

Image courtesy: www.stateuniversity.com

All of these maps were created using ArcGIS software for the college's Registrar. A list of commuting students was compiled in November of 2008, which was then used to create a geodatabase. With this geodatabase Regional Planning student Emily Leveille created a service area route, using the position of the college as the service area.

ESRI's Network Analyst software was used to calculate travel times. Time was broken into five minute intervals until the ninety minute mark, where it was then broken into ten minute intervals. Each map's legend shows the color designation which represents each of the time intervals. As is shown on the maps, time is "scrunched" along Interstates 90 and 91, because it takes less time to travel on the highway than on local roads.

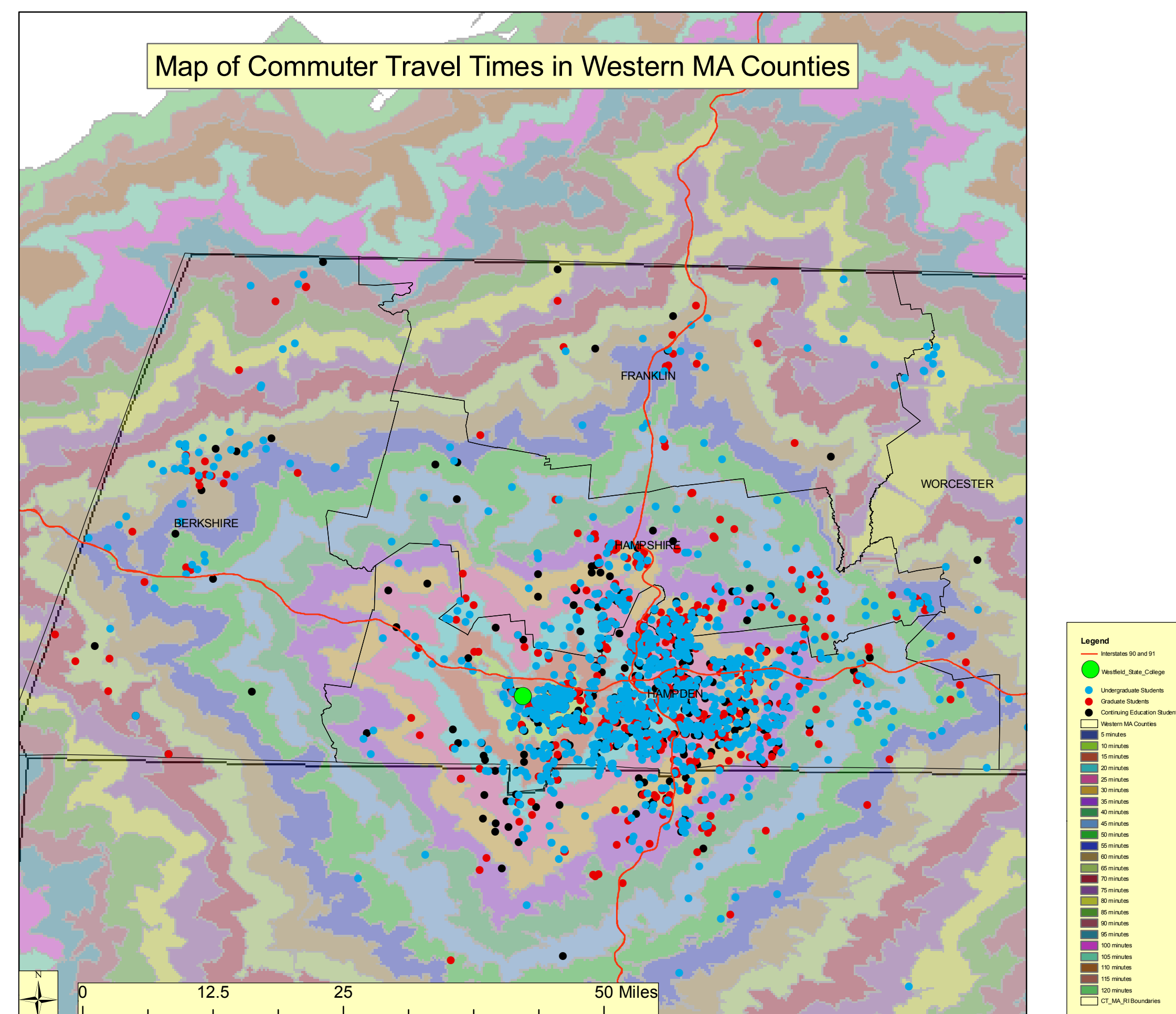
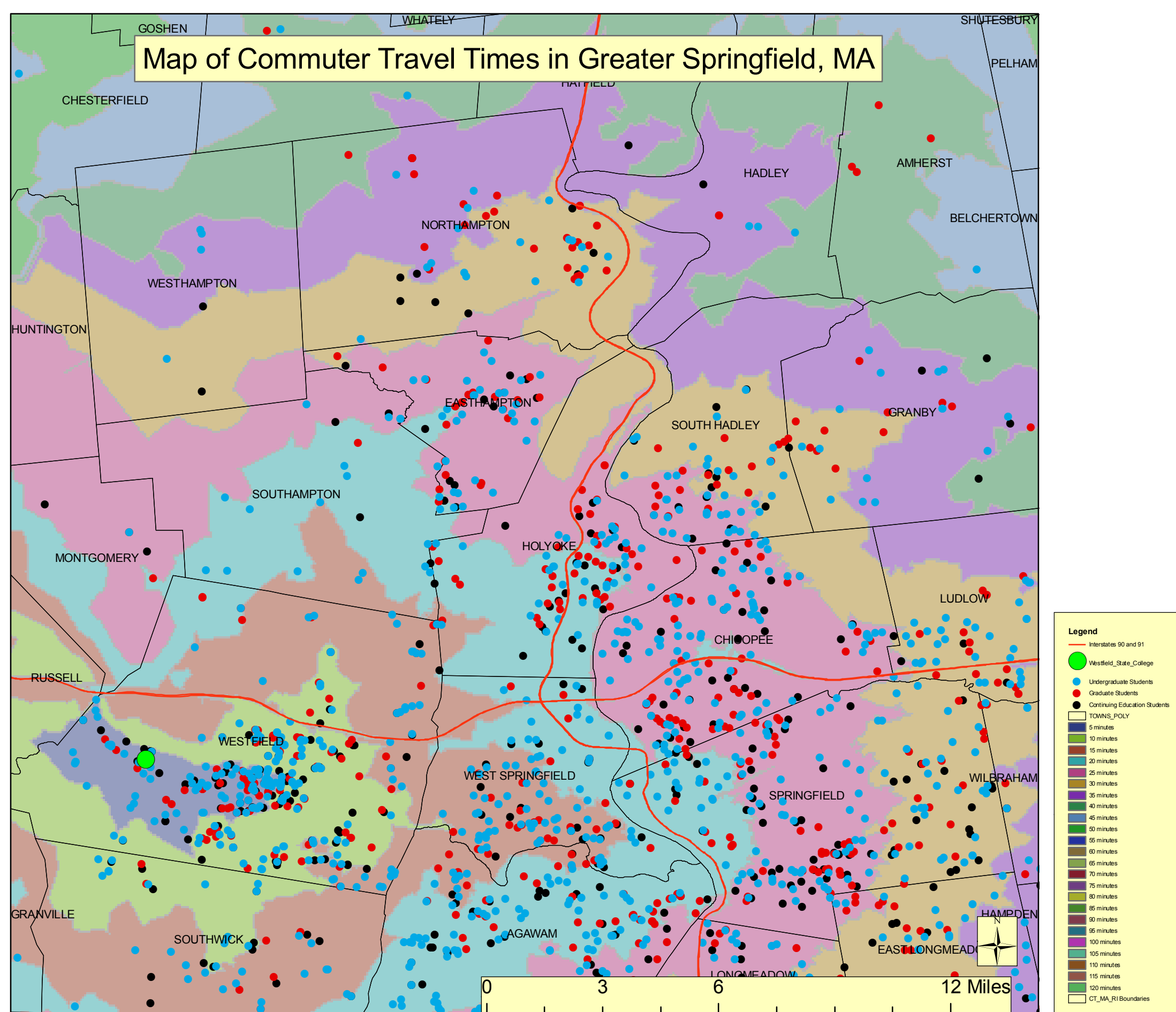
The three other maps highlight the travel times and locations of commuters in Westfield; Greater Springfield; and Western Massachusetts, where the majority of commuter students reside.

After these maps were created, the data on the commuter students was analyzed by Professor Carsten Braun and Regional Planning student Emily Leveille.

The main goal for this analysis was to determine the carbon footprint for each type of commuter: undergraduate, graduate, and continuing education. A Cost-Origin Distance Matrix was calculated to determine the time and distance for each of the approximately 2,900 commuter students.

With this matrix, Braun and Leveille determined the total distance the students drove during the thirty-three (33) week school year. An average fuel economy of 22 miles-per-gallon was estimated and factored into the calculation to determine the amount of carbon emissions from the students. Each gallon of gasoline results in a 0.0089 ton emission of carbon.

Based on these statistics, the total amount of carbon emitted by all commuter students is 3,879.51 tons during the 33-week school year.



These maps were created for the Office of the Registrar at Westfield State College during the Spring 2009 semester by Geography and Regional Planning student Emily Leveille and Professor Carsten Braun.

Data was used from the ESRI Street Maps program and the Office of Geographic and Environmental Information (MassGIS) Executive Office of Environmental Affairs for the Commonwealth of Massachusetts.

All information regarding commuter students was provided by the Registrar's Office and was collected in November of 2008.



Maps of Time and Distance Traveled by Westfield State College Commuter Students