



NFTA Metro Amherst-Buffalo Transit Options/Alternatives Analysis

General Criteria for the Identification of Station Locations for LRT and BRT Tier 2 Alternatives for Initial STOPS Ridership Forecasting Task

Introduction

The conduct of the Tier 1 Screening on the long-list of alternatives for the NFTA Metro Amherst-Buffalo Transit Options Alternatives Analysis study resulted in over 14 alternatives and multiple sub-options being carried forward for a more detailed definition of alternatives and for the analysis and screening that will occur in Tier 2. Given that this large and wide range of alternatives requires many alternatives to be defined conceptually, from an engineering as well as an operations/service planning perspective, the study team identified that an interim step was warranted to help reduce the set of alternatives to only those most reasonable that would then be taken through the full Tier 2 evaluation and screening.

The interim step calls for the use of ridership forecasting, using the FTA's STOPS ridership forecasting model, to identify the most reasonable alternatives to take into the detailed Tier 2 screening and evaluation (those with higher ridership forecasts), and to eliminate from further analysis, the poorer performing alternatives (those with lower ridership forecasts). In order to use FTA's STOPS ridership forecasting model to generate ridership forecasts for the alternatives, the surviving Tier 1 alternatives must be further refined to include the following elements:

- General alignments (horizontal and vertical) for each alternatives,
- General operating speeds must be determined based on alignments and conceptual level of engineering,
- Preliminary stations or stop locations must be identified and whether or not a station has park and ride capability and if the station is at-grade or not (and vertical access times where the station is below grade or aerial),
- A generalized service or operating plan with station/stop level travel times and headways must be developed for each alternative (for the alternative's new transit service as well as an underlying service plan for existing transit services).

This white paper identifies the general criteria used for the identification of preliminary station locations for the interim ridership forecasting step of the Tier 2 screening and evaluation process.

General Criteria for the Identification of Preliminary Station Locations

Station Spacing Criteria:

Current Metro Light Rail station spacing is approximately 0.7 miles between stations. Standard practice for light rail transit technology in urbanized areas in the United States is to have station spacing ranging from 0.5 miles to 1.0 miles.

For Bus Rapid Transit (BRT) typical practice in urbanized areas in the United States is to have station spacing at approximate 0.5 mile intervals, depending on corridor land use and planned BRT service characteristics.

Station Area Land Use Criteria:

As the purpose of the project is to improve the linkage between existing and emerging activity centers in Buffalo and Amherst, station locations will be identified respecting the station spacing criteria above for each mode that also provide proximate access to existing major trip generators and planned redevelopment areas. FTA defines “station areas” to be a ½ mile radius around a transit station (for fixed guideway including BRT or LRT modes).

Station Park and Ride Opportunities Criteria:

As another purpose of the project is to provide a fast, reliable, safe, and convenient transit ride between Downtown Buffalo and Amherst, station location criteria need to capture the ability to develop park and ride access to transit. Since auto access is the predominant mode accommodated by park and ride facilities, park and ride development opportunities occur at and near major highway interchanges and roadway intersections and is typically located in lower density land use settings, where undeveloped land can be converted to parking (either surface or structured) or where existing parking facilities may offer joint-use parking arrangements with transit.

Additional Station Location Criteria:

Subsequent refinement of station locations by mode and by alternative will occur in later steps. In addition to using the number of station boardings and alightings that will result from the STOPS forecasting to refine station locations and spacing, the project team will refine station locations using the following principles and criteria:

Station locations should be consistent with adopted local and regional plans, and located in areas where higher-density development is planned.

Stations locations and park and ride considerations should be reflective of economic development objectives:

- Stations are potential catalysts for new transit-supportive development
- Limiting free surface parking at or near stations will make more land available near the station for higher-density development where zoning allows
- Station can serve as a centerpiece of a mix of transit-supportive land uses.
- Park and ride locations must be within the commuter shed for modal changes.
- Stations located partially or fully on or in private property should be considered (i.e., within developments or activity centers being served).