtransit, vans and carpools, and taxis/TNCs.

Small City – Low density area with CBD and nearby residential areas with demand to support deviated/flex route bus service, demand-response/microtransit, carpools, and taxis/TNCs.

Rural – Low density area with residential uses that could support demand-response/microtransit, carpools, and taxis/TNCs.




*Considerations by Geographical Scale*

## 2.3 CONSIDERATIONS BY TRANSIT IMPLEMENTATION

Microtransit studies can be prepared for a variety of communities including those that have existing transit service, communities with the desire to start a new service, or communities that do not currently have transit service.

ITRE has classified microtransit types based on purpose of implementation:

- First/Last Mile Access
 - Replace inefficient fixed-route(s)
 - Transit service in low-density areas
 - Temporal Service (providing service during times or days of week without service)
 - Convenience beyond demand-response (improved convenience for general population)

# 3.0 MICROTRANSIT STUDY CONTENT

This section discusses all the steps required to develop a microtransit study.

## 3.1 LOCAL CONTEXT/PROJECT BACKGROUND

This chapter discusses the elements to consider in the project background.

### 3.1.1 Service Area History and Background

The transit agency should provide the transit system's history and background for the service area served by the agency. This information should include pertinent information that led to the development of the transit system and the existing transit services that are provided.

### 3.1.2 Service Area Governance and Funding

The transit agency should provide documentation establishing their service area as well as the funding structure. This should include information on the organization and boundaries of the provider are governed and how the funding structure is setup. The governance and funding structures provide insight on the decision-making process for transit providers in the service area.

### 3.1.3 Microtransit Feasibility Study and Approval Process

Approval of the Microtransit Feasibility Study will be dependent on the requesting of the entity's approval process. Typically, the system or other entity responsible for development of the plan will complete the plan and present it to their governing body, who is responsible for reviewing, approving, and adopting the plan.

For plans awarded to rural or metropolitan planning organizations, approval may go through the Transportation Coordinating Committee (TCC) and then the Transportation Advisory Committee (TAC). Similarly, plans awarded to municipal agencies would be approved by the governing body.

### 3.1.4 Related Plans and Programs

Relevant, existing planning documents, and programs at the local, MPO, RPO, and state levels should be reviewed and drawn upon for project and plan recommendations.

Some example planning documents to be referenced include:

1. Metropolitan Transportation Plans (MTPs)
2. Comprehensive Transportation Plans (CTPs)
3. MPO or State Transportation Improvement Plan (MTIP or STIP)
4. Local Capital Improvement Programs (CIP)
5. Locally Coordinated Public Human Service Transportation Plans (LCP)

Other important plans include: Title VI Plan, the Transit Asset Management Plan, and the Public Participation Plan.

## 3.2 PUBLIC AND STAKEHOLDER ENGAGEMENT

This chapter discusses public and stakeholder engagement outreach strategies.

Public and Stakeholder Involvement is an integral part of developing a Microtransit/Shared Mobility Study, offering members of the community and stakeholders the opportunity to provide input about the community mobility needs and service gaps, which can help transit providers craft recommendations specifically for that community. The plan must be approved by IMD staff.

### 3.2.1 Public and Stakeholder Engagement Outreach Strategies

Outreach strategies will be developed based on tools that the community believes will be most effective. Some of the strategies that could be used to perform public outreach, either in person or using virtual tools, are described below.

Steering Committee – The Steering Committee is formed with interested stakeholders, identified in coordination with the agency. Typically, Steering Committees are comprised of 5 to 10 members, with representatives from local government departments, state agencies, and non-profits that have knowledge of the community's needs and expectations.

It is recommended that Steering Committees meet three to four (3-4) times during the study process to help develop the vision, goals, and objectives, review key deliverables, and draft recommendations.



Stakeholder Interviews – One-on-one conversations are used when transit agencies want to gather information from specific stakeholders that could have a special interest or may be affected by the project.

Focus Groups – A representative gathering of individuals brought together to focus on either specific issues or geographic areas, or to provide overall guidance or comment on a project. The ideal size of a focus group is 8 to 12 people; the meeting would have a moderator that will guide the discussion.

Surveys – Surveys are an efficient way of gathering public opinion during the decision-making process. Surveys could target different groups, as follows:

1. On-Board Passenger Surveys
2. Operator/Customer Service Representative Surveys
3. Non-User/General Public Surveys

### 3.2.2 Public Engagement Summary

The results of the public engagement will be summarized in a memorandum. Public comment and survey results would illustrate the document. The data collected during the public engagement effort will be used to inform the decision-making process. This document will be incorporated into the final report.

## 3.3 VISION AND GOALS

This chapter discusses how to set vision, goals, and performance measures for the project.

### 3.3.1 Visioning

Visioning is often one of the first elements in the public engagement process. It involves a collaborative, creative approach allowing the community to create a desired future for transit in the area. Creating a vision with the community allows for the unification of multiple perspectives for the future state of transit and creates buy-in from community members and stakeholders.

Establish an effective Visioning Statement that:
Provides a sense of purpose
Spells out the path of the microtransit plan for the given locality
Informs goals and long-term strategies
Excites and motivates

The PEP will establish strategies to reach out to the community, identify stakeholders, type of engagement and timeframes, materials needed, and responsible parties.

### 3.3.2 Goals

The vision is implemented through goals that are accomplishable and appropriate to community resources. Microtransit plan goals should be derived from the vision statement and developed as part of the public engagement process. Surveys and informational material should be presented and available to the community as a whole as well as to key stakeholders with the opportunity to provide feedback.

### 3.3.3 Performance Measures

Performance measures are quantitative or qualitative results from a transit system's service, which could be established ahead of time as part of the microtransit plan development. The performance measures need to relate to the goals and be clear regarding what the transit agency hopes to achieve. These measures will determine the success of the plan's goals. IMD may provide guidance through suggested statewide metrics such as the difference in population with access to microtransit, difference in hourly availability of microtransit, etc.

## 3.4 NEEDS ASSESSMENT AND GAP IDENTIFICATION

This chapter defines expectations for analyzing existing conditions and socioeconomic data as well as conducting a needs and gaps assessment.

### 3.4.1 Existing Conditions and Socioeconomic Data

Establishing baseline information for the existing transportation, social, economic, and cultural network as part of the creation of a Microtransit/Shared Mobility Study is necessary to implement new transit service and evaluate existing service in an effective and efficient manner.

Existing Conditions Data – The Microtransit/Share Mobility Study should utilize available data resources to develop a snapshot in time of the current transit service area and how it is projected to change, considering factors such as population, employment, and transportation. The snapshot provides a baseline for agencies to then identify future needs and analyze potential improvements to the transit system.

In addition to detailing the transit system, the analysis should consider existing and future land use and development patterns, the overall transportation system characteristics, and community input, including their perceptions and use of transit within the service area.

Sociodemographic Data – Collecting and reviewing sociodemographic data for the service area provides a glimpse of current and potential demand for transit services and/or areas that could be better served by transit. Data should include demographics, land use patterns, and economic conditions.

The study should include a summary of relevant existing and forecasted demographic data, including population, household, and employment densities, communities typically included in an environmental justice analysis (e.g., low-income, minority), specific age groups (senior and youth), communities that speak a language other than English, or communities requiring accessibility accommodations. In addition to collecting data on the aforementioned populations, these same populations should be included in the public engagement process, as discussed in Section 3.2, to verify analysis from quantitative data and augment it with qualitative perspectives.

Existing conditions data may be available as geospatial files from the data portals of entities such as transit providers, DOTs, MPOs, and/or regional commissions. Geographic Information Systems (GIS) software both enables a geographic analysis of the data and provides the ability to supplement the study with graphic representations of existing conditions data and transit options.

The subsequent sections describe the elements in a sociodemographic analysis and provide example methodologies and data.

Demographic Analysis – Demographic data also helps identify areas of potential demand within the service area. A review of demographic data should typically take the following into consideration, in addition to any other populations identified as particularly vulnerable or transit-dependent within the service area:

1. Population density
2. Employment density
3. Minority populations
4. Low-income populations
5. Limited English Proficiency (LEP) populations
6. Populations with disabilities
7. Households without a vehicle
8. Senior (60 years old and above) populations

Demographic data is available through NCDOT IMD's Transportation Disadvantage Index (TDI) tool and the NCDOT Demographic Snapshot Tool. In addition, it can be queried through the American Community Survey (ACS) database or found on other online databases if local surveys have been conducted (e.g., a data portal for a regional commission). This data is best displayed on a map developed through GIS. The Census Bureau provides GIS data online through their datasets.

Travel Patterns and Origin-Destination Data – Commuting patterns of residents are relevant to the development of a Microtransit/Shared Mobility Study. The Longitudinal Employer-Household Dynamics (LEHD) OnTheMap online tool provided by the Census can be utilized to show where people work or live within and outside of the service area.

Employment and Key Destinations – Major employers and key destinations, such as hospitals, schools, shopping centers, play an important role in determining travel patterns and understanding mobility gaps. The analysis will include an inventory and mapping of these locations in the study area to help determine what type of service should be considered to provide access to jobs and other key destinations. The NC Department of Commerce has an online tool for identifying major employers.

Transit System Performance and Trends – Transit system performance will help in understanding overall system efficiency and determine the best model to provide transit service. The data collection efforts should include operational data and route information, if fixed-routes are being analyzed. The data needed to determine system performance based on the type of service, is listed below. Additional data may be needed at the time of analysis.

1. Data
2. Vehicle miles and revenue miles
3. Vehicle hours and revenue hours
4. System-wide Unlinked Passenger Trips
5. Unlinked Passenger Trips per Route
6. Ridership by Stop, if available
7. Origins/Destinations
8. Passenger/Miles
9. Operational Costs
10. Fare Revenues

### 3.4.2 Active transportation, Shared Mobility and Regional Service

Bicycle and pedestrian networks should be evaluated using NCDOT IMD's Pedestrian Bicycle Infrastructure Network (PBIN) to determine overall mobility challenges, particularly in relation to accessing fixed-route stops, if relevant to the transit system.

The study will provide an overview of connections to local/regional transit (depending on local agency), if the agency is planning any expansion of existing services and other relevant information. The analysis should consider the presence of regional / inter-city, express routes and park-and-rides. Service hours and regional bus arrival times for these services should also be included.

### 3.4.3 Peer gencies analysis

Perform a peer analysis of up to five agencies that have implemented microtransit services, including agencies that have used Transportation-as-a-Service (TaaS) and Software-as-a-Service (SaaS) models. Researchand interview, if needed, to determine pros and cons of microtransit implementation, as well as operational stats and other pertinent data. Out of state peer agencies may also provide valuable insight. Selected peers should match geographic area, jurisdiction of agency, densities, transit modes, etc.

### 3.4.4 Potential for Demand

All the information collected in this task and the results of the public engagement will inform the potential for microtransit in the study area. Low densities and mobility challenges and barriers, such as gaps in coverage, absence of reliable transportation, lack of pedestrian networks, would make strong cases for microtransit service and would be the base to create the service zones.

### 3.4.5 Fixed-route Analysis

One important consideration would be to determine the effect of the new microtransit service on existing fixed routes, as microtransit could replace a fixed-route or a segment of a route. In some cases, fixed routes would change to accommodate the new service in order to operate these two services seamlessly. These recommendations could include routing changes, frequency, and coverage, among others.

### 3.4.6 Microtransit Model

In coordination with the agency, determine 2-3 potential models to provide microtransit services, generally categorized as TaaS or SaaS. Recognizing that microtransit services fall on a spectrum of service models, identify which microtransit functions will be carried out by the agency versus contracted. Pros and cons of each one of these models need to be well documented to facilitate the decision-making process.

### 3.4.7 Benefit and Impact Analysis

Once the agency has defined which model is the most desirable, a benefits/impacts analysis will be performed to determine the effects of implementing microtransit in the community. This analysis will determine overall impacts of the service and if the population's mobility improves or decreases with the new service. Impacts to access to jobs, healthcare, and education would be identified.

## 3.5 COST ESTIMATION AND RIDERSHIP DEMAND

This chapter discusses considerations for preparing cost and ridership estimates.

### 3.5.1 Cost Estimation

Once the service area, project concept, and service parameters are defined, cost estimates will be developed for the project. The peer analysis and industry providers would offer information about latest operational costs for TaaS and SaaS models. This step will require coordination with the agency to understand their constraints if the project is feasible. Capital needs will be part of the calculation for SaaS models, including but not limited to: staffing (information technology, training, drivers, maintenance) vehicles, tablets, maintenance space, etc.

The cost estimation needs to establish the cost per hour to provide service and comparison of costs per trip / per hour of new service vs old service. If the agency also operates fixed-route or demand response, the effects of adding microtransit to the mix need to be evaluated with additional operational and capital costs as part of the calculation. Cost estimate should include methodology for estimates, i.e. what is and is not included, what considerations, etc.

### 3.5.2 Ridership Estimation and Demand

Ridership should be estimated in order to understand demand as well as the capital and operating requirements to support the proposed microtransit service. The size of the service area, ridership, and acceptable service standards impact the estimated number of vehicles and operating budget. Ridership may be estimated using microtransit planning software and/or observed microtransit ridership in peer communities. There is not a one-size-fits-all approach for ridership estimation, which can be based on service area size, service hours, and demographics. Consultants are expected to show a detailed methodology for ridership estimates.

## 3.6 FEASIBILITY AND IMPLEMENTATION

This chapter discusses the elements to consider when determining feasibility and implementation strategies.

The cost and ridership estimation will give the agency tools to determine if microtransit/shared mobility services are possible within the agency's budgetary restrictions. The agency and consultant need to discuss if proceeding with implementation is right for them. The "null" or "no change" option should also be considered.

Part of the feasibility discussion is the ability to obtain necessary funding to operate microtransit/shared mobility services. Review available funding streams, from sources such as federal and state grants or partnerships that may be available to the agency to implement innovative services and sustain those services over time. The evaluation will include at least five years of operations.

Additionally, if services are being eliminated, the implementation process will need to identify services being removed, as well as capital infrastructure, and any potential cost saving that could be applied to microtransit. If services are being removed, consider order of operations, timelines, FTA policies related to Title IX, equity analysis, fare changes, and a step by step guide.

This information will provide the elements to develop the implementation plan with next steps, map of potential service areas and/or shared mobility stations/zones.
If service is not feasible, identify potential additional funding streams and document the next steps from a policy and funding perspective to make microtransit and shared mobility an achievable goal.

### 3.6.1 Marketing

Marketing should be an integral part of the microtransit implementation effort. Success in implementing new technologies depends on developing trust in the process, outlining in simple and clear steps how microtransit would be implemented, and identifying how that will affect the rider's access to transit. The Microtransit Feasibility Study should identify the marketing steps that the agency would need to take such as branding, promoting the new service at community events, and rider training. The study should include cost estimates for marketing, cost of post cards, ads, rider training, marketing strategies for events, etc. Costs should be based on ridership estimates.