Need assistance with computing Payback period (PP), Internal Rate of Return (IRR), and Net present Value (NPV) for two hypothetical public infrastructure projects that have the economic profile that follow:

OPTION A OPTION B

OPERATING AND OPERATING AND

MAINTENANCE MAINTENANCE

YEAR CAPITAL COST ($) BENEFITS ($) CAPITAL COST ($) BENEFITS ($)

COST ($) COST ($)

1. 2,000,000 0 0 2,500,000 0 0
2. 1,000,000 10,000 0 500,000 50,000 750,000
3. 500,000 70,000 120,000 100,000 750,000
4. 90,000 600,000 100,000 750,000
5. 90,000 800,000 100,000 750,000
6. 90,000 800,000 100,000 750,000
7. 90,000 800,000 100,000 750,000
8. 90,000 800,000 100,000 750,000
9. 100,000 800,000 100,000 750,000
10. 100,000 500,000 100,000 300,000

The Required Return for this project is 12% and the Critical Acceptance Level is 2.75 years.

1. Using excel to calculate each of the following; show the steps:
2. Payback Period for Option A & Option B
3. Internal Rate of Return for Option A & Option B
4. Net Present Value for Option A & Option B
5. Using the calculations above, clearly present the results for Option A and Option B as though for an audience of city council members.
6. The city council says they can adopt only one of the projects this year. Pick one and justify the choice to the city council.
7. You are getting pushback from the city engineer that both projects are vital and should be done this year. You really want to find a way to make both projects happen. Provide a solution that will allow both projects to be implemented.