

CE 3500: Homework 3
Due Monday, March 7

Consider the intersection and turning movements given below. Lanes are 11 feet wide on Easy Street and 13 feet wide on High Road. There are no heavy vehicles on Easy Street and no buses on either street; however, 10% of the straight-through volume on High Road consists of heavy vehicles. Easy Street is level, but High Road has a 5% grade (uphill in the eastbound direction). Assume a one-second PIJR time. For the northbound and southbound direction, there are no heavy vehicles, so the design vehicle is 12 ft long and has a deceleration rate of 20 ft/s^2 . For the east- and westbound directions, the design vehicle is 25 ft long and has a deceleration rate of 10 ft/s^2 . Design a four-phase signal using the pattern below (identify the green, yellow, and all-red times for each phase), calculate the delay for each lane group, each approach, and the intersection as a whole. What is the overall intersection LOS?

