Making the Case for Transit: the Transit Competitiveness Index
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ABSTRACT TEXT: To help define and justify projects, transit planners use state-of-the-art software and analytical processes for everything from allocating resources and deciding on service changes to understanding potential markets and negotiating support.

Cambridge Systematics has developed a Transit Competitiveness Index (TCI), which is driven by an analytical process dividing a region population into market segments to support strategic planning and travel demand forecasting. Based on more than a decade of research with dozens of transit agencies and metropolitan planning organizations across the country, the TCI complex algorithms have been refined, and synthesized into a web based tool. Using the TCI, organizations can screen and evaluate transit alternatives, potential expansions, and station locations, testing the impact of policies before they happen. This presentation will review the analysis process, the algorithms invoked, and look review a recent case study where the TCI tool was utilized.

The TCI was recently employed for a study to determine the need for fixed-route and commuter transit for the City of Arlington, TX. In this study, twelve composite zones were selected for analysis and were measured to determine the likelihood of success of transit operations between any two areas. The results showed promising measures for several local zonal pairs, especially those linking areas of high residential density, the University of Texas area, and major commercial areas. Further analysis using the TCI was conducted to regional destinations, resulting in setting the foundation for local and regional transit alignments. This approach can be applied to any size urban area, or communities within an urban area.

Using GIS Analysis to Develop Transit Market Areas
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ABSTRACT TEXT: Like all transit providers, Metro Transit operates in a resource-constrained environment. Transit Planners must make decisions about how to allocate those resources to accomplish agency goals as efficiently as possible. A key factor in those decisions is the distribution of potential transit demand across our region. Where are the areas we can expect high ridership, where can we expect lower ridership, and how can we match the level of service to expected demand?

To help answer those questions, Metro Transit developed a transit market index that could be used to categorize segments of the Twin Cities region into distinct Transit Market Areas, representing varying levels of transit ridership potential.

Using geospatial and statistical techniques, Metro Transit analyzed the effect of multiple geographic and demographic variables have on ridership in our region. The resulting model includes population and employment density, automobile ownership, and intersection density and provides expected demand for transit holding level of service constant for each block group in the region. These block groups are then grouped together to form Transit Market Areas that can be used to guide appropriate levels of transit service.

This presentation will discuss the methodology used to develop the transit market index and resulting Transit Market Areas, as well as their uses in both transit planning and stakeholder communication by transit planners at Metro Transit.
ABSTRACT TEXT: Transit network directness is one of the most important performance measure to attract users and to compete with other modes. This paper discusses two transit network evaluation measures for transit network directness, Degree of Competitiveness and Degree of Circuity. Then, this research developed a geographical presentation method to show which areas of the city need to be improved in terms of the directness of the transit service.

The directness of transit networks in five cities in Korea was analyzed and compared as an example and geographically demonstrated. The results show that although more populated cities are likely to provide more direct transit service than less populated cities, population density affects the transit network directness more. Also, this research showed that there is a strong relationship between the transit network directness and the transit ridership.

As a result of this research, transit agencies can have a better understanding of their transit network directness visually, and they can improve the transit network configuration where the transit network directness is poor.