



Probe Vehicle Bluetooth Study for Travel Time Savings Estimation On I-69 Sections 1 – 4



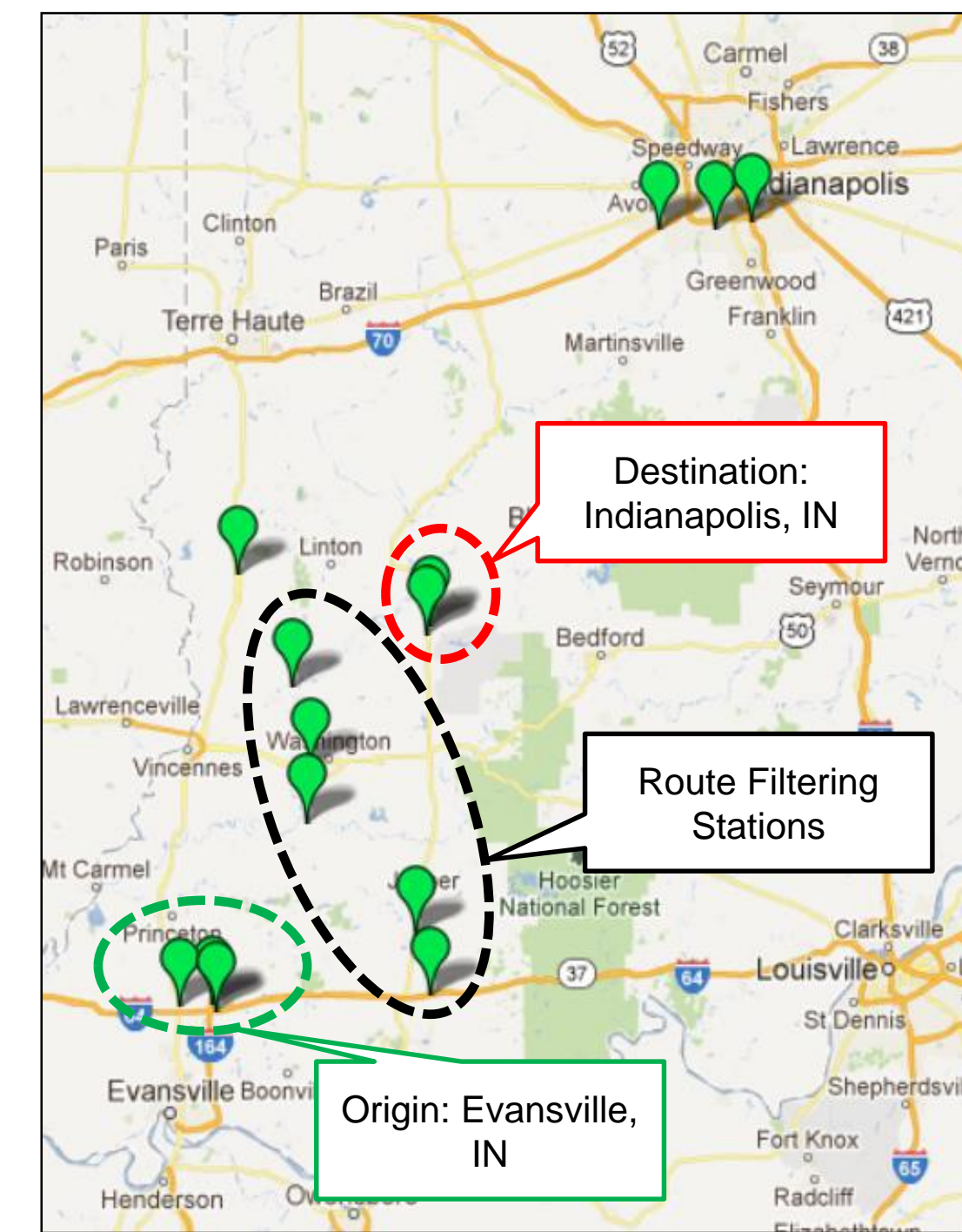
Lucy M. Richardson¹, Jijo K. Mathew¹, W. Benjamin Smith², Darcy M. Bullock¹

1: Purdue University; 2: Indiana Department of Transportation

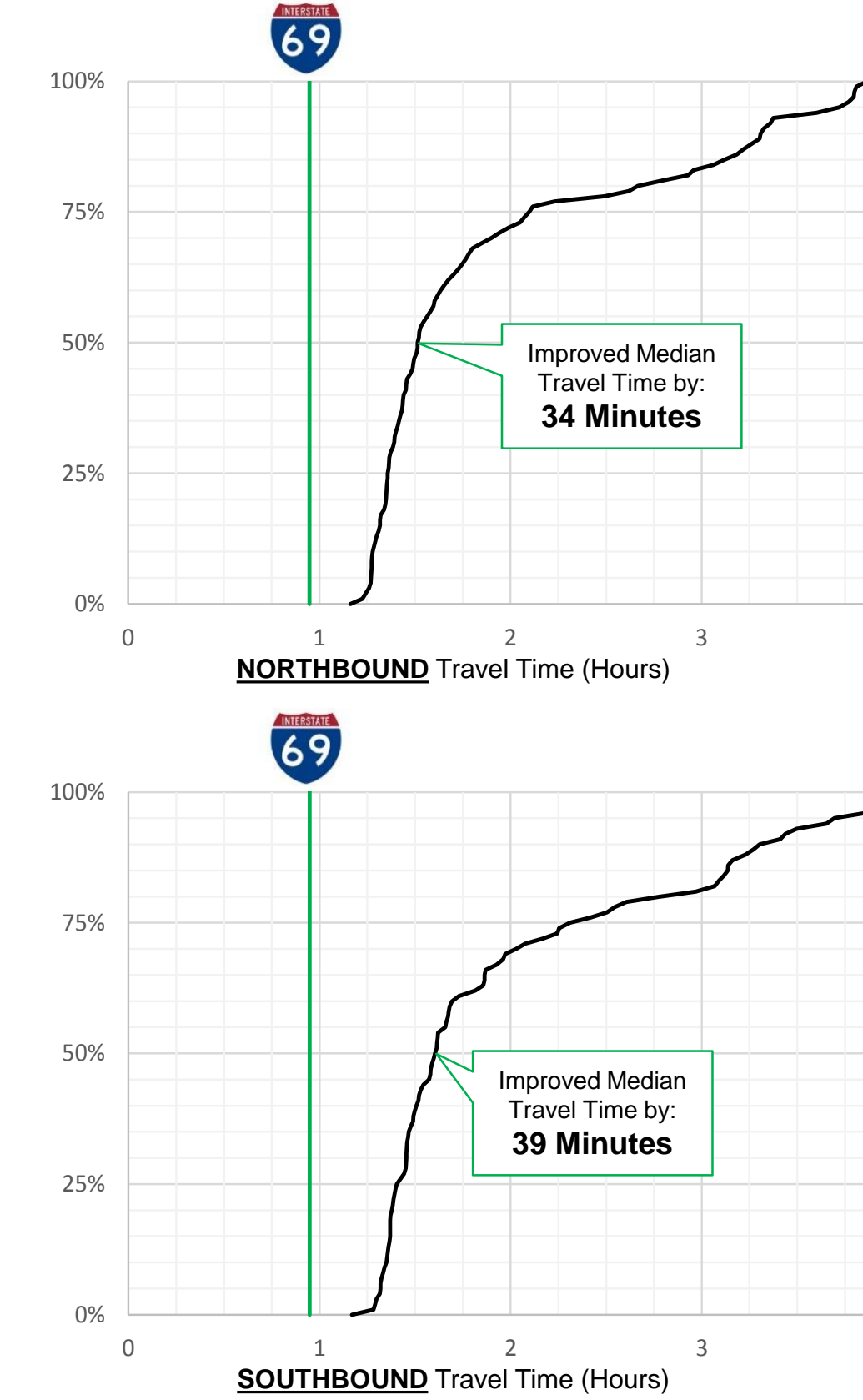
Abstract

Interstate 69 is a new highway envisioned to eventually travel the length of the United States, from Canada to Mexico. In Indiana, the construction is being completed in a series of segments, as shown below. With the opening of new sections, the travel time savings for travelers can be quantified. By deploying Bluetooth data loggers to capture unique MAC addresses of travelers' devices, timestamps for corresponding MAC addresses along the study route can be matched to determine travel time. Compared to the posted speeds and lengths of new interstate sections, the travel time saved by using I-69 can be estimated. One such study was completed for the previous opening of I-69 Sections 1-3, and researchers completed a study for Section 4, which opened to public traffic on December 6, 2015.

Section 1 – 3 Study (2012)

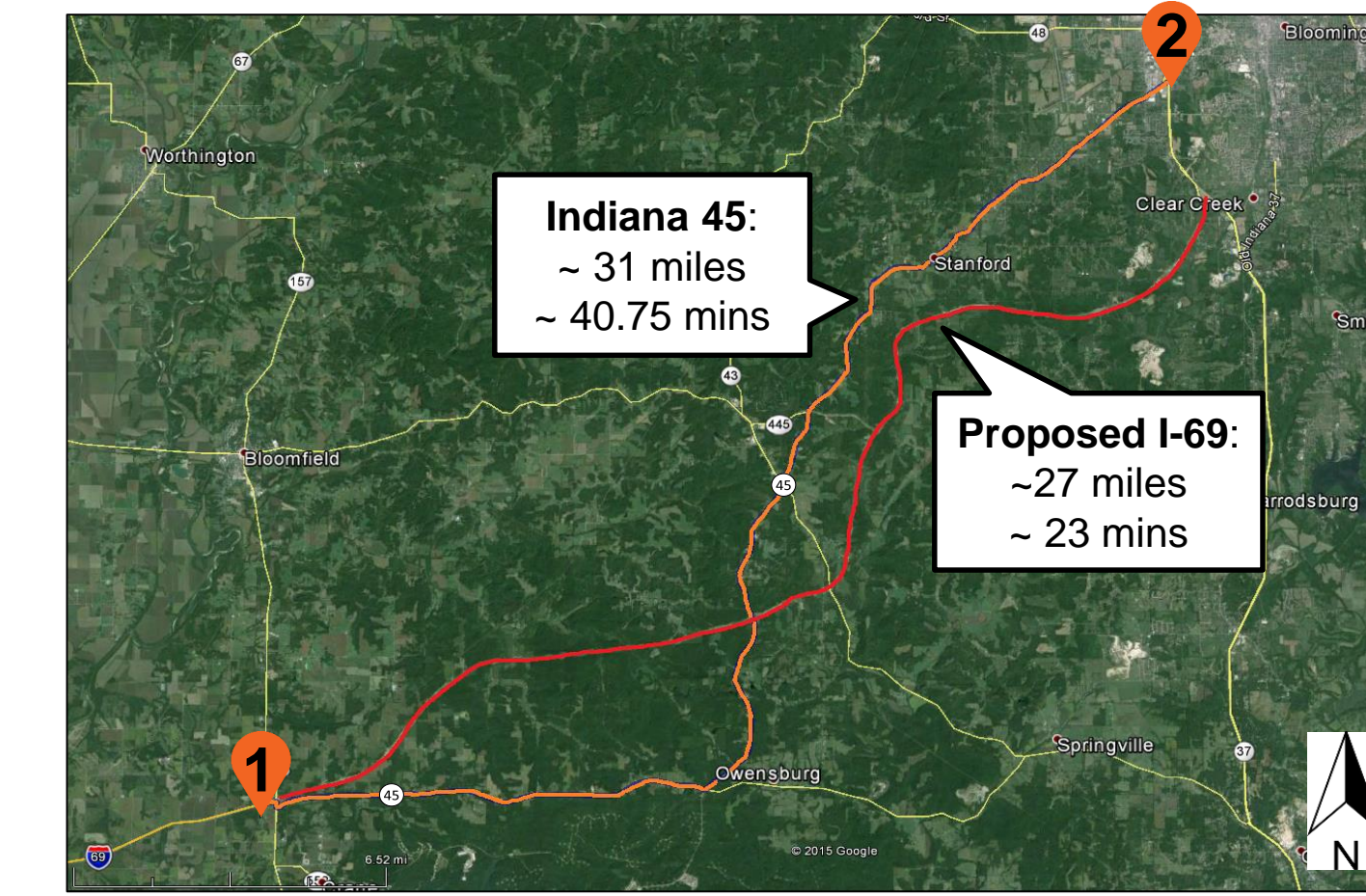


Location of Bluetooth sensors along potential routes from Evansville to Crane.



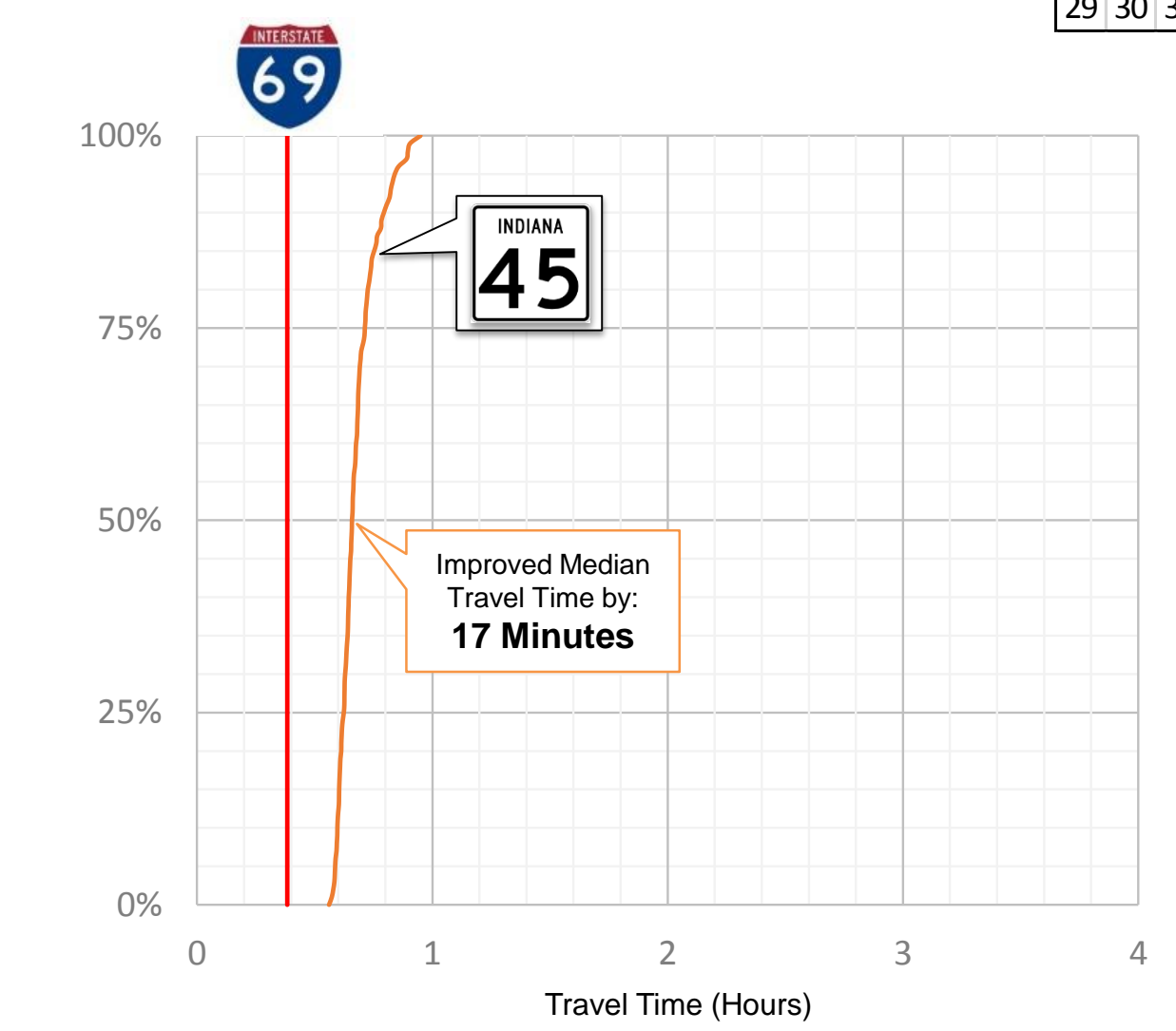
Smith, W. Benjamin, A.M. Hainen, S.M. Remias, R.S. Freije, S. Sarvis and D.M. Bullock, "Assessing Network Changes Attributed to Opening a New 67 Mile Segment of I-69 Using Field Data from Bluetooth Probe Vehicles," ITS World Congress, August 2014.

Section 4 Study (2015)

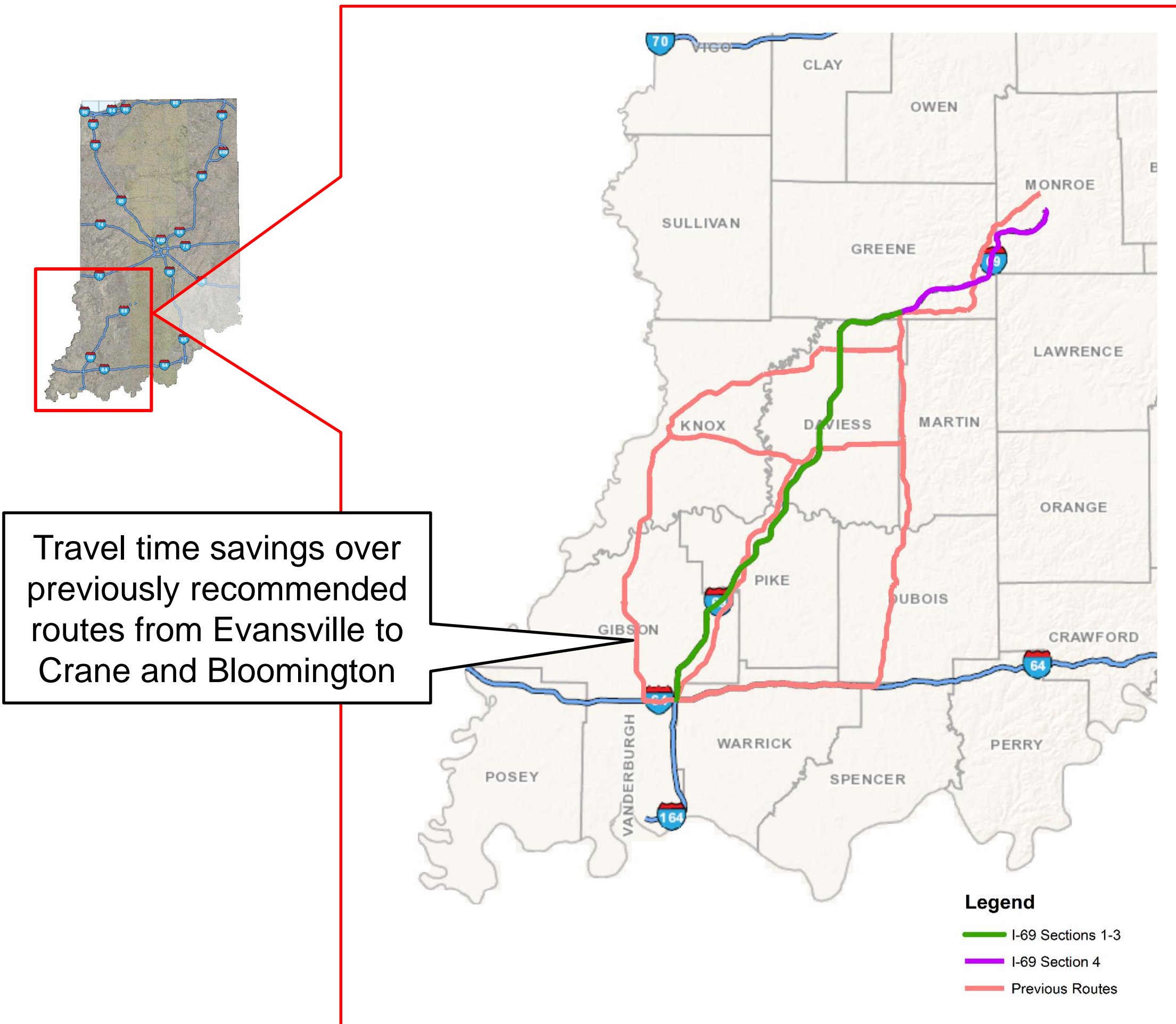


I-69 Section 4 from US-231 near Crane to south of Bloomington is approximately 27 miles. With a speed limit of 70mph, the travel time is estimated to be 23 mins.

<http://www.in.gov/indot/projects/i69/2370.htm>

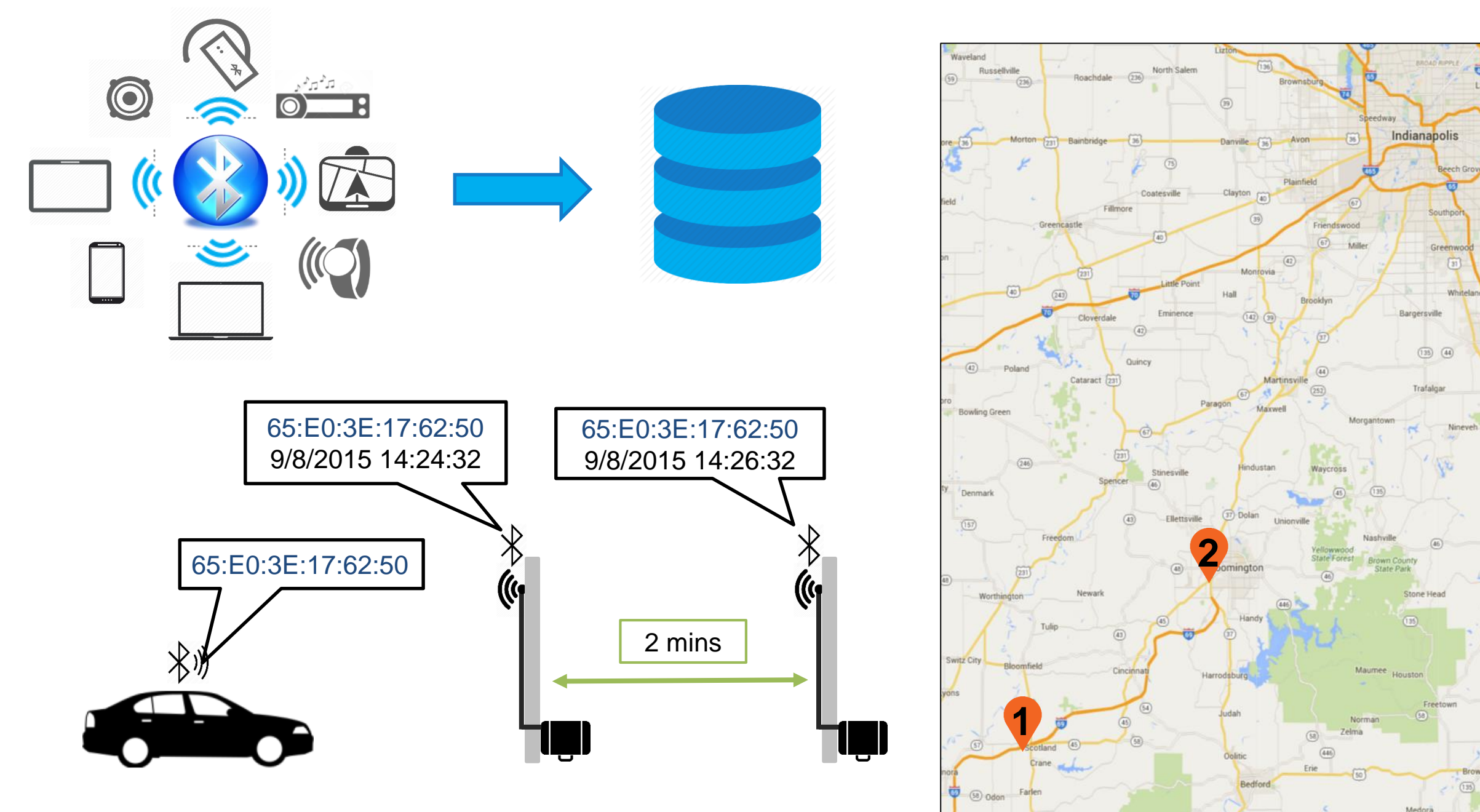


Study Objective



Travel time savings over previously recommended routes from Evansville to Crane and Bloomington

Sensor Placement



I-69 Section 1 – 4 Travel Time Savings

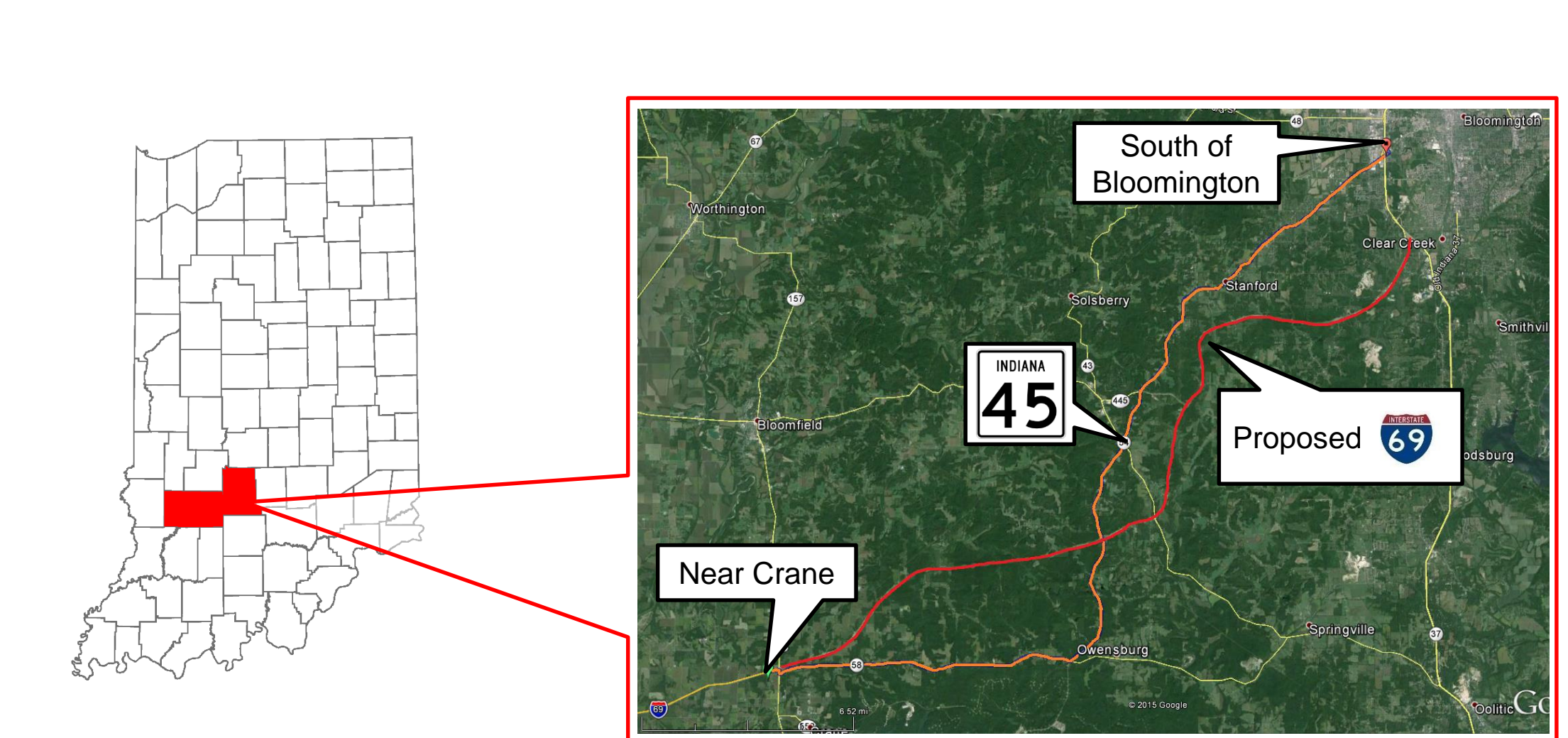
Traveling from Evansville to Crane on I-69 is approximately 54 minutes faster than the previous routes.

Opened Dec. 9, 2015; Travel Time Savings = 17 min

Opened Nov. 19, 2012; Travel Time Savings = 37 min



Study Corridor



I-69 Section 4 Ribbon Cutting

