



Press Release:

College of Engineering and Science  
Civil and Environmental Engineering

Ever wonder how much it would cost to put a new light rail line into your city? Researchers at the University of Detroit Mercy have developed a tool that will estimate the cost within 10 to 20 percent.

The choices that have the greatest effect on costs of light rail lines are the route, and the cost of construction in the local area. The least expensive route is using abandoned rail right-of-way which costs \$20 M per mile at the national average. This is because the rail bed is already in place. The most expensive is tunnels made with a boring machine which is more than \$200 M per mile. These national average right-of-way costs need to be proportioned to local area by using the local cost of living. Although some materials such as the light rail vehicles are imported to the region, about 85 percent of the cost is local cost such as labor. Most money spent on a light rail line stays within the region.

"I hope that this tool is useful to conceptually plan light rail systems," says Dr. Alan Hoback, Chair and Associate Professor of Civil & Environmental Engineering at UDM. Once a system is planned, the engineers have more accurate methods to estimate the actual costs. "This will help get the public started in deciding whether to bring light rail transit, and where it should go."

The research was performed by looking at the final costs for 24 light-rail transit (LRT) lines and extensions. The costs were analyzed with a sensitivity analysis to find unit costs for types of right-of-way construction. A tool was created for estimating costs in feasibility studies. The tool had an average error of 6% for the projects studied, and a worst case error of 20%.

The results of this work are presented at the Transportation Research Board (TRB) of the National Academy of Sciences 2008 conference, Jan. 13<sup>th</sup> to 17<sup>th</sup>, Washington, DC.

Paper number: 08-0024 - Sensitivity Analysis of Light Rail Transit Unit Capital Costs, Session: 545 - Light-Rail Transit Planning Issues, Hilton, International Center, Tuesday, January 15, 2008, 2:30pm- 5:00pm.

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