# Value Capture and Net Present Value Example Problem

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This hypothetical problem focuses on two neighborhoods, Parkview and Grandview, in an imaginary city. Park Street is the main street serving the central business district of Parkview and Grand Street is the main street serving the central business district of Grandview.

The two neighborhoods and their respective main streets are very similar. In 2010, the total value of all properties with frontage along Park Street was $800M. The total value of all properties with frontage along Grand Street was $600M. Assessed and actual property values have increased consistently by two percent per year every year since 1980 (and land uses didn't change at all during that time period).

The city has a 1-percent property tax rate, so in 2010, it collected $8M from properties fronting Park Street and $6M from properties fronting Grand Street.

In 2011, the city announced that it would construct a new fare-free street car line that will run up and down Grand Street. The new line opened in 2013, and the cost of construction was $100M. Since the announcement of the new line, property values along Grand Street have increased at a rate of three percent per year. Property values along Park Street have continued to increase at a rate of two percent per year.

## Questions for discussion

1. What is the the value of the increase in total property value for property owners along Grand Street for each year between 2011 and 2021, relative to the increases in property value that would have occurred if the streetcar had not been built?

2. What is the net present value (in 2010) of these increases, if the discount rate is seven percent?

3. How much tax revenue did the city collect between 2011 and 2021 that it would not have collected had it not been for the construction of the streetcar?

4. What is the net present value (in 2010) of that revenue, if the discount rate is seven percent?

5. Based on the information presented here, was this project worth building? What additional information would you need in order to make this determination?