

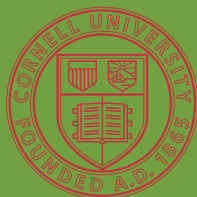
2014 - 2015

Annual Report



Cornell Program *in* Infrastructure Policy

EDUCATING THE NEXT GENERATION OF INFRASTRUCTURE LEADERS



Cornell University

Dear Friends of the Cornell Program in Infrastructure Policy:

I am very pleased to present the 2014-2015 academic year Report for the Cornell Program in Infrastructure Policy, or CPIP. As our Annual Report indicates, the past year has been both active and exciting. CPIP hosted four distinguished sabbatical visitors, including one from Ireland, two from Spain, and one Canadian. The research work undertaken by those scholars addresses a range of important infrastructure policy questions. It either has, or will be, published in top academic journals.

It has also been a notable year for the teaching of infrastructure policy at Cornell. The fall 2014 semester saw the inauguration of my new course entitled Regulation & Infrastructure Policy. Twenty-six top students from a variety of colleges and majors completed the course. The same course this fall has over 40 registered students. It is highly complementary to the course taught by CPIP Executive Director John Foote entitled, Public Finance: Project Management and Planning, which continues to attract a broad student following. Our CPIP-affiliated students are starting to receive excellent internship and job offers in the infrastructure policy space; we look forward to basking in their reflected glory.

Moreover, Masters of Public Administration students who are interested in infrastructure policy can now concentrate in a new area entitled "Science, Technology, and Infrastructure Policy," or STIP. The STIP concentration is attracting talented individuals from countries as diverse as India, Panama, and China. CPIP also hosted two distinguished executives-in-residence during the year, Dr. Martha Gross from Arup and Mr. Scott Zuchorski from Fitch Ratings. Both held office

hours and gave exceptional, well-attended talks to numerous students.

During the year, we worked to solidify CPIP's multi-disciplinary focus. This reflects the view that addressing challenging, global infrastructure problems must rely on skills from and cooperation between multiple disciplines. In that spirit, Civil & Environmental Engineering professor Oliver Gao has accepted the title of Associate Director of CPIP. We hope to strengthen links with other key departments, including City & Regional Planning and Earth & Atmospheric Sciences, over the coming year.

We look forward to an even more productive 2015-2016 academic, as detailed below. In January, CPIP will welcome another sabbatical visitor to Cornell, Professor Dónal Palcic from the University of Limerick. Mr. Ray DiPrinzio from Sumitomo Mitsui Bank has kindly offered to serve as the fall CIP executive-in-residence. We will host the 4th Annual International Symposium in New York City this September, which will bring together over twenty top infrastructure policy scholars from around the world, among several other events. I urge you to read the "Year Ahead" section at the end of this Report, which better describes our future efforts.

None of this would have been possible without generous support from numerous sources. We are very grateful to the Smet Family for their initial and ongoing financial support of CPIP's activities. CPIP is also grateful to our expert Advisory Council, who continue to offer excellent advice and suggestions as we move forward. I am especially grateful to John Foote (Eng. '74) who selflessly volunteers his time and energy toward making CPIP viable. It simply would not be possible without him.

We look forward to your input and support in the coming year as we continue to build CPIP into the nation's premier academic infrastructure policy center. It has been a privilege to serve as CPIP's Director over the past year, and I am honored to be able to contribute to this critical, dynamic area of public policy.

Warm regards,



Rick Geddes



John Foote & Rick Geddes



Eoin Reeves

University of Limerick Scholar in Residence

CPIP and the Department of Policy Analysis and Management were delighted to host **Eoin Reeves**, Senior Lecturer in the University of Limerick's Kemmy Business School's Department of Economics and Director of its Privatisation and PPP Research Group, as a visiting scholar during the Spring 2014 semester. Eoin's research is focused on market-based public sector reforms and the regulation of infrastructure. It includes issues related to privatization and alternative forms of private sector participation in the delivery of public services. He is the co-author of *Privatisation in Ireland – Lessons from a European Economy* (Palgrave MacMillan, 2011).

Eoin Reeves' Research

While at Cornell this spring, Eoin developed several research projects:

Comparative Analysis of Tendering Periods for PPP Contracts

Lengthy tendering periods can increase the cost of PPP projects and affect competition for contracts. This project involves assembling a data base on tendering periods (from date of Contract Advertisement to Financial Close) and project characteristics for PPP projects in a cross-section of countries (e.g., USA, Australia, Canada). The data will be used to examine how tendering periods vary across factors such as country, sector (e.g. transport, schools, water, etc.), PPP-types and time-periods, among others.

The Favorability of PPP Enabling Legislation in the USA and Its Impact on PPP Investment

This project focuses on questions surrounding state-level enabling laws and PPP investment in the USA. Specifically, the paper seeks to document the gradual increase in the adoption of PPP enabling laws in the USA and map the resulting increase in PPP activity in the USA across states and sectors. It then seeks to construct an index to measure the extent to which specific legislation around PPP is favorable or unfavorable and examine the relationship between the favorability of the law and the extent of PPP investment.

Funding, Financing and Productivity of Ports Infrastructure in the USA

This project is based on assembling data on the different funding and financing arrangements in place for ports infrastructure in the USA. In addition it aims to assemble data for the purpose of conducting productivity analysis of US ports.



Daniel Díaz-Fuentes



Martin Boyer

CPIP Visiting Scholars

CPIP welcomed two visiting scholars to Cornell during Fall 2014: Judith Clifton, Associate Professor of Applied Economics (Public Policy and Political Economy) at the University of Cantabria (Spain) and Editor in Chief of the *Journal of Economic Policy Reform*, and Daniel Díaz-Fuentes, Professor of Applied Economics at the University of Cantabria.

Judith has been analyzing the topic of privatization for twenty years. Today, the ongoing financial and economic crises are proving to be a catalyst for privatization of public services. Judith will be comparing public versus private management policies implemented by governments for public services across the EU and the USA to identify trends and convergence.

Daniel has been studying the role of the European Investment Bank in infrastructure funding. This fall, he will be analyzing EIB infrastructure finance policies with Rick Geddes.

Numerous international sabbatical scholars have visited Cornell under the auspices of CPIP since its founding in September of 2012. Those include Prof. Eoin Reeves (University of Limerick), Prof. Germà Bel (University of Barcelona), Prof. Daniel Diaz-Fuentes (University of Cantabria), Prof. Martin Boyer (University of Montreal), and visiting in spring 2016, Prof. Dónal Palcic (University of Limerick). Those visitors have researched various aspects of infrastructure policy.



Germà Bel



Rick Geddes with CIPA student Greg Jette

Teaching: Regulation and Infrastructure Policy

In fall semester of 2015, Rick Geddes will teach a modified version of the Regulation and Infrastructure Policy class he taught in the fall of 2014. This new course will carry both senior-level (PAM 4640) and graduate-level (PAM 5340) course numbers. It will focus on four major areas of infrastructure policy: (i) the funding of infrastructure, including fuel taxes, value capture, tax-increment financing, tolling, and mileage-based user fees; (ii) the financing of infrastructure, including tax-exempt debt, taxable corporate debt, TIFIA loans, and equity investment; (iii) policies toward operation and maintenance; and (iv) policies toward emerging technologies such as vehicle autonomy.

Guest speakers in the fall of 2014 included, Tom Madison, Executive Director, New York State Thruway Authority, Martha Gross, Arup, and Steven Greenberg, Managing General Partner, Fox Meadow Capital Partners.

STIP Concentration

In the fall of 2014, the Cornell Institute for Public Affairs (CIPA) approved a new concentration available to students within their Master's in Public Administration program entitled, "Science, Technology, and Infrastructure Policy," or STIP. The foundational courses for the concentration include Rick Geddes' PAM 5340: *Regulation and Infrastructure Policy* course as well as John Foote's HE 6015, *Public Finance: Project Management and Planning* course. Students then can choose from a wide variety of elective courses across campus to fulfill their concentration requirements. There has already been substantial interest in the STIP concentration from both domestic and international students.

The Geddes and Foote classes thus form a one-year foundational course sequence that provide student with the basic tools they need to excel in the infrastructure policy world.



Sharon Tennyson, Director, CIPA

CIPA now in CHE

An important administrative change that bodes well for CIPA is the formal movement of the Cornell Institute for Public Affairs (CIPA), into the College of Human Ecology. That change, both administratively and physically, was consummated on July 1, 2015. Prior to that, CIPA was an administratively separate program reporting directly to the Provost. This change will bring CIPA closer to the Department of Policy Analysis & Management. It will result in infrastructure courses including more students from both programs, and forms the basis for a future school of public policy. Infrastructure policy will be a critical area of excellence in such a school.

The Inaugural Meeting of the CPIP Advisory Council took place on June 3, 2014 in New York City

This Council, composed of thirteen seasoned infrastructure practitioners, was formed to create a link between the academic community and the industry. Its goal is to ensure CPIP's work is focused on viable, practical infrastructure solutions. CPIP's success will be measured by its impact on the development of solutions that are relevant to today's pressing infrastructure problems. The Council focused on the following questions:

Can We Fix Manhattan's Traffic Problem?

Traffic and Manhattan are synonymous. Mayor Koch tried to fix the problem in 1980 and failed. Mayor Bloomberg tried in 2008 and failed. But now there's talk about a new plan, using variable tolling to manage the number of cars in Manhattan that may have some previous opponents changing their minds.

CPIP and the Cornell Club of New York co-sponsored a panel discussion on September 22, 2014 at the Cornell Club of New York City with "Gridlock" Sam Schwartz, former NYC Traffic Commissioner, and Mike Manville, Professor of City and Regional Planning (and CPIP affiliate). This discussion was moderated by John Foote '74, Executive Director of the Cornell Program in Infrastructure Policy.

What is the most effective role(s) of academia with respect to addressing our infrastructure problems? A corollary question is, how can academia and infrastructure-sector practitioners (broadly defined) work together to improve public policies toward infrastructure?

What are the important infrastructure issues that require objective and empirically-based investigation and research? This will help CPIP refine its agenda of important issues to be researched. Since CPIP is supporting faculty, post-doc, graduate and undergraduate students who are conducting research on key infrastructure topics, this will have a direct bearing on the ongoing policy debates in the infrastructure space.

What are the set of foundational skills and knowledge sets someone working on any aspect of the infrastructure space (e.g. planning, development, finance, operations, etc.) should have upon graduation? CPIP is working closely with Cornell's Master of Public Administration (MPA) degree program. MPA candidates at Cornell are thus required to take a core set of courses in administration, economics and analytic methods. Upon completion of the core, students can concentrate in one of several areas, including Science, Technology and Infrastructure Policy, or STIP.



CPIP Advisory Council Members

Dean Angelakos, Cornell '85 *Senior Vice President, Parsons Corporation*

Jon Berger, Cornell '81 *Chief Executive Officer, Great Lakes Dredge & Dock Company*

Mark DeAngelis, Cornell '91 *CEO, Macro Climate Solutions, LLC*

Raymond DiPrinzio *Senior Vice President, Sumitomo Mitsui Banking Corporation*

Mark Fagan *Founding Partner, Norbridge Inc.*

John Foote, Cornell '74 *Executive Director, CPIP*

H. Oliver Gao *Associate Professor, School of Civil & Environmental Engineering, Cornell University*

Rick Geddes *Director, Cornell Program in Infrastructure Policy, and Associate Professor,
Department of Policy Analysis and Management, College of Human Ecology, Cornell University*

Steve Greenberg, Cornell '89 *Managing General Partner, Fox Meadow Capital Partners*

Martha Gross *Senior Infrastructure Advisor, Arup*

Mark Joseph *Chief Executive Officer and Vice Chairman, Veolia Transportation North America*

Joung Lee *Deputy Director of Program Finance and Management, American Association of State Highway and
Transportation Officials*

Edward Merlis *Business, Transportation, Public Affairs and Government Relations Consultant*

Bill Reinhardt *Editor/Publisher, Public Works Financing Newsletter*

Aaron Singer *Bid Director, Parsons Enterprises*

Scott Zuchorski, Cornell '97 *Senior Director, Fitch's Global Infrastructure and Project Finance Group*



Oliver Gao Named Associate Director of CPIP

Oliver Gao, who is an Associate Professor in the Department of Civil and Environmental Engineering, has recently accepted the position of Associate Director of CPIP. Rick Geddes, CPIP Director, said “Oliver’s work in transportation systems is in the sweet spot of CPIP-focused issues. His appointment strengthens the links between the College of Engineering, CIPA, and CPIP. We are delighted to have him play this critical role on the leadership team.”

Oliver was recently the featured faculty member in the Spring 2014 newsletter of the University Transportation Research Center, Region 2, a USDOT-supported university transportation center hosted by the City of New York, CUNY, and comprised of a consortium of 19 institutions in New York (including Cornell), New Jersey, Puerto Rico, and the Virgin Islands. An excerpt from the newsletter is below:

H. Oliver Gao is an award-winning professor at Cornell University and a world-renowned expert on transportation and environment/energy systems. Dr. Gao is an elected member in the graduate fields of 1) Cornell Institute of Public Affairs (CIPA), 2) Systems Engineering, 3) Transportation Systems Engineering in Civil and Environmental Engineering, 4) Air Quality in Earth and Atmospheric Science, and 5) Computing and Information Science at Cornell University. He is Editor-in-Chief of the leading international academic journal, Transportation Research D: Transport and the Environment. His research focuses on engineering/economics modeling and systems management solutions for sustainable and intelligent infrastructure and lifeline systems, low carbon and low emission transportation systems, environment (especially air quality and climate change)-energy systems, and the closely related issues of infrastructure and environment finance such as game theory and mechanism design for public-private partnership (PPP). He also studies alternative transportation/energy technologies, systems innovation, and green supply chain and logistics (e.g., sustainable food systems, quantifying and mitigating green-house gas emissions from food supply chains). He is a current member of Transportation Research Board Committee on Maintenance Equipment (AHD60), and a member of Cornell’s Atkinson Center for a Sustainable Future (ACSF).

Professor Gao received his graduate degrees (Ph.D. in Civil and Environmental Engineering, M.S. in Statistics, and M.S. in Agriculture and Resource Economics) from the University of California at Davis in 2004, M.S. degree in Civil Engineering in 1999, and dual undergraduate degrees in Environmental Science and Civil Engineering in 1996 from Tsinghua University, China. He also enjoys close and frequent intellectual interactions with his networks in finance. Before joining Cornell, Professor Gao was a quantitative analyst in the mathematical and econometrical modeling division at a Wall Street hedge fund specializing in emerging markets such as the Brazil, Russian, India, and China (BRIC).

Over the past decade, Professor Gao’s research on urban transportation infrastructure and air pollution/health has resulted in the development of an international leading research program in transportation and air quality studies at Cornell University. Through both solo efforts and collaborations with others, he has secured significant and continued research funding sponsored by US and international organizations such as US Department of Transportation, US Department of Agriculture, the Lloyd’s



Register Foundation (UK), US Environmental Protection Agency, etc.. His research publications have appeared in highly regarded transportation, environment, and management journals including Environmental Science & Technology, Transportation Research, Energy Policy, and Atmospheric Environment, etc. The outcome of his research has significant implications for improved capability to model, predict, and control transportation emissions and to evaluate their impacts on air quality, with the ultimate effect of optimizing transportation and air quality management strategies and thus improving public health.

Martha Gross: First CPIP Executive in Residence



Martha Gross

CPIP's first Executive in Residence was Martha Gross, Senior Infrastructure Advisor at Arup. Martha provides commercial and technical advisory support for large infrastructure projects, with a focus on transportation design-build (D/B) and public-private partnership (PPP) procurement and delivery. Prior to joining Arup, Martha was associated with Tidewater Skanska, focusing on project controls, engineering, and management of infrastructure projects. Martha has a MBA, PhD (Civil Engineering) from Virginia Tech and a BS and MEng in Civil Engineering from Pennsylvania State University.

This appointment required Martha to spend at least one day per month on campus in September, October and November. During those days she interacted extensively with students and faculty. "Martha's background, experience and passion for the infrastructure space will be invaluable to students and faculty interested in infrastructure issues. We are very fortunate that Martha has agreed to be our first executive in residence," said John Foote, CPIP's Executive Director.

Our second Executive in Residence in the spring of 2015 was Scott Zuchorski. Scott is Senior Director, of the Fitch's Global Infrastructure and Project Finance Group. He is the co-lead of Fitch's US Transportation team, where he covers a variety of transportation and infrastructure transactions including airports, seaports, toll roads, privately financed sports stadiums, and public-private partnerships (P3s).

Scott's experience in infrastructure P3 projects comprises several recently rated transactions including Presidio Parkway, Mid Town Tunnel in Norfolk VA, the Carlsbad Desalination Plant, the Indiana portion of the Ohio River Bridges project and the Goethals Bridge Replacement project. Prior to joining Fitch, Scott was a First Vice President at Ambac Assurance Corporation. He began his career as a management consultant with Arthur Andersen LLP's Government Services Practice in Washington, DC. Scott received his BS from Cornell University and his Masters of Public Administration from the Maxwell School at Syracuse University.



Scott Zuchorski

Following on Scott Zuchorski's successful visit in the spring of 2015, CPIP will host Ray DiPrinzio, Senior Vice President and Team Leader-Infrastructure Project Finance at Sumitomo Mitsui Banking Corporation, for the fall semester of 2015. Ray will visit campus three times in the fall, will deliver several talks on infrastructure finance, give guest lectures in class, hold office hours, and attend several receptions.



Former CIPA student, Alvaro Salas-Castro watches as the Costa Rican memorandum of understanding is signed. From left to right: Marcelo Jenkins, Costa Rican Minister of Science, Technology and Telecommunication; Thomas O'Toole, CIPA Executive Director; Ana Chacon, Vice President, Republic of Costa Rica; Sharon Tennyson, CIPA Director.

Memoranda of Understanding in Central America

Evolving academic partnerships in Central America are a critical development for CIP. Cornell University has signed Memoranda of Understanding with both the Panamanian and the Costa Rican governments. The MOUs include plans to support a number of mid-career students to come to Cornell to receive their Masters in Public Administration (MPA) degrees. We hope that some of those students will be interested in CIP and the Science, Technology and Infrastructure Policy concentration given infrastructure's important role in the region. Examples include the Panama Canal expansion project, plans for dry canal in Costa Rica, the renovation of the Tocumen Airport, and a rapidly growing need in Central America for basic infrastructure, including rural roads and water treatment.

CIP hosts the 4th Annual International Symposium on Public Private Partnerships

CIP will host the 4th Annual International Symposium on Public Private Partnerships in New York City over the days of September 15th and 16th. The first such conference was held at the Copenhagen Business School in 2012 (on the theme of "economic advantage" from PPPs), the second was at the Business School at the University of British Columbia in Vancouver in 2013 (on the theme of "political economic and business strategy"), while the third was in Melbourne, Australia in 2014 (on the theme of "The Challenge of Governance"). September's conference in NYC will focus on the theme of "Public Perceptions of Public-Private Partnerships."

We expect over twenty PPP scholars from around the world will convene in NYC for 1½ days of academic meetings, followed by a half day of discussions (including lunch, refreshments, and a reception) with Advisory Council members, corporate sponsors, and key industry representatives.

The Year Ahead:

The coming academic year will be auspicious for CPIP. We will continue with both the sabbatical visitors with Dónal Palcic arriving in January 2016. We will also welcome our fall 2015 Executive-in-Residence, Ray DiPrinzio. Ray is Senior Vice President and Team Leader of Infrastructure Project Finance with Sumitomo Mitsui Banking Corporation. He has graciously agreed to visit campus several times this fall to give several lectures and meet with Cornell infrastructure policy students. We will continue to seek the input and advice of our expert Advisory Council members, who

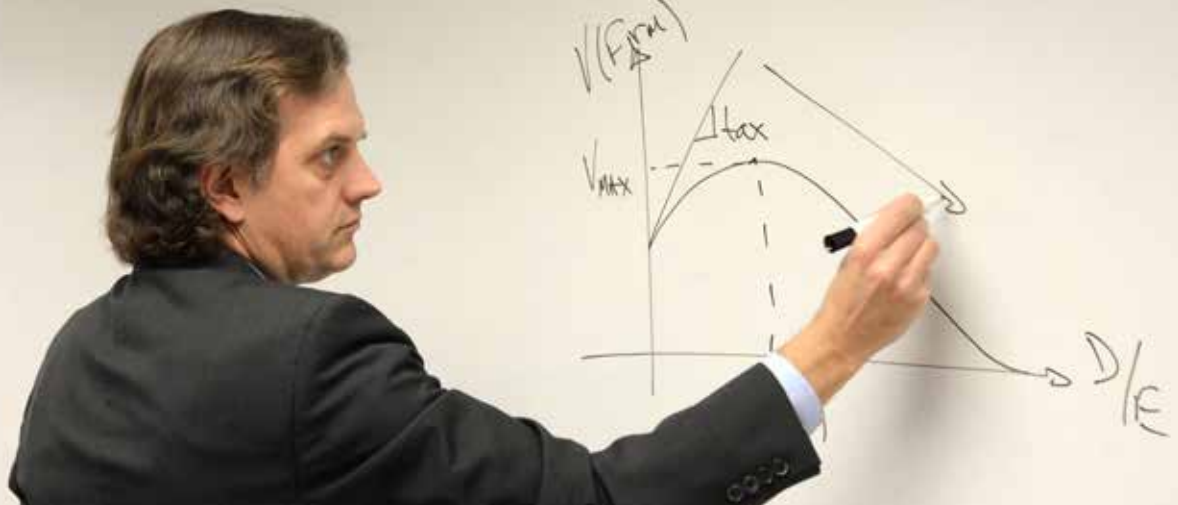


Dónal Palcic

posted on the CPIP website and on the Social Science Research Network (SSRN).

CPIP's work is more important than ever. The use of innovative approaches to infrastructure funding and financing, such as direct road pricing and public-private partnerships, is growing in the United States and abroad. Both raise a variety of challenging policy issues, which CPIP is poised to help address. Moreover, rapid technological developments in vehicle autonomy, from parking-assist features to fully driverless cars, as well as new materials and sensor technology, raise an array of challenges. Those include spurring implementation, addressing safety concerns, and improving operation and maintenance.

The need for careful analysis and thoughtful policy recommendations in the infrastructure space is greater than ever. By serving as an intellectual center for Cornell students, Cornell faculty, global



Martin Boyer

have graciously given of their time and energy in advising CPIP on a variety of issues. CPIP will intensify its efforts to raise funds for doctoral and post-doctoral researchers who focus their efforts on infrastructure policy issues. We will also appoint a Research Director to oversee and coordinate CPIP's research efforts. The Director will facilitate CPIP's growth by organizing events, maintaining contact with our supporters, and by creating a working paper series to be

infrastructure scholars, and industry experts to interact and exchange ideas and lessons, CPIP will remain at the center of these exciting developments.

We look forward to focusing on these and other policy issues in the year ahead. As always, your advice, suggestions and support of CPIP are most welcome and appreciated.

Rick Geddes

human.cornell.edu/pam/cpip

For more information on supporting CPIP's efforts,
please contact:

Associate Professor Rick Geddes

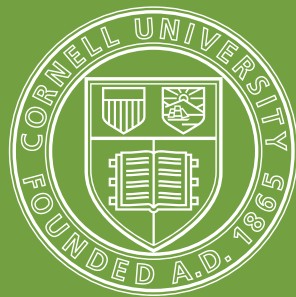
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