The Delorean in the 1985 movie Back to the Future accelerates from 0 to 60 miles per hour in 10.5 seconds. In order to activate the time machine, the car must pass the clock tower at exactly 10:04 pm while traveling at 88 mph. How far from the clock tower should Marty McFly be when he starts his acceleration, and at what time should he hit the gas? (Assume the acceleration is constant.)

The Delorean accelerates at \( \frac{60}{10.5} \) miles/hour/second. In order to get to 88 mph, it will take \( \frac{88}{(60/10.5)} = 15.4 \) seconds. Since Marty starts at rest, his speed is \( \frac{60}{10.5}t \) where \( t \) is time after he hits the gas in seconds. In 15.4 seconds, his speed goes from 0 to 88 mph, with an average speed of 44 mph. Therefore he travels \( (44 \text{ mph})(15.4 \text{ sec})/(60^2 \text{ sec/hr}) = .1882 \text{ miles} = 993.81 \text{ feet} \).