**CE 45000: Transport Policy and Planning**

**Homework 2**

**Due: Thursday, September 27, 2018**

1. Calculate safety benefits at present value associated with a countermeasure (roundabout) selected for a 4-leg Intersection over 10 years in service life. The following data was given:

Major / minor AADT: 23,553 /1,650

The Crash Modification Factor (CMF) for roundabout: 0.56 for total crashes

Service life: 10 years

Annual traffic growth: 1.5%

Discount rate: 4%

Crash summary: 70% fatal and injury

**Table 1: Societal Crash Costs**







Answer the following questions?

1. Calculate the expected average crash frequency without roundabout every year.
2. Calculate the expected crash frequency with roundabout every year.
3. Covert the change in crashes saved to a monetary value every year.
4. Calculate the safety benefits in 10 years. (**Answer: $17,200,791**)