

Jack Grimm
Anna Claire Lindow

Identifying High-potential Corridors for a Light-Rail Passenger Network in the Fort Worth, TX Metro Area

The Dallas-Fort Worth metroplex is the third-largest metropolitan area in the United States; the Fort Worth metro area in particular, with a population of nearly 3 million, is experiencing rapid population and employment growth that, despite planning from transportation departments and city officials, only serves to strain roadway capacity, increase congestion, and widen gaps in access to jobs and services—especially for households with limited vehicle access. While Fort Worth already has important rail assets such as TEXRail and the Trinity Railway Express connecting Fort Worth to DFW Airport and Dallas, respectively, much of the city and surrounding metroplex’s growth and economy relies primarily on highways and automobile-dependent infrastructure. Lessons can be drawn from Fort Worth’s neighbor, Dallas Area Rapid Transit (DART), a four-line light rail network that connects Dallas proper with twelve surrounding suburbs/cities, demonstrating both the upside and the limits of major rail investment. Rail can relieve major roadways, promote accessibility, and bolster economic development along routes, but outcomes depend heavily on corridor selection, zoning, accessibility, and network connectivity. The purpose of this study is to identify which potential light-rail corridors in the Fort Worth metro area generate the greatest combined mobility, equity, and economic benefit. Using ArcGIS Pro software, we developed a weighted multi-criteria sustainability model to identify and rank potential corridors. The analysis integrates demographic needs, travel demand potential, physical/environmental feasibility, and expected economic impacts. This study provides a practical methodology for evaluating sustainable transit expansion in automobile-dependent regions and incomplete street infrastructure.