Bike Paths in Eastern Rhode Island
An analysis on path difficulty and accessibility

Introduction
This is a practical study of the bicycle path networks in Rhode Island. The study site was Eastern Rhode Island. In this focused area there is a total of 34.397 miles of bike paths. This study was conducted to create better awareness in the community about bike path level of difficulty, location and accessibility.

Aims & Objectives
It aims to answer the following questions:
With variables of distance and slope, what are the levels of difficulty associated with each path? What do the contours of each bike path look like? If there was demand for a new bike path, where would it be located based on the current supply? From the Brown University Main Green, what are the shortest routes to each bike path?

Methods
Data from RIGIS, RIDOT and Google Earth in ArcMap 9.2 were used to answer the project questions. It involved using the following tools and methods to produce the results. Spatial Analyst tools (Surface Analyst, straight line and cost weighted distance, reclassify, and raster calculator) were used to analyze bike path difficulty, contour, and a new site proposal. The Network Analyst “best route” tool to create the shortest routes from Brown to each bike path. ArcScene was used for representations of paths on the Rhode Island terrain.

Results
Figure 5: Calculated Route Difficulty
Figure 6: New Path Location and Difficulty Analysis
Figure 7a: Route Analysis
Figure 7b: Distance from Faunce to Route

Introduction
This is a practical study of the bicycle path networks in Rhode Island. The study site was Eastern Rhode Island. In this focused area there is a total of 34.397 miles of bike paths. This study was conducted to create better awareness in the community about bike path level of difficulty, location and accessibility.

Aims & Objectives
It aims to answer the following questions:
With variables of distance and slope, what are the levels of difficulty associated with each path? What do the contours of each bike path look like? If there was demand for a new bike path, where would it be located based on the current supply? From the Brown University Main Green, what are the shortest routes to each bike path?

Methods
Data from RIGIS, RIDOT and Google Earth in ArcMap 9.2 were used to answer the project questions. It involved using the following tools and methods to produce the results. Spatial Analyst tools (Surface Analyst, straight line and cost weighted distance, reclassify, and raster calculator) were used to analyze bike path difficulty, contour, and a new site proposal. The Network Analyst “best route” tool to create the shortest routes from Brown to each bike path. ArcScene was used for representations of paths on the Rhode Island terrain.

2D Representations of Bike Paths on RI Terrain
Blackstone River Bikeway
East Bay Bike Path
Ten Mile Bike Path
Bike Lanes
Northwest-Woonasquatucket
Cranston Cross-City Bike Path
Brown University Buildings
Viewable Bike Path

Discussion
The research and analysis done yielded useful results to increase awareness about Eastern Rhode Islands bike paths. Main takeaways from this study are the path difficulty rankings, the proposed new bike path and the route analysis to each path. Your perspective is a key determinant on what these results mean. The bike enthusiast’s needs may be different from the commuter’s. Either way, the facts are still present:
In Eastern RI the slope differentials were minor for each bike path as a whole. Spots along the paths, such as in East Bay’s, are highlighted but do not extend for the majority of the path. The most difficult path to ride is East Bay with the New Path ranking second. The New Path is a continuous loop, built as a bike lane on both boulevards and neighborhood streets. All routes calculated are based on the assumption travel would not go on an interstate and that the shortest route was most desirable. Traffic risks and slope were not considered in the model.
Possible opportunities for further analysis are:
- Consider the difficulty of riding based on traffic counts to make a complete analysis of each path
- Other origin locations for the routes
- Value of bike riding on environment

Acknowledgements
Many thanks to Lynn Carlson, Angie Allen, Steve Kut (RIDOT), and Rebecca Barnes (Brown Facilities Mgmt)