Worksheet #5
due in class Friday, October 26, 2007

Worksheet Problems: Consider each problem below with your group. Write your answers clearly as if you were explaining it to a classmate. Do as much as you can during the remaining class time and hand in your work at the end of class.

Focus on (ADR1) on page 534.

1. Say 100 travelers need to go from Redmond to UW everyday around rush hour. Consider 4 routes and trip times in minutes

   - Across 520 bridge: 45
   - Across I-90 bridge: 52
   - Along Lake City Way: 67
   - Via Renton on 405/5: 75

   Assume that at most 40 people can go along 520 without causing extra backups, 60 people along I-90, 15 people along Lake City Way, and 40 people through Renton. In order to minimize the total number of minutes traveled by all of the people, what percentage of the people should follow each route?

2. If a single segment of bridge is removed along each route, one needs to find an alternate route. Assume that if the 520 bridge or the I-90 bridge are removed, then it is impossible to go that way. However, if a segment of a bridge in Lake City or Renton is removed, one could find alternate routes causing each passenger a delay of 5 and 20 minutes respectively. SDOT only has enough money to reinforce 1 bridge segment this year, which one should they invest in to minimize inconvenience to these 100 people? Translate this problem into the notation in (AD1R).