

Chapter 16

Final Thoughts

Societies and civilizations advance through projects that seek to make life safer, healthier, more prosperous or more secure.

C.D. Martland, *Toward More Sustainable Infrastructure*

Part I: Building Infrastructure to Serve the Needs of Society

- Understand the story for the project
- Consider all aspects of performance
- Enhance sustainability of projects and programs
- Model performance
- Assess performance using a political process
- Develop scenarios

Part II: Comparing Economic and Financial Impacts over the Life of Proposed Projects

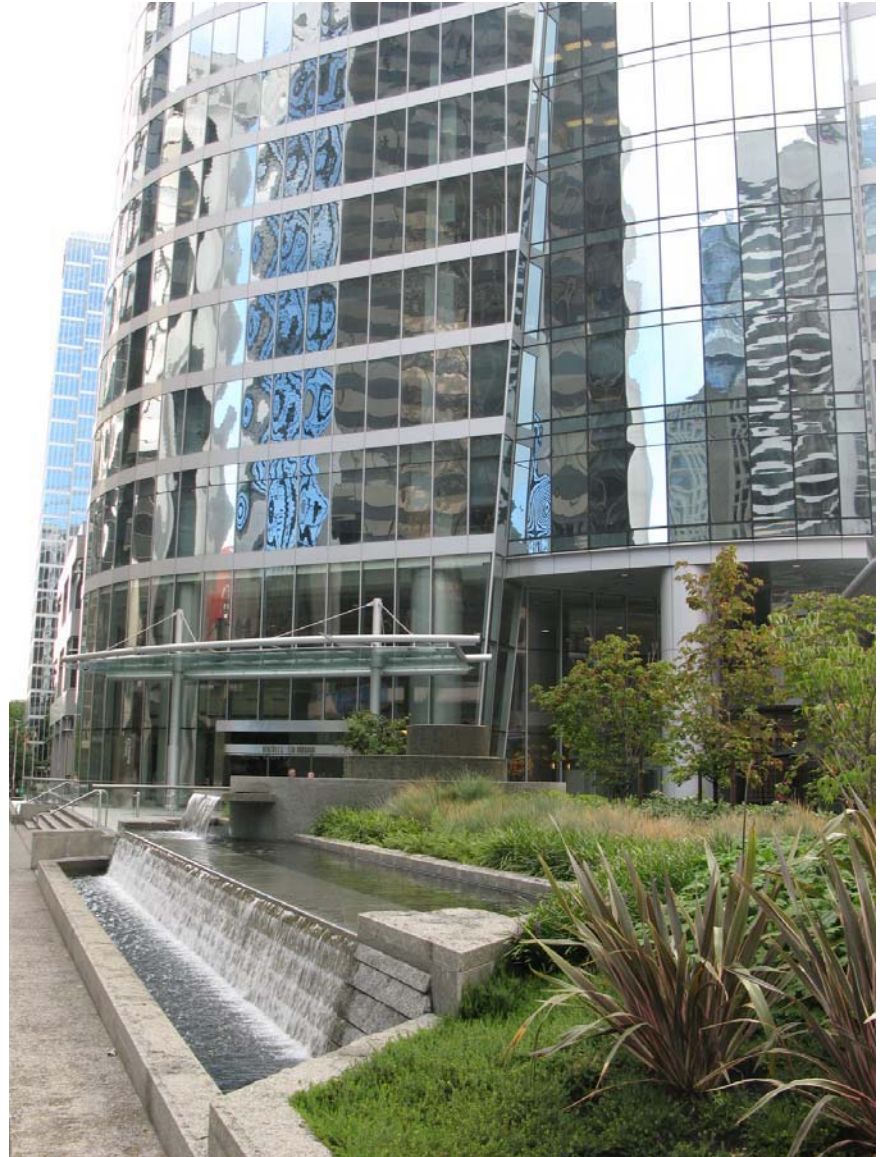
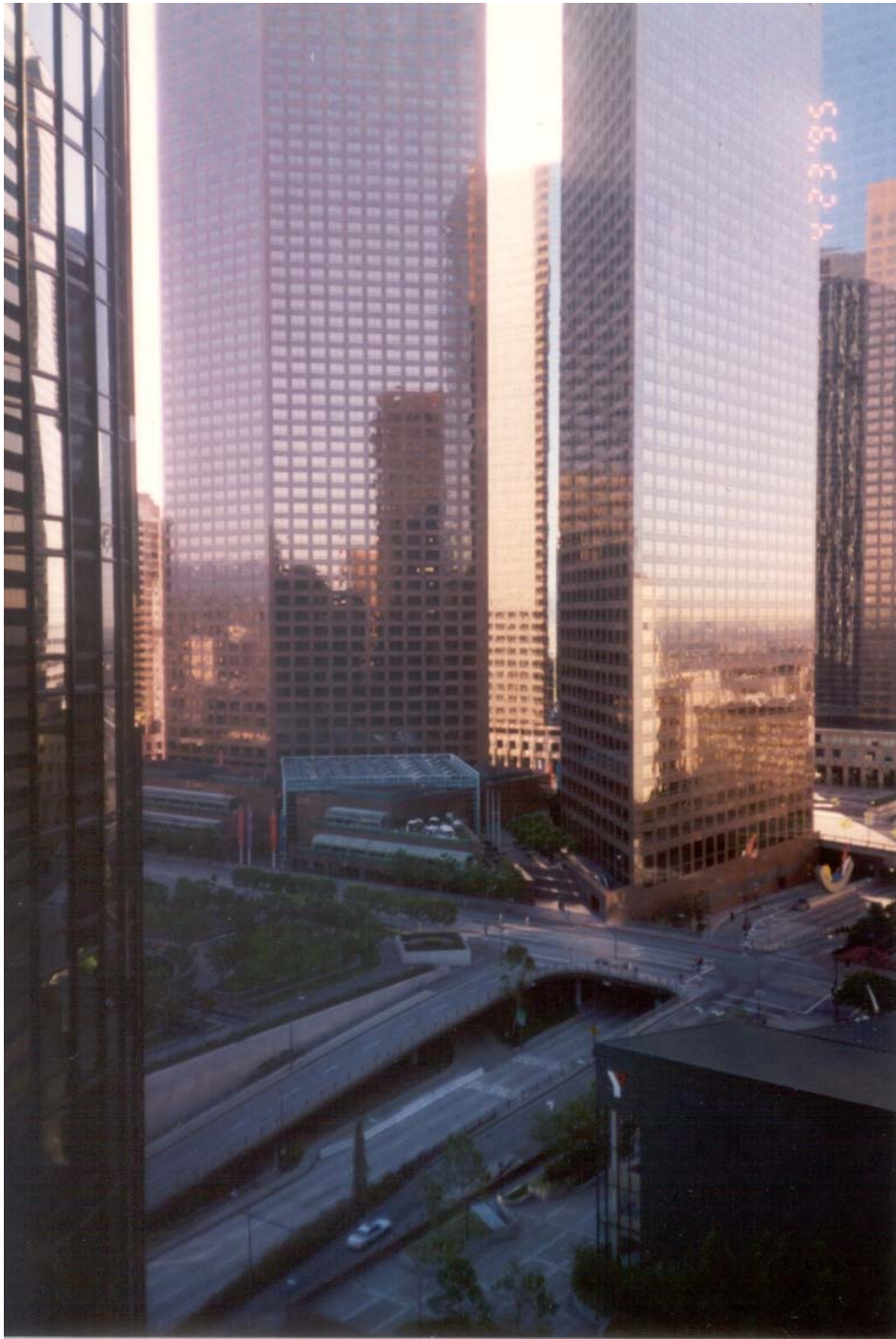
- Discounting future values
- Equivalence of cash flows
- Choice of a discount rate
- Maximizing net present value
- Internal rate of return (IRR)
- Mutually exclusive projects: justifying incremental costs using the IRR
- Cost effectiveness
- Rules of the game and their effect on cash flows

Part III: Developing Projects and Programs to Deal with Problems and Opportunities

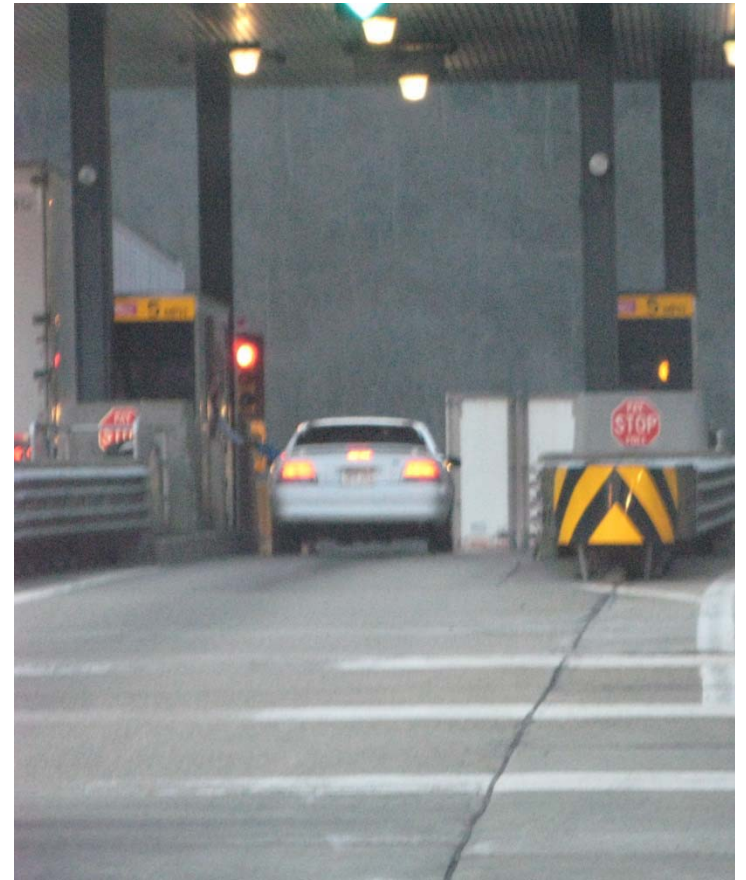
- At first, anything is possible
- Intuition and expert judgment lead the analysis
- Public/private partnerships may be useful
- Anticipate risks and uncertainties
- Project management is the key to efficient implementation
- Complex projects will need champions
- Most projects contribute to existing systems
- The future might not be what you expect
- Programs need to be evaluated and revised

“Civil engineers are problem solvers, but we need to broaden the scope of our services to include problem definition. Civil engineers must go beyond thinking in terms of project specific limits and scopes of work and become involved in systemwide, program-related decisions and policy-making to achieve long-term, sustainable solutions. We must be facilitators of collaboration among multiple agencies/owners and across jurisdictional boundaries. We must also take a leadership role in developing acceptable and sustainable methods of funding infrastructure development and asset management.”

Kathy J. Caldwell, ASCE News, June 2009















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