

**Developing an operational procedure to produce digitized route maps using  
GPS vehicle location data**

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**Thesis submitted to the Faculty of the**

**Virginia Polytechnic Institute and State University**

**In partial fulfillment of the requirement for the degree of**

**Master of Science**

**In**

**Civil Engineering**

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**April 26, 2000**

**Blacksburg, Virginia**

**Keywords: GPS, digitize, map, arrival time prediction**

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# **DEVELOPING AN OPERATIONAL PROCEDURE TO PRODUCE DIGITIZED ROUTE MAPS USING GPS VEHICLE LOCATION DATA**

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## **(ABSTRACT)**

Advancements in Global Positioning System (GPS) technology now make GPS data collection for transportation studies and other transportation applications a reality. Base map for the application can be obtained by importing the road centerline map into GIS software like AutoCAD Map, or Arc/Info or Mapix™. However, such kinds of Road Centerline maps are not available for all places. Therefore, it may be necessary to collect the data using GPS units. This thesis details the use of GPS technology to produce route maps that can be used to predict arrival time of a bus. This application is particularly useful in rural areas, since the bus headway in a rural area is generally larger than that in an urban area. The information is normally communicated through various interfaces such as internet, cable TV, etc., based on the GPS bus location data. The objective of this thesis is to develop an operational procedure to obtain the digitized route map of any desired interval or link length and to examine the accuracy of the digitized map. The operational procedure involved data collection, data processing, algorithm development and coding to produce the digitized route maps. An algorithm was developed produce the digitized route map from the base map of the route, coded in MATLAB, and can be used to digitize the base map into any desired interval of distance. The accuracy comparison is made to determine the consistency between the digitized route map and the base map.