Project: New York City Park and Ride study

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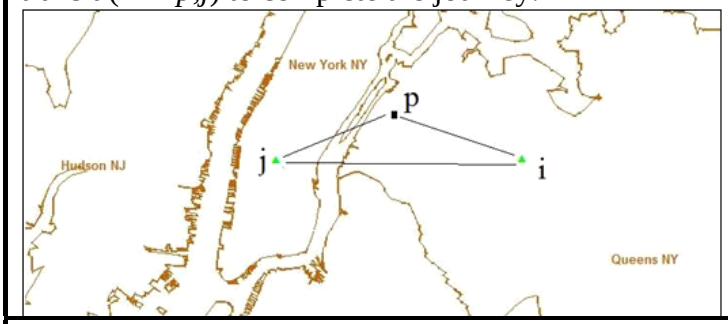
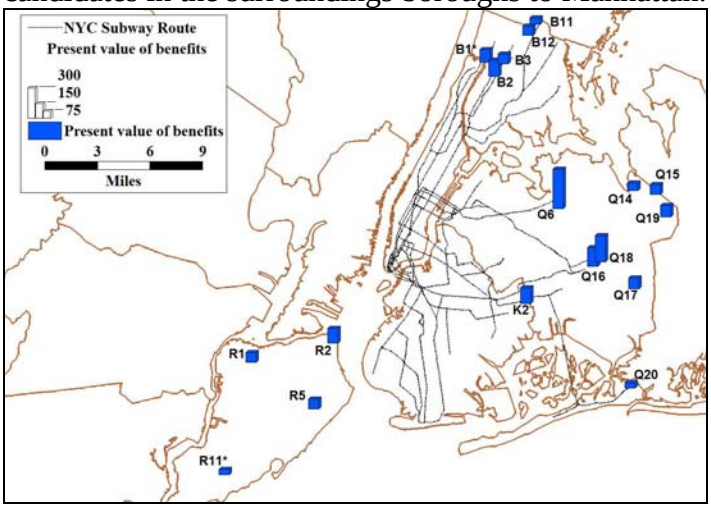
Park and Ride (P&R) programs combine the best elements of car use and mass transit, as they enable potential users to drive to a P&R facility where they can take transit service to their destinations. The New York State DOT commissioned this study to review existing practices in P&R planning, develop a methodology for evaluating candidate sites, and apply the methodology to the commuter market in New York City.

The identification of an initial set of candidates is a crucial step on the process of planning a P&R system. The literature identifies as key factors: demand considerations, transit connectivity and design, community integration, and economic viability. The potential demand is typically assessed by defining the geographic region within which users of the P&R system may be drawn. In terms of transit connectivity, a good rule for the preliminary site screening is to locate main arterials and transit connections. Moreover, an effective P&R facility should be easily accessible to and produce a minimum adverse affects on land values in the neighborhood. Finally, economic viability has to do with the overall balance between the benefits attributable to P&R and the cost of creating and operating the P&R.

The figure below describes an origin (*i*), a destination (*j*), and a P&R location (*p*). The lines in the figure describe the two different alternatives: auto driving (link *i,j*) and driving to P&R *p* (link *i,p*) and then using transit (link *p,j*) to complete the journey.



The concept of generalized cost was used to compare different alternatives. This is the sum of all the components of travel impedance, including out of pocket expenses, and the monetized value of other costs such as travel time. P&R become attractive to users when its generalized cost is lower than the cost of car only alternative. The team computed expected demand, market share, weighted average savings, and present value of benefits (figure below) of a set of candidates in the surroundings boroughs to Manhattan.



The analyses indicate that P&R facilities could bring significant economic benefits to the New York City transportation system. The evaluation estimated present value of benefits greater than one hundred millions for the best 8 candidates in which savings per user can reach to 12 dollars trip. The best candidate (Q6) would produce 364 millions on savings, while the second (Q18) and third (Q16) produce 241 and 164 million respectively. These values can be explained by a combination of large weighted average savings and expected demand. Queens and Bronx account for the majority of best candidates according to expected demand.

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