

TRAVEL DEMAND AND RELIABLE FORECASTS FOR TRANSIT

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Regional Transitway Guidelines

Provide Technical guidance supporting the development and operation of transitways:

§ In a consistent, equitable, and efficient manner

§ Delivering an effective, integrated, and user-friendly transit system

Lead Agency and Responsibilities

- Metropolitan Council – responsible for ensuring high quality, consistent and defensible forecasts for all transportation projects
 - § Develop and maintain Regional Travel Demand Model
 - § Develop forecast socio-economic data

Lead Agency and Responsibilities

- Local agencies typically conduct initial project phases
 - Direct preparation of project forecasts (usually by consultants)
 - § Involve Council forecasting staff in cooperative review during all phases of travel demand forecasting

Cooperative Review Should Include

- Development of proposed scope of work
- Review of forecasting methodology
- Review mode validation before producing forecasts
- Review of no-build or baseline input assumptions
- Review draft forecasts prior to release

CAVEAT

- A major basis of the development of these guidelines was the need to meet the stringent FTA requirements for New Starts funded projects. These guidelines will have to be reviewed for consistency if FTA revises the New Starts process as discussed in their recent NPRM.

Forecasting Goals

- **Develop forecasts that are**
 - Logical
 - Sensible
 - Reflect key differences between alternatives
 - Defensible

Forecasting Goals

- **This takes time and effort**

- National and local experience suggest that
 - Travel demand forecasting makes up a quarter to a half of the overall effort
 - Building and validating the base model takes a third to a half of the forecasting effort

Travel Demand Forecasting Options

- **Preferred tool** – Twin Cities Regional Travel Demand Model (Classic four-step model)
- **Rule-Based Market Analysis Tools** - Uses CTPP or LEHD data

Rule-Based Market Analysis Tools

- Aggregate Rail Ridership Forecasting II Model (ARRF) – Developed by FTA
- Transit Boardings Estimation and Simulation Tool (TBEST) – Developed by the State of Florida for
- Metro Transit Park-and-Ride Model – Developed by Metro Transit

Forecasting Process

- **Iterative Nature**

- Forecasts evolve over time as new data become available
- Refinements include
 - Network Definition
 - Zonal Data

Forecasting Process

- **At each refinement**
 - Ridership forecasts may increase
 - Ridership forecasts may decrease
- Goal of each refinement is to produce the highest quality forecasts based on available data, **not** to match or exceed previous forecasts

Model Selection

- **Type of funding expected (or desired) to be used –**
 - **New Starts virtually requires use of Regional Travel Demand Forecasting Model**
 - The RTDFM has the ability to reflect many market segments
 - It is sensitive to various scenarios of future development
 - It is sensitive to routing, access, and operating characteristics
 - Can extend analysis beyond total ridership
 - Can forecast User Benefits

Model Selection

• **Small Starts, Very Small Starts, and non-New Starts –**

- Simpler methods may be used (previously described).
- May have to backtrack if funding options change.
- May have to backtrack if more detailed forecasting data is required for decision making process.
- Use of RTDFM for these type projects may be more flexible as the FTA requirements for the Baseline Alternative and fixed person trip tables are not mandated.

Projects Where RTDFM May Not be Best Tool

- Park-and-Ride Facility Planning
- Local Route Planning where stop spacing is smaller than TAZ size
- Projects where service changes are not anticipated new riders and benefits are intended for existing users only

Development of Model Assumptions and Modifications

- **Input data based on latest planning assumptions**
 - Based on approved Metropolitan Council municipal totals
 - Consistent with local comprehensive plans
 - Base highway and transit networks consistent with adopted TPP

Development of Model Assumptions and Modifications

- Changes to approved socio-economic data should be discussed with Metropolitan Council staff
- Service planning assumptions should be reviewed by the appropriate transit agencies and Metropolitan Council staff

Model Validation

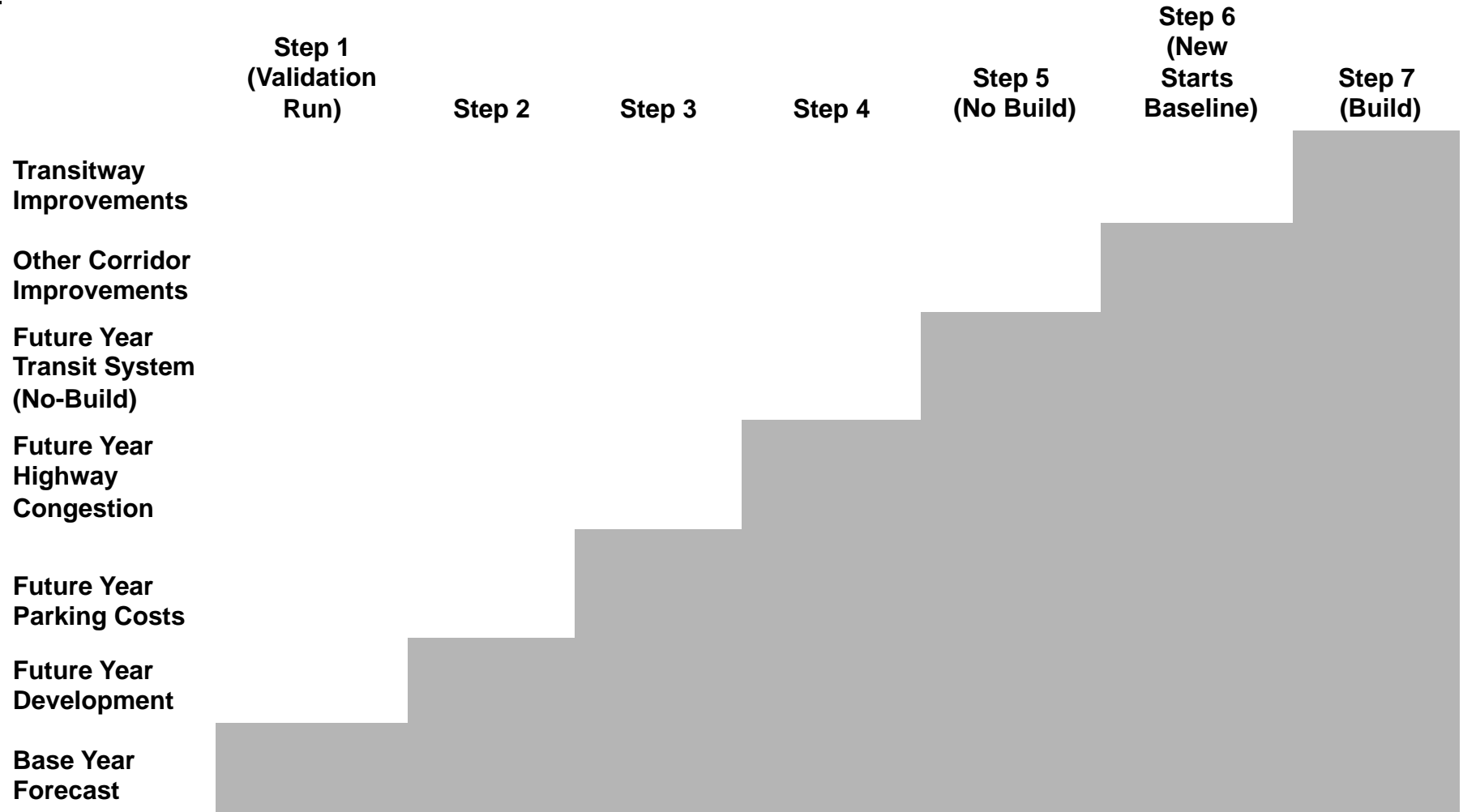
- Any tool used requires validation against observed data.
 - Validated at corridor level for Base year
 - Validation should include (but not limited to) comparison of modeled and observed:
 - Travel times and speeds
 - Productions and attractions by district and trip purpose
 - Assigned survey data compared to observed boarding data
 - Time of day
 - Mode of access by route and/or station
 - Type of service

Forecast Development

- Differences between forecast results
 - Between one step in the process and the next
 - Between build alternatives
- Should be traceable
 - To changes in input assumptions
 - Sensible
- Stepped series of forecasts building up from Base Year to Full Future Year forecast is useful to understand the dynamics of the forecast process.

Build – Up Forecast

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Forecast Documentation

- Key to review by Metropolitan Council staff and eventually the FTA is good documentation of all steps of the forecasting process.
 - Changes to base zonal data or networks
 - Specified vs. calculated headways and travel times
 - Modeled Person trips, boardings and passenger loads by purpose, district, time of day, and mode
 - Modeled district to district transit trips
 - Modeled transfers
 - Modeled screenline volumes
 - Forecast ridership by access and egress modes
 - And more . . .

Presentation of Results

- Transitway ridership definition – for regional comparisons, ridership is defined as:
 - LRT:
 - Rides taken using the LRT service.
 - Commuter Rail:
 - Rides taken using the commuter rail service.

Presentation of Results

- Transitway ridership definition – for regional comparisons, ridership is defined as:
 - BRT:
 - Rides taken using the BRT Station-to-station services.
 - Rides taken on services that utilize the transitway for at least 50% of the route and use at least one non-downtown station.

Other Performance Measures

- Other measures that should be evaluated:
 - New transit riders
 - Existing riders that benefit from the transitway
 - Total corridor riders
 - Passenger miles per mile
 - Total linked and unlinked trips
 - Transit travel time saved
 - Total user benefits

Further Information

<http://www.metrocouncil.org/planning/transportation/transitways/index.htm>

The screenshot shows a Windows Internet Explorer browser window displaying the Metropolitan Council website. The page title is "Regional Transitway Guidelines - Metropolitan Council". The address bar shows the URL: <http://www.metrocouncil.org/planning/transportation/transitways/index.htm>. The page features a navigation menu with links for "About Us", "News+Events", "Transportation", "Wastewater+Water", "Parks", "Planning+Development", "Housing", and "Data+Maps". The main content area is titled "Regional Transitway Guidelines" and includes the following text:

> Transportation > Transportation Planning > Transportation Reports, Plans and Programs

Regional Transitway Guidelines

The Metropolitan Council led an effort to create Regional Transitway Guidelines for the development of corridors where intensive transit investment is planned, as identified in the region's 2030 [Transportation Policy Plan \(TPP\)](#). The guidelines are intended to provide guidance for developing transitways in corridors that will be served by commuter rail, light rail and bus rapid transit.

The purpose of the Regional Transitway Guidelines is to provide technical guidance, based in best practices, that supports the development and operation of transitways in a way that is **consistent**, **equitable**, and **efficient**, and delivers an **effective**, **integrated**, and **user-friendly** transit system throughout the Twin Cities region.

The Metropolitan Council adopted the Regional Transitway Guidelines February 22, 2012.

[Regional Transitway Guidelines \(84 pages\)](#)

See [Guidelines by chapter](#) and [find additional resources](#).

For more information about the guidelines, contact

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The right sidebar contains a search box, a "Set text size" section with three buttons (a, a, a), and a "CONTACTS" section listing:

CONTACTS

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The footer of the page includes the following text:

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