



In Partial Fulfillment of the Requirements for the Degree of

Master of Science
Edward Burgess

Will defend his thesis

**Assessing the Energy Consumption and Greenhouse Gas
Emissions of High-Speed Rail in the U.S.**

Abstract

In the U.S., high-speed passenger rail has recently become an active political topic, with multiple corridors currently being advanced through federal and state level initiatives. One frequently cited benefit of high-speed rail proposals is the transition to a more sustainable transportation system that reduces greenhouse gas emissions and fossil energy consumption. This study investigates the feasibility of high-speed rail development as a long-term greenhouse gas emission mitigation strategy while considering major uncertainties in the technological and operational characteristics of intercity travel. First, I develop a general model for evaluating the emissions impact of intercity travel modes. This model incorporates aspects of life-cycle assessment and technological forecasting. The model is then used to compare future scenarios of energy and greenhouse gas emissions associated with the development of high-speed rail and other intercity travel technologies. Three specific rail corridors are evaluated and policy guidelines are developed regarding the sustainability impacts of these investments.

July 22, 2011
11:00 a.m.
WGHL 401

Faculty, students, and the general public are invited.

Supervisory Committee:
Eric Williams (Chair)
Jon Fink (Member)
Robert Yaro (Member)