Evaluation of the Economic Viability of Narrow-Gauge Rail

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Recently, there has been some interest at the local community level in developing narrow-gauge rail as an alternative form of transit service. Currently, there are no known cases in the United States of open-environment narrow-gauge rail systems in operation. Neither is there statistical data, such as ridership projections, revenue incomes, and costs, to suggest whether developing this form of transit in the interested communities would be successful.

Consequently, the Center for Urban Transportation Research (CUTR) examined whether local narrow-gauge rail would be a viable transportation alternative in Florida. The research examined narrow-gauge rail and its history, various types and uses of a small-scale rail trolley system, associated costs (equipment, construction, operation, and maintenance) of narrow-gauge rail, ridership expectations, potential revenue sources, and community impact.

Since researchers could not find any instances of narrow-gauge rail operating in an open public transportation environment, they investigated the few rail trolleys privately owned and operated within a closed, limited environment. They found that many trains running in private amusement parks have a 24" or 30" gauge and have diesel, gas or hybrid engines. These park trains are manufactured on a limited basis.

Most rail trolleys are custom-made, which substantially increases the initial cost of the vehicle. Further, custom-made trolleys require custom-made parts and specialty technicians to provide maintenance, which also results in comparatively higher costs than would be expected for non-custom-made parts and service.

Right-of-way costs are variable and usually the most expensive part of any transportation project. According to the transit greenway initiative, the one component necessary to the viability of narrow gauge rail trolley is the existence of sidewalks, which may require the purchase of additional right-of-way and/or installation of sidewalks that parallel the railway. The width of area needed for a rail trolley is approximately 10-12 feet on both sides of the road. In areas where right-of-way is also needed for sidewalk installation, this width is increased to approximately 18-20 feet.

Mode shift would likely be consistent with the overall transit usage for Florida, which is .88% of person trips in areas with high density, or roughly half of the national average (i.e., less than one percent of the users in Florida would leave their cars to ride the system). A rail trolley, if located in an activity center, could generate ridership consistent with small circulator and/or trolley routes--about 8 to 12 passengers per revenue hour.

Rail trolley would not likely be successful as a stand-alone transit system. Rather, it would work best by connecting to other transit modes, such as bus or rail. And while implementation of the narrow-gauge trolley may seem to be truly innovative, its success would depend upon its application in an environment that could both promote the concept and sustain the service.

For more information on this project, contact Jon M. Ausman at 850-414-4519, jon.ausman@dot.state.fl.us.

[This article was adapted from the final report, *Evaluation of the Economic Viability of Narrow-Gauge Local Rail Systems (**BC-137-9**)*, authored by Laurel Land for CUTR at USF.]