STEP 3
EXISTING CONDITIONS

The initial analytic step in developing a transportation plan is to inventory and assess existing transportation facilities and their associated conditions and characteristics to define the community's existing transportation needs.

As stated earlier, the nature of the land use and transportation relationship is such that an assessment of current land uses in the study area is also helpful to understanding how the transportation system serves the community.

This component of the transportation plan will document the current physical and operating characteristics of the transportation system. This step involves three primary components – Inventory of Facilities and Conditions, Analysis of Operating Characteristics, and Definition of Existing Needs.

This step may require professional assistance from a planning/engineering consultant in order to gather, analyze, and interpret the technical data and information. Guidance on soliciting professional services and evaluating the qualifications of consultants can be provided by GTC.

INVENTORY OF FACILITIES AND CONDITIONS

An inventory of the existing transportation facilities and their conditions as well as factors affecting them is the first step in analyzing existing conditions. The data and information necessary for this inventory may be available from the municipal highway/public works department, county planning and highway departments, GTC, and NYSDOT. However, it is recommended that additional information be gathered through field observations and data collection to supplement existing information sources.

The following data and information is typically gathered and analyzed as part of the inventory of transportation plans. This list is not all-inclusive and can be modified based on the specific characteristics of and resources available to the community.

- Roads – mileage, number of lanes, widths of shoulders, pavement condition (NYSDOT can provide pavement condition ratings for NYS highways), posted speed limits (including changes by zone), and advisory signage on road curvature or other substandard features by route and jurisdiction (e.g., local, county, and state roads and routes).
- Intersections – traffic control devices and geometric characteristics as well as associated sight distances with special attention paid to those that may be "atypical" (e.g.., five roads at a single intersection, misaligned intersections, roads that yield to through traffic, etc.).

- Bicycle and Pedestrian Facilities – location, condition, and use of sidewalks, crosswalks, trails, and bike paths.
- Transit Services – routes serving the community (including schedule) and location of stops.
- Land Use and Zoning – current and permitted land uses and regulations, densities, and locations of historical, cultural, visual, recreational, and other community resources.
- Demographic Information – historical information on community, surrounding area, and county-wide population, employment, and housing.
- Utilities –sewer, water, gas, and electric lines and transmission facilities as well as their associated rights of way. Special attention should be paid to sewer and water as they have the most impact on future development patterns.
- Environmental Features – steep slopes, state and federal wetlands, flood plains, water bodies (e.g., streams, rivers, lakes, etc.), wooded areas and lots.

The above information should be presented in formats that are easy to analyze and are able to communicate the results in graphic and tabular layouts. The use of a Geographic Information System (GIS) is recommended for viewing multiple conditions spatially and manipulating tabular data.

ANALYSIS OF OPERATING CHARACTERISTICS

The inventory created above provides a perspective of what the transportation system *is* and the factors that affect it. In addition, what the transportation system *does* must also be understood. An analysis of the transportation system's operating characteristics provides valuable insights into how the transportation system serves a community's residents, businesses, and institutions.

As with the inventory of facilities and conditions, this list is not all-inclusive and the specific data needed for the transportation plan may need to be gathered through field observations and data collection by municipal staff, Steering Committee members, consultants and/or volunteers.

- Traffic Volumes – the number of vehicles using a section(s) of roadway expressed in relation to time; the time-period is determined by the type of information desired and the application in which it is to be used.

  Average Daily Traffic (ADT) is the most common traffic volume measurement. ADT data should be obtained, at a minimum, for key roadway locations. Ideally, counts for most or all roads in the community are desired.

  NYSDOT can provide ADT counts for State highways. Some county highway departments collect ADT counts for county and local highways.

As such, some county highway departments may have automated traffic counters that can be loaned to a municipal highway/public works department for the collection of additional data.

Obtaining peak-hour traffic volumes at specific locations such as intersections can be useful as well, particularly if congestion during morning and evening rush hours is a common occurrence.

In addition, be sure to account for seasonal variations in traffic volumes. For example, lakefront roads and those leading to recreation facilities may experience very high traffic volumes only during certain times of the year.

- Capacity Analysis – the Highway Capacity Manual[1], the widely-accepted resource on capacity, defines capacity as "the hourly rate at which persons or vehicles can reasonably be expected to traverse a point or section of a lane or roadway during a given time period under prevailing conditions."

  ADT is the most useful measure for determining the physical capacity of a roadway segment. While there are technical procedures, according to the Highway Capacity Manual, there are rule of thumb capacity applications that can be used for rural communities.

  Based on local upstate New York information the following capacity threshold can be applied:

Road Characteristics *(Lanes per Direction)*	**Volume Capacity** *(Per Hour per Lane)*
1 Lane	700-900
2 Lanes	900-1,200

  Should a given location come close to this threshold, a more detailed technical method should be employed to determine if the volume of traffic is more than the roadway can reasonably be expected to handle in a safe and efficient manner.

- Turning Movement Counts – the number of vehicles collected by direction approaching an intersection and any change of direction (e.g., 150 vehicles approach from the north and 75 continue through south, 30 turn east [left], and 45 turn west [right]).

  The highest volume intersections are often well known in smaller communities and turning movement counts should be collected at these intersections during morning and evening rush hours (peak periods).

  Collecting turning movement counts at other intersections that may have geometric, safety, or operational concerns should be considered. In

addition, collecting turning movement counts during Saturday mid-day periods should be considered if the community has intersections that serve commercial or recreational facilities.

Appendix B outlines a methodology and provides sample forms for collecting and summarizing turning movement counts.

- Accident History – the number, location, and potential causes of accidents is an important factor in assessing the safety of the transportation system.

  Accident records for all key roads in the community over the latest 3-year period available should be gathered and analyzed. This information may be obtained from the local law enforcement agency or from the NYS Department of Motor Vehicles. Accident history reports require long lead times to obtain. A standard form letter requesting this information is provided in Appendix C.

  Accident history data can assist in identifying locations with higher than usual numbers of accidents, understanding why accidents occur, determining which alternatives should be implemented, and evaluating the effectiveness of these alternatives.

  The accident history analysis can be a highly technical process. Appendix D provides an overview of how to conduct and interpret an accident history assessment based on guidance contained in the Manual of Transportation Engineering Studies[2].

- Travel Speeds – travel speed data may be useful if public feedback identifies speeding as a concern. This information is not always readily available, but in some instances can be obtained from local law enforcement agencies. This information, however, may be very important and the collection of it could be considered as a "Follow-On" activity to the transportation plan.

- Other information – various other types of information may be needed depending on the type of comments or concerns brought up at the first public meeting. Each community is unique and different elements or concerns may arise that need to be addressed.

DEFINITION OF EXISTING NEEDS

Existing needs should identify what the current issues are and where they exist summarized in list form with a corresponding map. Existing needs should initially be defined based on the inventory of facilities and conditions and the analysis of operating characteristics conducted above. This list of existing needs should be presented at the first public meeting and revised based on comments received there.

A comparison of the inventory of facilities and related conditions against the operating characteristics is good way to begin identifying existing needs. Some obvious questions to ask are:

- Are the community's roadways able to handle the volumes of traffic on them (e.g., is the pavement condition poor on the most heavily traveled road in a community)?
- Are traffic control devices at various intersections appropriate given common turning movements and sight distances (e.g., are left turns too difficult to perform at a particular intersection)?
- Are there higher than usual numbers of accidents at locations where advisory signage is not present (e.g., do weather conditions affect the ability of motorists to safely navigate a curve during the winter)?
- Are persons deterred from using public transit (e.g., do less people use the bus in the winter because there is no shelter from weather-related elements)?