

2. The city of Spring View is taking bids from six bus companies on the eight routes that must be driven in the surrounding school district. Each company enters a bid on how much it will charge to drive selected routes, although not all companies bid on all routes. The data are contained in HW6\_2.xls. If the company does not bid on a route, the corresponding cell is blank.) The city must decide which companies to assign to which routes with the specifications that (1) if a company does not bid on a route, it cannot be assigned to that route, (2) exactly one company must be assigned to each route, and (3) a company can be assigned to at most two routes. The objective is to minimize the total cost of covering all routes.

In the optimal solution to the bus route assignment problem (provided in HW6\_2.xls), company 2 is assigned to bus routes 6 and 7. Suppose these two routes are far enough apart that it is infeasible for one company to service both of them.

- a) Write down the algebraic constraint in terms of the decision variables defined during lecture to accommodate this restriction.
- b) Add the constraint to the existing model and comment on the new optimal solution.