

INFRASTRUCTURE PLANNING AND FINANCE

Urban Design and Planning 466A/566A, Fall Quarter 2024

Class: Monday and Wednesday, 8:30 to 10:20 am, Gould Hall Room 114 **Instructor:**

Prof. Jan Whittington, janwhit@uw.edu

Office hours: By appointment on Calendly

Canvas: <https://canvas.uw.edu/courses/1752492>

This course is focused on infrastructure planning and finance and, more generally, on the relationship between planning and budgeting. The course is divided into three parts.

The course begins with an introduction to infrastructure systems: water and sewer services, solid waste disposal, transportation, broadband, and fire services. In this segment of the course, infrastructure planning is distinguished from and related to budgeting and finance. We explore basic concepts, legal frameworks, politics, and processes used in the systems studied, including techniques in infrastructure planning aimed at estimating demand and forecasting effects on land use and climate change.

The second part is focused on local government finance. We study government's conceptual economic framework, budgeting approaches, and taxes such as property tax, sales tax, and user fees. We examine arguments for and examples of outcome-based, client-oriented programming and budgeting. The features of local finance are introduced and the economic theories with which they are associated, including neoclassical, public goods, club goods, game theory, and transaction costs.

Infrastructure finance is the subject of the final part of the course. We examine the relationship between sources of funds and their uses for infrastructure. Our study includes all common forms of finance, such as pay-as-you-go, user fees, special districts, public and private debt, impact fees, exactions, and tax increment finance. We devote considerable attention to the equity and distributional issues that arise from alternative forms of finance. We study the assessment and prioritization of infrastructure investments in changing economic conditions and under climate change, the development of Capital Improvement Programs (aka Capital Investment Plans), and the implications of alternative forms of project and program delivery, such as public-private partnerships, design-build contracts, and privatization.

Required Texts:

John R. Bartle, W. Bartley Hildreth, and Justin Marlowe (eds). 2013. *Management Policies in Local Government Finance*. (6th Ed) Washington, DC: ICMA. <https://bookstore.icma.org/management-policies-in-local-government-finance6th-edition-p43.aspx>

Justin Marlowe, William C. Rivenbark and A. John Vogt. 2009 (2nd edition). *Capital Budgeting and Finance: A Guide for Local Governments*. Washington, DC: ICMA. (ICMA Website, e-book: <https://bookstore.icma.org/capitalbudgeting-and-finance-a-guide-for-local-governments-2nd-edition-p4.aspx>)

David Dowall and Jan Whittington. 2003. *Making Room for the Future: Rebuilding California's Infrastructure*. San Francisco: Public Policy Institute of California. <http://www.ppic.org/main/publication.asp?i=399>

Your experience in this class is important to me. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you have already established accommodations with Disability Resources for Students (DRS), please activate your accommodations via myDRS so we can discuss how they will be implemented in this course. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), contact DRS directly to set up an

Access Plan. DRS facilitates the interactive process that establishes reasonable accommodations. Contact DRS at disability.uw.edu.

Instructional Objectives

- + Describe the roles of local finance and political organization in urban planning
- + Explain the relationship between public facilities, growth, and local finance, and relate these issues to contemporary urban problems, such as urban sprawl and climate change.
- + Analyze a local infrastructure system.
- + Explain the local finance process, including key concepts, relationships, processes, theories, and approaches in local finance.
- + Address equity, long-range, and distributional issues in infrastructure planning and finance.
- + Analyze local budgets and fiscal issues through concepts and theories, and gain experience in capital improvement programming (aka capital investment planning) and budgeting.
- + Identify and apply the standards and equations employed in infrastructure planning and local finance, and analyze the assumptions and values underlying financing techniques.

Course Requirements (perfect grade = 400 points):

Quizzes based on readings	50
Participation in class discussions	50
Systems paper	100
Group project	100
Final exam (short essay answers)	100

Academic Standards

Turn assignments in to Canvas on time. Late work is not accepted. Grading will be based on content, organization, and measures of style appropriate to writing at the upper undergraduate or graduate level. Style refers to your method of citing sources, grammar, punctuation, and related issues. I (strongly!) urge you all to refer to the Chicago Manual of Style (<https://www.chicagomanualofstyle.org/home.html>; and in print, the 18th Edition, University of Chicago Press, 2024) as you compose and edit your work. When in doubt, check it out. Papers that do not conform to Chicago Style will be marked down, lose credit for this assignment and impact your grade. See this site: <https://guides.lib.uw.edu/c.php?g=344197&p=2318401>. Please make use of the expertise and resources available to you. Please also note that ChatGPT and other generative AI platforms are not allowed to be used for assignments in this class. Odegaard Library has a writing center, available to you free of charge, here: <https://depts.washington.edu/owrcweb/wordpress/>.

The University takes academic integrity very seriously. Behaving with integrity is part of our responsibility to our shared learning community. If you are uncertain about whether an action is academic misconduct, ask me. I am willing to discuss questions you might have. Acts of academic misconduct may include but are not limited to:

- Cheating (working collaboratively on quizzes/exams and discussion submissions, sharing answers and previewing quizzes/exams)
- Plagiarism (representing the work of others as your own without giving appropriate credit to the original author(s)). This constitutes plagiarism whether it is intentional or unintentional. I advise each of you to read a style manual in order to learn how to avoid it.
- Unauthorized collaboration (working with each other and/or generative AI such as ChatGPT on assignments) Any student who is uncertain whether his or her use of the work of others constitutes cheating, plagiarism, or unauthorized collaboration should consult the course instructor for guidance before

formally submitting the course work. Concerns about these or other behaviors prohibited by the Student Conduct Code will be referred for investigation and adjudication by the Associate Dean for Academic Affairs. For more information:

<https://www.washington.edu/cssc/facultystaff/academic-misconduct/>. Students found to have engaged in academic misconduct may receive a zero on the assignment, and their case will be forwarded for investigation.

Course Schedule

Date	Topic	Readings
25 Sept	Introductions Systems Paper Assign	West, Geoffrey. <i>Scale</i> . Penguin Books, 2017. (Chapter 7) Dowall and Whittington, Chs 1 and 2
30 Sept	Infrastructure Systems: <i>Planning, capital planning, and plan implementation</i>	Marlowe, Ch 1 and 2 (up to page 43) Kelly, E. 1993. <i>Planning, Growth, and Public Facilities</i> . Planning Advisory Service Report, number 447. Chicago, IL: American Planning Association. Riordian, T.H., M. E. Oria, and J.P. Tuss. 1989. "Dayton's Capital Allocation Process." In <i>Capital Project</i> , John Matzer (ed). Washington, DC: ICMA. Chen, C. and J. Bartle. 2017. <i>Infrastructure Financing: A Guide for Local Government Managers</i> . ICMA (International City/County Management Association) and GFOA (Government Finance Officers Association). (up to 9) https://icma.org/documents/infrastructure-financing-guide-local-governmentmanagers
2 Oct	Demand, Supply, and Pricing: <i>Water; Wastewater</i>	Dowall and Whittington, Chs 3 and 4 (on Water only) Bauman, D., J. Boland, and W. M. Hanemann. 1998. <i>Urban Water Demand Management and Planning</i> . New York: McGraw-Hill. (Chs 1 and 3) Hanak, E. 2005. <i>Water for Growth: California's New Frontier</i> . San Francisco: Public Policy Institute of California. (Chs 1, 3, and 4) http://www.ppic.org/main/publication.asp?i=429 Cropf, Robert. "Water Resources" In <i>Setting Municipal Priorities 1990</i> , edited by Charles Brecher and Raymond Horton. New York: NYU Press. (optional)
7 Oct	Planning, Engineering, Modeling, and the Evolution of Technology: <i>Transportation, Energy</i>	Dowall and Whittington, Chs 3 and 4 (on Transportation only) Institute of Transportation Engineers. 2010. <i>Designing Walkable Urban Thoroughfares: A Context Sensitive Approach</i> . Washington DC: ITE. (Ch 1) http://library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad Woo, Jesse and Whittington, Jan and Arkin, Ronald, "Urban Robotics: Achieving Autonomy in Design and Regulation of Robots and Cities" 32 <i>Connecticut Law Review</i> 319. (2020, Parts 1 and 2). SSRN: https://ssrn.com/abstract=3145460 Coalition for Urban Transitions. <i>Climate Emergency, Urban Opportunity</i> . September 19, 2019. (Executive Summary) https://urbantransitions.global/en/publication/climate-emergency-urban-opportunity/ New Jersey Department of Transportation. 1989. <i>Managing Transportation In Your Community. A Municipal Handbook</i> . Trenton: NJ DOT. (optional) Edward Beimborn and Rob Kennedy. 2006. <i>Inside the Black Box: Making Transportation Models Work for Livable Communities</i> . Environmental Defense Fund. https://www4.uwm.edu/cuts/blackbox/blackbox.pdf (optional)

9 Oct	<p>Planning, Programming, and GIS: <i>Fire, Solid Waste, Broadband</i></p> <p>Guest Lecture: <i>Prof. Adrienne Greve, City and Regional Planning, CalPoly San Luis Obispo</i></p>	<p>Figueroa, Roberto and Michael Kartusch. 2000. <i>Flaming to the Scene: Routing and Locating to Get There Fast</i>. Geospatial Solutions.</p> <p>De Kadt, Maarten. 1990. "Solid Waste Disposal." In <i>Setting Municipal Priorities 1990</i>, Charles Brecher and Raymond Horton (eds). New York: NYU Press.</p> <p>Bruno, A. "COVID-19 and broadband Internet access" ICMA Blog, March 17, 2021. https://icma.org/blog-posts/covid-19-and-broadband-internet-access</p> <p>GFOA. Best Practices: Technology in Capital Planning and Management. October 31, 2011. https://www.gfoa.org/materials/technology-in-capital-planning-and-management</p> <p>Pieterse, Edgar (2019) Urban governance and spatial transformation ambitions in Johannesburg, <i>Journal of Urban Affairs</i>, 41:1, 20-38, DOI: 10.1080/07352166.2017.1305807 (optional)</p>
14 Oct	<p>Project Development: <i>Procurement, Cost, Quality, Maintenance</i></p>	<p>Dowall and Whittington, Ch 10 Marlowe Ch 9 Bartle Ch 15</p> <p>Flyvbjerg, B. 2002. "Underestimating Costs in Public Works Projects: Error or Lie?" <i>Journal of the American Planning Association</i>, 68 (3) 279.</p> <p>Whittington, Jan. 2012. "When to Partner for Public Infrastructure?" <i>Journal of the American Planning Association</i>, 78(3) 269-285.</p> <p>Riddle, Molly and Jan Whittington. 2023. "A tunnel beneath Seattle: The megaproject to replace the Alaskan Way Viaduct" in Landis, John (ed) <i>Megaprojects for Megacities: A Comparative Casebook</i>, Edward Elgar. (optional)</p>
16 Oct	<p>Local Finance I: <i>Rational Planning, Budgeting, Public Goods Theory</i> Systems Paper Due</p>	<p>Bartle, Chs 2 (up to page 35) and 3 (up to page 59)</p> <p>Rubin, I. 1996. "Budgeting for Accountability: Municipal Budgeting for the 1990s" <i>Public Budgeting and Finance</i>. Summer 1996.</p> <p>Pigou, Arthur C. <i>The Economics of Welfare</i>. 1920. Part I Chapter II, Part II Chapter II, and Part IV Chapter II. http://www.econlib.org/library/NPDBooks/Pigou/pgEW.html</p> <p>Ostrom, E. et al. 1999. "Revisiting the commons: Local lessons, global challenges" <i>Science</i>, 284 (5412): 278-282. DOI: 10.1126/science.284.5412.278</p> <p>Nash, John. "Two-person cooperative games." <i>Econometrica</i> 21 January 1953, 1: 128-140.</p>
21 Oct	<p>Local Finance II: <i>Neoclassical Economic Theory, Public Choice, and the Property Tax</i></p>	<p>Bartle, Ch 8</p> <p>Heikkila, Eric. 2000. <i>The Economics of Planning</i>. New Brunswick, NJ: CUPR, Rutgers University. (Chs 1 and 5)</p> <p>The Concise Encyclopedia of Economics. "Adam Smith (1723-1790)" Library of Economics and Liberty, 2008. http://www.econlib.org/library/Enc/bios/Smith.html</p> <p>Krugman, Paul. "Who was Milton Friedman?" The New York Review of Books. February 15, 2007. http://www.nybooks.com/articles/archives/2007/feb/15/who-was-milton-friedman/</p> <p>Friedman, Milton. "Free to Choose." PBS. 1980. Volume 1: The Power of the Market. (first 28 minutes) https://www.youtube.com/watch?v=fIFj5tzuYBE</p> <p>California Constitution, Article 13A. http://law.justia.com/constitution/california/article_13A.html</p> <p>"California Governor Jerry Brown's Proposition 13 Address", June 8, 1978. YouTube. http://www.youtube.com/watch?v=xCueOgnluDg&feature=related</p>

23 Oct	Local Finance III: <i>Forecasting, Club Goods, and Non- Property Taxes</i>	Bartle, Chs 9 and 10 (plus excerpt from Aronson and Schwartz, Ch 5) Marlowe, Ch 2 (43 to 57) Buchanan, James. "An economic theory of clubs." <i>Economica</i> , New Series, 32 (125): 1-14. Tiebout, Charles. "A pure theory of local expenditures." <i>The Journal of Political Economy</i> , 64 (5): 416-424. Piketty, T. and E. Saez. Inequality in the long run, <i>Science</i> , vol.344, no.6186, 2014, p.838-844 http://piketty.pse.ens.fr/fichiers/PikettySaez2014Science.pdf
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28 Oct	Local Finance IV: <i>Strategic Planning, Social Cost, Transaction Cost Theory</i> Assign Group Project	Bartle, Chs 4 and 6 Dowall and Whittington, Ch 5 Coase, R. H. "The problem of social cost" <i>Journal of Law and Economics</i> , 3 (October 1960): 1-44. Sclar, Elliot. 2000. <i>You Don't Always Get What You Pay For</i> . Ithaca, NY: Cornell University Press. (Ch 5)

		<p>Williamson, O.E. (2000). The New Institutional Economics: Taking Stock, Looking Ahead, <i>Journal of Economic Literature</i>, 38(3), 595-613.</p> <p>North, D.C. (1995). Economic Theory in a Dynamic Economic World, <i>Business Economics</i>, 30(1), 7-12. (optional)</p> <p>Ostrom, E. & Basurto, X. (2011). Crafting analytical tools to study institutional change. <i>Journal of Institutional Economics</i>, 7(3), 317-343. (optional)</p> <p>Whittington, J. and S. Young. Resilience through transaction cost economic evaluation: Recognizing the cost-effectiveness of sustainable development. <i>S.A.P.I.E.N.s</i> [online], 6.1 (2013). http://sapiens.revues.org/1639 (optional)</p>
30 Oct	Capital Budgeting, CIPs, and Equity Issues	<p>Marlowe, Ch 3</p> <p>Bowyer, R. 1993. <i>Capital Improvements Programs: Linking Budgeting and Planning</i>. PAS Report 442. Chicago, IL: American Planning Association Press.</p> <p>Beatley, Timothy. 1988. Equity and Distributional Issues in Infrastructure Planning: A Theoretical Perspective. In <i>Public Infrastructure Planning and Management</i>.</p> <p>Lucy, William. 1988. "Equity Planning for Infrastructure." In <i>Public Infrastructure Planning and Management</i>.</p> <p>Kavanagh S. and J. Kowalski. "The basics of equity in budgeting" <i>Government Finance Review</i>, February 2021: 18-27. Available from the GFOA: https://www.gfoa.org/materials/gfr-equity-in-budgeting-2-21</p> <p>Whittington, J. and C. Lynch. 2015. <i>Climate-informed decisions: The capital investment plan as a mechanism for lowering carbon emissions</i>. Policy Research Working Paper Series. The World Bank. (optional)</p>
4 Nov	Capital Financing Group Project: First Deliverable Due	<p>Whittington on Inflation</p> <p>Bartle, Chs 11 (253-269, 274-277)</p> <p>Marlowe, Chs 5 and 6</p> <p>Dowall and Whittington, Ch 9</p> <p>Chen, C. and J. Bartle. 2017. <i>Infrastructure Financing: A Guide for Local Government Managers</i>. ICMA and GFOA. https://icma.org/documents/infrastructure-financing-guide-local-governmentmanagers (9 to 33)</p>
6 Nov	Bond Finance Guest Lecture: <i>Mike Brown,</i> <i>Environmental Finance Manager, San Francisco Public Utilities Commission</i>	<p>Marlowe, Chs 7 and 8 (up to 196)</p> <p>Bartle, Ch 12</p> <p>Dowall and Whittington, Ch 8</p> <p>GFOA. <i>Best Practices: Capital Budget Presentation</i>. September 28, 2018. https://www.gfoa.org/materials/capital-budget-presentation (follow links to supporting material)</p> <p>Public Financing Network. 2021. <i>Understanding Financing Options Used for Public Infrastructure</i>. GFOA. https://www.gfoa.org/materials/understanding-financing-options-used-for-public-infrastructure</p> <p>GFOA. <i>ESG Considerations for Governmental Issuers</i>. June, 2020.</p>
11 Nov	User Fees and Special Districts Group Project: Second Deliverable Due Excerpt from Aronson and Schwartz, Ch 12	<p>Dowall and Whittington, Chs 6 and 7</p> <p>Jones, P. S. and A. Chainani. "Why and how local governments across the country are reforming fines and fees" ICMA Blog, September 7, 2021. https://icma.org/blog-posts/why-and-how-local-governments-across-country-are-reforming-fines-and-fees</p> <p>Mitzany and Manatt. 2002. <i>What's So Special About Special Districts?</i></p>

Sacramento: California Senate Local Government Committee. www.csda.net,

Click on “about special districts”

Little Hoover Commission. *Special Districts: Relics of the Past or Resources for the Future?* Sacramento, CA. 2000.

13 Nov Exactions, Tax Increment Financing, and the Cost of Sprawl

Casella, Sam and Kim, T.J., C.W. Forrest, and K.A. Przypyszny. 1984. *Tax Increment Financing*. PAS Report 389. Chicago: American Planning Association.

Burchell, R. W., D. Listokin et al. 1994. Chapter 10. “Shared Infrastructure Costs.” In *Development Impact Assessment Handbook*. Wash. D.C.: ULI

Kasowski, Kevin. Feb. 1993. “The costs of sprawl, revisited.” PAS Memo. APA.

18 Nov Public-Private Partnerships and Private Project Finance

Marlowe, Ch 4

Sagalyn, Lynne. Public/Private Development: Lessons from History, Research and Practice. *Journal of the American Planning Association* 2007, 23 (1): 7-22.

GFOA. Advisories: Public-Private Partnerships. 2021.
<https://www.gfoa.org/materials/public-private-partnerships-p3>

FitchRatings. *Global Infrastructure & Project Finance Outlook: Special Report, February 2009*. February 18, 2009.

FitchRatings. *U.S. Toll Roads and the 2007-2008 Recession: A Diagnosis of Performance*. June 11, 2009.

Spiller, Pablo. 2008. “An Institutional Theory of Public Contracts: Regulatory Implications.” *Working Paper 14152. National Bureau of Economic Research*.
<http://www.nber.org/papers/w14152>

20 Nov Presentations
Group Project: Third Deliverable Due

25 Nov Public-Private Partnerships and Privatization

Bartle, Ch 16

Osborne and Gaebler. 1992. *Reinventing Government*. (Ch 3)

Sclar, Elliot. 2000. *You Don't Always Get What You Pay For*. Ithaca, NY: Cornell University Press. (Ch 5)

Spiller, Pablo. 1996. “Institutions and Commitment.” *Industrial and Corporate Change*, 5 (2) 1996: 421-452.

Warner, Mildred and Amir Hefetz. 2008. “Managing Markets for Public Service: The Role of Mixed Public-Private Delivery of City Services” *Public Administration Review* 2008 (Jan/Feb): 155-166.

Guasch, Luis. 2004. *Granting and Renegotiating Infrastructure Concessions: Doing it Right*. World Bank. (Preface, and Chapters 1-3) (optional)
http://regulationbodyofknowledge.org/wp-content/uploads/2013/03/Guasch_Granting_and_Renegotiating.pdf

27 Nov	Discounting and CostBenefit Analysis	Whittington on Discounting Bartle, Ch 11 (270-274) Excerpt from Aronson and Schwartz, Ch 6 Heikkila, Eric. 2000. Understanding Cost-Benefit Analysis. In <i>The Economics of Planning</i> . Pp. 171-193. Dorfman, Robert. 1993. "An Introduction to Benefit-Cost Analysis." In <i>Economics of the Environment</i> . NY: W.W. Norton and Co. Hejnowicz, A.P.; Rudd, M.A. "The Value Landscape in Ecosystem Services: Value, Value Wherefore Art Thou Value?" <i>Sustainability</i> 2017 , <i>9</i> , 850.
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2 Dec	Presentations Group Project: Fourth Deliverable Due	
4 Dec	Presentations Exam Review	Dowall and Whittington, Ch 11
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10 Dec	Final Exam 8:30 – 10:20 am	

Face Coverings in the Classroom

The health and safety of the University of Washington community are the institution's priorities. Please review and adhere to the [UW COVID guidance](#).

Participation

Students are expected to attend class and to participate in all graded activities, including quizzes and final examinations. A student who is anticipating being absent from class due to a Religious Accommodation activity needs to complete the Religious Accommodations request process by the second Friday of the quarter. Students who anticipate missing class due to attendance at academic conferences or field trips, or participation in university-sponsored activities should provide a written notice to the instructor ahead of the absence. The instructor will determine if the graded activity or exam can be rescheduled or if there is equivalent work that can be done as an equivalent, as determined by the instructor.

Religious Accommodations

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at [Religious Accommodations Policy \(https://registrar.washington.edu/staffandfaculty/religious-accommodationspolicy/\)](https://registrar.washington.edu/staffandfaculty/religious-accommodationspolicy/). Accommodations must be requested within the first two weeks of this course using the [Religious Accommodations Request form \(https://registrar.washington.edu/students/religious-accommodationsrequest/\)](https://registrar.washington.edu/students/religious-accommodationsrequest/).

Safety

Call SafeCampus at 206-685-7233 anytime – no matter where you work or study – to anonymously discuss safety and well-being concerns for yourself or others. SafeCampus's team of caring professionals will provide individualized support, while discussing short- and long-term solutions and connecting you with additional resources when requested.

International Students

Faculty members at U.S. universities – including the University of Washington – have the right to academic freedom which includes presenting and exploring topics and content that other governments may consider to be illegal and, therefore, choose to censor. Examples may include topics and content involving religion, gender and sexuality, human rights, democracy and representative government, and historic events. If, as a UW student, you are living outside of the United States while taking courses remotely, you are subject to the laws of your local jurisdiction. Local authorities may limit your access to course material and take punitive action towards you. Unfortunately, the University of Washington has no authority over the laws in your jurisdictions or how local authorities enforce those laws. If you are taking UW courses outside of the United States, you have reason to exercise caution when enrolling in courses that cover topics and issues censored in your jurisdiction. If you have concerns regarding a course or courses that you have registered for, please contact your academic advisor who will assist you in exploring options.