Example No. 1

Rehabilitation and expansion of a safety roadside rest area has been proposed. There are currently 25 passenger car parking stalls and 18 truck parking stalls. The 20-year design hourly volume is 200 vehicles, with 28% trucks. A parking study reported the average stay in the rest area is 15 minutes for passenger cars and 30 minutes for trucks. Assuming a uniform arrival rate, how many additional passenger car and truck parking stalls will be required to meet the 20-year demand?

A. 11 passenger car stalls and 10 truck stalls
B. 18 passenger car stalls and 12 truck stalls
C. 23 passenger car stalls and 16 truck stalls
D. 36 passenger car stalls and 28 truck stalls

Example No. 2

A traffic signal operating in a coordinated system at a 120-second cycle length has 235 northbound vehicles per hour turning left. The signal has a protected left-turn phase and one 12-foot-wide by 200-foot-long left-turn lane. A new development is being built that will add an estimated 95 left-turning vehicles to this movement. What traffic signal or intersection modifications should be considered?

A. Increase the width of the left-turn lane to 14 feet
B. Increase the length of the left-turn lane to 250 feet
C. Increase the cycle length to accommodate the left turns
D. Increase the width of the roadway to add a second left-turn lane
Example No. 3

The intersection of Dellah Street and Loise Lane is to be signalized. There have been four left-turn related collisions on the Dellah Street approaches and six left-turn collisions on the Loise Lane approaches in the past 12 months. The p.m. peak hour turn movements are shown below. Which of the following left-turn phasing is most appropriate for the intersection?

A. Permissive on both Dellah Street and Loise Lane
B. Protected on Dellah Street and permissive on Loise Lane
C. Permissive on Dellah Street and protected on Loise Lane
D. Protected on both Dellah Street and Loise Lane