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Paying for Municipal Stormwater Services: A Case Study on Drivers of Stormwater User Fees in Three Massachusetts Communities

Urban stormwater is a major source of pollution in U.S. water bodies. Addressing the problem of stormwater pollution at the municipal level can be expensive, from infrastructure maintenance to implementing regulatory best practices. These needs have put pressure on municipalities to look for a stable source of revenue that extends beyond general tax appropriations for public works projects. In this context, stormwater user fees have remained a hotly debated topic in local budget discussions and national forums about stormwater management. In comparison to the rest of the country, the adoption of fees in Massachusetts communities is plagued by low uptake.

This thesis aims to understand the surprisingly small proliferation and early adaptation of stormwater user fees in Massachusetts by identifying the local drivers of fee adoption as an alternative to using local tax income in three communities: Chicopee, Fall River and Northampton.

Through a descriptive case study approach using qualitative interviews and publicly available data, the research underscores four key drivers apparent in local fee adoption: financial pressure, local history, governance arrangements of budgets, and cost equity. Ultimately, communities face numerous tradeoffs that affect the momentum and intricacy of the fee adoption process. Lessons learned about the local drivers of stormwater user fees in these three cases are specifically applicable to the Massachusetts context, but can serve as a guide for other New England municipalities considering new fees.
In late 2013, a severe drought hit the metropolitan region of São Paulo, Brazil’s most populous city and main economic center, and precipitated a water supply crisis. As water availability became increasingly strained during 2014, myriad collective action efforts by civil society actors sprung up in the city. My thesis explores this social mobilization around São Paulo’s supply crisis as a window into water politics and governance when water supply problems and solutions are unclear but have important political and service repercussions for different stakeholders. Two interrelated questions guided the research: How and why did particular forms of social mobilization around the water supply crisis emerge and develop? How did civil society actors transform their problem definitions into action strategies? 

Building on social movement theory, I answer these questions by tracing the mobilization process of two broad-based civil society coalitions that emerged in the context of the crisis: the Alliance for Water (Aliança pela Água) and the Collective for Water Struggle (Coletivo de Luta pela Água). This analysis helps uncover underlying value disputes shaping how different actors framed problems and opportunities during the crisis. At the same time, it sheds light on the ways in which maintaining flexible problem frames and fluid relationships with one another allowed the two coalitions to take advantage of spaces for action around the crisis—even in the face of an impervious political and institutional environment—while still advancing particular organizational projects and narratives about the situation. While it is not clear what the long-term outcomes of mobilization will be, I argue that the efforts of both coalitions served to amplify different civil society voices, facilitate knowledge sharing about water issues, and open up channels for greater participation in water supply governance.
Cities around the world are actively aiming to reduce greenhouse gas emissions in an effort to combat the negative consequences associated with anthropogenic climate change. The City of Boston is no exception—in 2011, then-mayor Tom Menino established the rigorous goals of reducing city-wide greenhouse gas emissions by 25% by 2020 and by 80% below 2005 levels by 2050. Given the realities of finite time and resources, it’s critical to identify the most effective strategies to achieving energy efficiency in order to meet these objectives. This thesis explores how urban building energy modeling (UBEM) can be utilized to develop high-impact community-led energy efficiency programs. UBEM is a recently developed type of bottom-up energy modeling that presents a number of advantages over past urban energy modeling methods- namely, the ability for comparing complex scenarios, and the ability to generate hourly load profiles for individuals buildings. In addition, literature suggests that community-based energy efficiency programs achieve higher participation rates than traditional information-based programs.
There’s more to fair than the fare

From the GPS in our cell phones to the Charlie Cards that we swipe to get on the T, many mundane aspects of daily urban life are increasingly producing vast data streams about where, what, and when people are doing things in cities. Many proponents of big data analysis and the related “smart cities” initiatives see the potential for this analysis to shift the focus of city planning from long term visioning and strategy to short term, responsive management of the city. This thesis will investigate how big data are being applied in transportation planning and will interrogate the practice through a lens of social equity and social justice. Public transportation agencies globally are turning to Automatic Data Collection Systems (ADCS), including vehicle location, fare collection, as an alternative to rider surveys and other manually collected data sources in order to make service planning and operations management nimbler and more responsive to how riders are using the transit system. Can transit agencies strategically apply these datasets to address social inequality in our transportation system and better target agency social equity goals?

This thesis focuses on King County, Washington’s ORCA Lift reduced fare program, as a case study of the opportunities and challenges of applying ADCS and big data analytics, in the form of origin, destination, transfer inference (ODX), to support agency social equity goals in service planning and operations management. King County Metro is one of the first public transit agencies in the country to implement a low-income fare program based on the system’s smart card system, providing the opportunity for this thesis to analyze social equity through the anonymized trip patterns of actual riders. Currently, most public transportation agencies assess social equity through the coverage of scheduled service. This project expands upon those standards by developing performance metrics using ORCA Lift trip patterns of ORCA Lift participants to assess how well the agency is actually serving low income riders.
Between Plan and Project: Identifying gaps in plan implementation through development projects in Santa Monica and Newton

This thesis explores the relationship between plans and their implementation through development projects. Specifically, it asks: Do local plans that specify priority sites for development lead to the success of those projects? To answer this question, I look at the recent planning initiatives and their associated priority development projects in two cities – Santa Monica’s Land Use and Transportation Element (LUCE) and Bergamot Transit Village project, and Newton’s Comprehensive Plan and Austin Street project. Specifically, I look at the approvals process of each project to determine if the plans had any role in facilitating project outcomes.

I conclude that while plans play an important role in defining community priorities, they have a limited ability to facilitate built outcomes. Instead, I find that each city’s specific legal framework around land use decisions, including state laws on voter referendum and local policy on special permits, play a much more definitive role. In light of underlying legal and political undertones around development, I offer two suggestions to cities aiming to improve plan implementation. First, facilitate direct ideation from community members through the appointment of citizen task-forces that both promote citizen leadership and co-learning around community concerns, while maintaining traditional public hearings as a platform for dissent. Second, build up and maintain confidence in this enhanced task-force process by insulating outcomes from outright repeal. Together, these recommendations encourage a more politically-engaged approach to planning, suggesting that plan implementation will occur best when legal mechanisms and community political will align with the vision set forth in a city’s best laid plans.
The production of knowledge is deeply tied to physical space and to social organization, yet the sited collaboration networks of research communities are not well understood. The Massachusetts Institute of Technology itself is a potent case study – a community of scholars organized in various interrelated departments, labs, centers and institutes. Some of these bring researchers together in a dedicated building, some share a building between research groups, while others are institutional frameworks that link people who are disparate in space or discipline. Considering several large datasets (faculty attributes, campus facilities, publications and patents), I implement geospatial analysis, network science, and statistics in an empirical study of scholarly activity from 2004 to 2014, drawing on an emerging set of socio-spatial and network-based methods. Insight into the complexity of the academic process is particularly relevant in the contemporary research environment – one that is increasingly cross-disciplinary, collaborative, and reliant on digital communication tools.

In addition to a rich portrait of scholarship at the institute, I find: 1. diverging trends in the composition of collaborative teams over time (size, faculty versus non-faculty, etc.) between papers and patents; 2. patterns of cross-building and cross-disciplinary collaboration are substantively different between publishing and patenting teams; 3. a network topology and community structure that reconfirms these collaboration dynamics; and finally 4. that there is a persistent relationship between proximity and collaboration, well fit with an exponential decay model, that is consistent for papers, patents, and specifically for cross-disciplinary teams.

This hybrid analytical approach brings a quantitative understanding of what we qualitatively understand about MIT – what makes the institute unique. Both its pedagogical and architectural foundations emphasize cross-disciplinarity; MIT founder William Barton Rogers forged a novel academic model in his polytechnic for applied science, and architect William Bosworth explicitly engaged collaboration with his innovative design for an interconnected campus. Today, in the context of new buildings, research groups, initiatives, accelerators and innovation districts, it is crucial to build a body of empirical knowledge and spatial practices that actively support collaborative innovation.
Thoughts on the Ridesourcing Revolution: Using individual perceptions of Uber and Lyft to inform urban transportation policymaking

Media coverage of the proliferation of ridesourcing services such as Uber and Lyft has painted it as a controversy between new technology and the established taxi industry, which, depending on the strength of the local taxi lobby, has led to municipal government responses ranging from inaction or light regulation to outright bans on ridesourcing operation. However, policymakers have little guidance on how to best represent the interests of their constituents, and individual users and non-users of the service may have more nuanced perceptions. This thesis uses a standardized questionnaire distributed across the United States by an online survey company to understand individual attitudes toward Uber, Lyft, and ridesourcing technology as a whole. It asks respondents if they use Uber or Lyft, why or why not, how they rank the services among their other travel modes, their attitudes toward the companies, and their opinions on how their cities should respond, among other questions.

394 completed questionnaires from the most populous 15 metropolitan statistical areas in the U.S. reveal individuals’ use of and attitude toward ridesourcing technology along with variations across demographic groups, cities and regions, and primary travel mode. The survey returned a response rate of 27% and the spatial distribution of responses was roughly proportional to the population of each metropolitan area. The findings indicate that about 70% of respondents use some form of ridesourcing, mostly for special-purpose trips, and that the vocal minority who speak out against Uber and Lyft for ethical reasons represent only a small subset of the sample (about 6%). Nearly three-quarters of respondents said that the accessibility of Uber and Lyft where transit is sometimes inaccessible made them want to use ridesourcing services more, but 1 in 5 respondents said the companies’ decision to treat drivers as independent contractors rather than employees with benefits made them want to use the services less. The study reveals national trends in usage of and attitude toward ridesourcing, with potentially substantive implications for urban transportation policymakers.
Heat waves are becoming more frequent and severe as climate change magnifies the “urban heat island” effect. While trees reduce ambient temperatures, their effect is localized. Consequently, more people die from heat waves in neighborhoods with fewer trees. Moreover, low-income minority neighborhoods typically lack tree cover. Expanding the urban forest is therefore a critical climate adaptation measure, as well as an issue of environmental justice.

To address these disparities, the cities of Los Angeles and New York formed public-private partnerships to plant a million trees. Previous research has demonstrated that over-reliance on private capital may bias public-private partnerships towards profitable investment, making social justice goals harder to achieve where there is a lack of public funds. This research goes a step further by examining whether social justice is also harder to achieve where there is a lack of public space.

This analysis reveals that while MillionTreesNYC planted far more trees, it did not prioritize low-income minority communities to a measurable degree. In contrast, MillionTreesLA planted fewer trees overall, yet concentrated them in low-canopy areas with higher poverty rates and a higher proportion of non-white residents. These outcomes were shaped by differences in program funding, which produced differences in the degree of centralized efficiency versus decentralized responsiveness to local contexts. However, the most critical factor was the distribution of different types of public space across each city and among socio-economic groups. These spatial inequalities directed the flow of trees differently in New York versus Los Angeles, with the result that the latter was better able to target low-income minority neighborhoods with low tree canopy.

Remediating these socio-spatial inequalities will require cities to rethink public administration of public space as a tool for redistributing environmental resources to achieve greater environmental justice and climate justice. Such strategies will be critical to adapting vulnerable neighborhoods to the effects of climate change. These findings can inform ongoing efforts to advance environmental justice and climate adaptation via public-private partnerships, particularly in an era when privatization of urban space and the need for urban climate adaptation are both increasing.
Escaping an Institutional Poverty Trap: Learning Behavior as a Collective Action Problem in Brazil’s Pharmaceutical Industry

Why are so many countries persistently poor, underdeveloped, and unequal? Why does unevenness in resources and capabilities persist within productive sectors, even in developing countries that have managed to sustain handfuls of well-performing firms in modern sectors? The conventional knowledge about this persistence suggests that in the long run, historical institutions are the fundamental cause of economic outcomes, making history determine economic performance through its effect on institutional development patterns (Acemoglu and Robinson, 2001; 2002; 2012). These studies portray institutions as path-dependent and impervious to change, suggesting a pessimistic expectation for the development possibilities of poor countries.

In contrast, this dissertation shows empirically how and why inefficient institutions that tend to persist over time can be altered, leading to unexpected upgrading and inequality reduction even in environments traditionally considered “hopeless” by the literature. Through a mixed methods approach incorporating qualitative methodologies to a traditional poverty trap framework, this work analyzes the effect of institutions on evolving micro-level attitudes towards learning in a complex, technologically-intensive industry plagued by high prices, widespread product safety challenges, and parasitic firm behavior.

Using the experience of Brazil’s pharmaceutical industry as a main case, with India and Mexico as shadow cases, the study concludes that in the context of extreme technological gaps, political domination by large economic groups, and structural constraints, inequitable and inefficient institutions become self-sustaining and make individual learning prohibitively costly for most local firms. This creates secular poverty traps where individual “low road” behaviors become prevalent among firms, resulting in a self-reinforcing intensification of uneven development. In such cases, learning — and escaping the trap — necessarily becomes a collective action problem, where marginalized firms must cooperate to defray the costs of upgrading.
This PhD dissertation entitled, “Communities of Coral: an Ecological and Institutional Analysis of Ecosystem Services and Biodiversity Conservation in Southeast Asia” examines two countries, Indonesia and Malaysia, and their pathways to implementing the international Convention on Biological Diversity (CBD), specifically focused on how regional and national policies in Southeast Asia have fared when implementing the Aichi Targets of the CBD. These include both safeguarding ecosystems through protections and ensuring that benefits from ecosystems can be enjoyed by all. This dissertation examines CBD implementation through marine protected areas (MPAs) for corals reefs in both Indonesia and Malaysia. Whereas Indonesia uses a co-managed framework to implement its MPAs where villages and governments share power, Malaysia uses a top down network of federally managed Marine Parks.

The dissertation uses mixed methods through interviews and surveys as well as first hand coral reef ecology surveys conducted over a year of fieldwork to argue that co-managed systems are the best practice for implementing the CBD’s Aichi Targets. Not only do they prevent ecosystems from degradation, but they also are seen as more legitimate by local resource user stakeholders, allow them more adaptive capacity to manage the ecosystems under conditions of uncertainty, and allow for a more integrated form of management whereby ecological, economic, and social considerations can be made for management decisions.
As Mexico City faces pressing mobility and environmental challenges, a growing group of academics, NGOs, international institutions, and government agencies point to the need to expand and improve the public transportation system, as well as move towards more sustainable urban development patterns. Transit-oriented Development (TOD), an urban planning concept based on the coordination of transit infrastructure with dense, compact, and mixed-use neighborhoods, has been identified as a potential policy to achieve both of these aims. Yet, an effective TOD policy will require an understanding of the factors associated with transit ridership, particularly those related to the built-environment and land use. Traditional ridership estimation methods are data-intensive and prohibitively costly for many developing-world cities. In addition, they are not designed to analyze the influence of station-level characteristics. Direct ridership modelling (DRM), a “sketch-planning” tool that uses multivariate regressions to predict station-level ridership, is a viable alternative that allows planners to achieve reasonable estimates quickly and economically, while also enabling the analysis of the relationship between the station-area built environment and transit ridership.

In this thesis, I use data from a variety of public and open data sources to estimate direct ridership models for Mexico City’s subway and BRT systems, including sociodemographic, land use, built environment, transit system, and relative location characteristics. I find that some of the variables included have different effects on BRT and subway, suggesting that the two systems play different roles within the public transportation network. Mainly, subway ridership is driven by employment, while station-area population drives BRT ridership. Colectivos, a privately-owned and operated semi-formal network of vans and microbuses -which had been hard to analyze due to lack of data- are important determinants of ridership in the mass-transit system. Interestingly, I also find evidence that built-environment characteristics, such as well-connected street grids, influence transit ridership. The results point to the need of further research concerning travel and the built environment in developing-world cities, and support the claim that “sketch-planning” tools, along with public and open data sources, are a useful to develop credible forecasts.
Learning through Competition: Resilience on the Jersey Shore after Rebuild By Design

In the wake of recent devastating storms and the threat of further disruption, major U.S. cities and regions have gained a sense of urgency to plan and prepare for environmental change. Cities, nonprofits, and the federal government are increasingly adopting the architecture field’s design competition model as a tool for resilience planning. Competitions promise to yield creative design ideas that would not come to light through traditional planning processes, and to foster public interest and support for investment in climate resilience measures. Little research exists, however, evaluating the practical implications of design competitions or how their outcomes are perceived by local planners and residents.

This thesis examines the potential for competitions to foster a shift toward resilient design in local planning practice. The three municipalities that serve as cases – Asbury Park, Keansburg, and Toms River, New Jersey – each received detailed visions and plans for substantial resilience projects through the federal Rebuild By Design competition, but did not win any financial support for their implementation.

Through interviews with local and county-level planners and elected officials, this thesis finds several positive effects of the competition experience on local planning, including new awareness and interest in long-term visioning and cross-boundary collaboration. Findings also include a set of ongoing challenges – primarily, limited local capacity and regional politics – against which the competition alone is inadequate to help communities realize resilience. The thesis concludes with proposals to help resilience competitions better serve the places and people for whom they are generating ideas, as well as broader recommendations for future exercises in policy innovation for resilience planning.
Nationwide environmental justice organizations are involved in campaigns to address gentrification within their communities. This thesis explores the ways in which these organizations connect the issue of gentrification to environmental issues and how they are using community organizing to confront it. This research is based on case studies of six environmental justice organizations, with active anti-gentrification campaigns, located in Boston, Oakland, Portland, Austin, San Francisco, and Brooklyn. After years of organizing for brownfield redevelopment, transit justice, food justice, and climate justice they are finding that their community-led initiatives are gaining the attention of profit-seeking developers and gentrifiers. The Principles of Environmental Justice guide these organizations to preserve culture, protect health, and ensure self-determination, however, gentrification erodes each of these goals. They are further called to action because gentrification displaces the constituents for whom their initiatives are aimed to support.

Environmental justice organizations are using coalition building, partnerships, community engagement, and cooperative economics to challenge the systemic racism and classism within existing land use and environmental policies that promote gentrification. From these organizations, planners can learn to prevent gentrification through measuring the gentrification potential of their projects, creating interagency working groups, and promoting community-based planning.
A Political Ecology of Design: Contested Visions of Urban Climate Change Adaptation

From the eastern seaboard of the United States to coastal cities in Southeast Asia, severe weather events and long-term climate impacts challenge how we live and work. As the debates over cities, planning, and climate change intensify, governments are proposing increasingly ambitious plans to respond to climate impacts. These involve extensive reconfigurations of built and “natural” environments, and massive economic resources. They promise “ecological security” and the perpetuation of capitalist growth. Yet they often involve intractable social questions, including decisions about how and what to protect on sites that are home to already marginalized urban residents.

Exploring what I call a political ecology of design, I investigate sites and strategies in three cities, New York, Jakarta, and Rotterdam. Looking, on one level, at city and national initiatives, my dissertation also searches out alternate narratives – the “counterplans” – and new global/urban networks.

I focus on the contested visions, the interrelationships of local and global, and the role of design in urban adaptation. I ask, in the face of climate change and uneven social and spatial urban development, how are contesting visions of the future produced and how do they attain power?

I ground my research in theories of sociospatial power relationships – the social production of space, urbanization and uneven development, spatial justice, and the geographies of policy mobility – and the interrelationships between social, ecological, and technological processes in and through cities. I develop a method of urban relational analysis to study disparate yet highly interconnected sites, building on a more reflexive approach to case selection and analysis and a relational reading of sites.

I find that, 1) in this new landscape of climate policy mobilities, urban adaptation projects, globally constituted, are reformatted by and to local urban sociospatial systems, 2) climate change motivates relationships, but plan objectives often transcend climate-specific goals, and 3) the production of alternative visions – “counterplans” – opens terrains of contestation, enabling modes of organizing and resistance to hegemonic systems. These findings emphasize the agency of marginalized urban communities, the sociopolitical role of design, and the embeddedness of climate change responses within multiple scales and levels of global urban development.
In the past two decades, there has been a growing interest in grassroots innovation in India and beyond, both as an area of formal research and practice. Although many different explanations of grassroots innovations exist in literature, they can be understood as novel products and processes that solve an unmet need or pressing challenge for an individual or community in a particular local context. Grassroots innovators come from rural communities and have limited or no formal education, but are capable of developing innovative solutions within the constraints engendered by the context they are embedded in. Although there is recognition of grassroots innovation by the central government in India, the vibrant discussions and learnings from the researcher and practitioner community has not translated to its inclusion in state level innovation policies, as evidenced in the southern states of Andhra Pradesh and Telangana.

Through the narratives of four grassroots innovators, the thesis explores how grassroots innovation processes materialize in these two states.

Analysis of the processes reveal that a confluence of resources (financial, material, physical, knowledge and technical), individual agency, and external-organization created networks is essential to transforming an idea into a product. Drawing on insights from the analysis, the thesis then proposes ways in which grassroots innovation can be recognized and supported within the existing innovation policy frameworks in Andhra Pradesh and Telangana. This includes linking formal education and grassroots innovation, leveraging college and university infrastructure as experimentation space, giving grassroots innovators access to incubator resources, and channeling corporate social responsibility funds to financially support them.
Deepening Democratic Capacity through Collective Inquiry: Community-led Research at PalmasLab

In 2015, research and innovation group PalmasLab developed their inaugural research project: a “wealth and poverty map” meant to provide a multi-dimensional picture of community development. PalmasLab is located in, and serves Conjunto Palmeiras, a neighborhood on the periphery of Fortaleza, Brazil that is often stigmatized as being poor, marginal and violent. The team at PalmasLab, made up primarily of young people from the community, seek to use research as a means to push back on these toxic narratives, and as a tool for affecting change in the neighborhood. This thesis recounts the development of this project, which transpired through a participatory action research (PAR) process between the MIT Community Innovators Lab (CoLab) and PalmasLab. Having engaged in observation, reflection and discussion as an active participant in the process, I describe how a research concept and survey methodology were created through a process of collective inquiry grounded in territorial lived experience.

Subsequently, I recount how the PalmasLab team led a group of 35 local youth in the implementation of their survey in the community, a process that led to the articulation of trajectories for future action. Borrowing from Emirbayer and Mische’s concept of projective agency, I argue that through the process, the PalmasLab team both exercised and strengthened their collective capacity to reflectively distance themselves from the constraints of the present in a way that enables the development of future aspirational projects. Furthermore, drawing from the perspectives of John Dewey, Paulo Freire and Arjun Appadurai, I argue that projective agency should be understood as a democratic capacity that cannot be transferred from “capacity-builder” to “recipient” but rather that it is strengthened through social inquiry. Based on my experience in this process, I argue that PAR has the potential to contribute to a new culture of practice within fields such as international development and planning where “problem-definition” has historically been the purview of “experts.”
Multi-Scale Regional Transportation Governance: Evaluating Cooperation and Decision-making at New York Penn Station

This thesis demonstrates the need for improved governance in regional rail systems through a case study of New York Pennsylvania Station, a major hub station in New York City and the busiest transportation facility in the United States. Current regional governance structures are weak and function poorly across metropolitan and state lines. As a transportation node that connects four operators: two major commuter rail systems (Long Island Railroad, New Jersey Transit), urban public transit (MTA New York City Transit), and intercity rail (Amtrak), Penn Station is a physical manifestation of the necessity for intermodal collaboration and integrated governance to achieve the maximum benefit for the region. Currently, these four operators compete, rather than collaborate, for financial resources and space at Penn Station, and in the metropolitan area. This competition has led to limited regional connections and limited opportunities for business development outside of Manhattan.

Future transport developments such as high-speed rail (e.g. in the Northeast Corridor of the U.S.) may soon decrease the perception of distance, bringing major urban centers temporally closer together and facilitating business and social relationships. Through interviews with twenty-five senior officials from public, private, academic and civil sector organizations, this thesis explores current regional governance structures, the value of informal relationships among agency staff, and the reality of decision-making, as well as the potential for change in the region.

Improved regional and mega-regional governance and collaboration between public and private actors can help to implement projects for effectively and efficiently, and refocus regional efforts on the traveling public and the economic value of a connected regional transportation system. This study of Penn Station considers these concepts in a less abstract manner and puts forth recommendations for improved regional rail integration and decision-making.
In the last decade, the Zero Waste movement has emerged as a ‘visionary’ approach to sustainable consumption and production. Promoting the transition from the linear system of ‘take-make-dispose’ to a closed-loop system where materials are reused continuously, Zero Waste advocates not only aim to conserve resources and protect health through material recovery, but also improve the equity of material distribution. While the philosophy of Zero Waste is often commended for its comprehensive consideration of the environmental, social, and economic factors of waste, the movement has largely relied on a single indicator – diversion rate – to measure and guide progress.

This thesis uses a comparative case analysis to determine the strengths and limitations of the diversion rate as the primary performance indicator for Zero Waste in the management of municipal solid waste. Diversion rates quantify the percentage of materials diverted from landfills or incinerators. For Zero Waste advocates, the goal is 90-100 percent diversion, which implies how closed the loop is. However, the term ‘diversion’ often describes a range of activities without any indication of whether materials are being diverted temporarily or indefinitely.

This thesis evaluates the utility of the diversion rate to measure progress in achieving the overarching tenets of Zero Waste. Using semi-structured interviews with key informants and archival documents, the report compares two cities that established diversion rate goals more than 25 years ago and recently adopted Zero Waste goals. By analyzing the development of diversion activities in Los Angeles and New York City, the thesis establishes the need for other evaluative methods to direct their transition to a sustainable, closed loop system.
Shenzhen’s villages in the city or urban villages are forms of informal settlement that emerged in the midst of rapid Chinese urbanization. For a period of time, both the city and villages mutually benefited from the arrangement where rural-designated urban villages used their unrestricted developmental rights to create an alternative affordable housing option for low-cost workers. Recently, as land prices have increased, city leaders and developers have begun redeveloping urban villages as a new source of land supply. Even when the original village cooperative, now corporation, is well compensated, migrant workers must continuously move further away from the city to find affordable housing. The cost of erasing urban village cannot only be measured by figures of relocation costs, rental prices, and potential profits. This thesis acknowledges the value of urban villages as a community and place through its dynamic public realm. The unplanned activities and street life in the village’s alleys and niches include many social and recreational uses alongside necessary economic and domestic uses. The urban village becomes a potential model for a responsive, never-obsolete, flexible structure that allows for a pluralistic approach to understanding cities.

The thesis looks at the how both informal and formal spaces in the public realm are used and asks: How are informal and formal spaces used differently? How does public life in a flexible, adaptable public realm preserve affordability and community in urban villages? How does informal public life challenge conventional understandings of the role of public space? Through design, how can the lessons from these spaces be translated in contemporary developments to foster community and public life?

The thesis begins with an overview of existing public realm design recommendations with regards to unplanned activities. A field study in January 2016 provides the primary research data, including observations, time-lapse photography, and informal conversations with public realm users and planning-related professionals. The thesis follows with a mapping and analysis process of building elements, adaptations, and activities that reveals how physical typological elements affect usage pattern. The thesis concludes with design recommendations and possible design interventions that reflect the continuing relevance of urban villages.
Experiences of Seeking Asylum on the Grounds of Sexual Orientation or Gender Identity in the United States

For LGBT asylum seekers in the United States, the notion of gaining formal status as a refugee and ultimately U.S. citizenship is often a long, challenging process. An extended waiting time for asylum adjudication exasperates gaps in protection within an overall system of laws and policies that lean toward heteronormative – often unwelcoming or discriminatory – definitions of sexual orientation and gender identity. I define four major challenges that include: (1) A legal system with limited resources for LGBT asylum claimants. (2) Insecure tenure and a threat of homelessness among LGBT asylum seekers that is comparatively made more challenging through the often precarious relationship between LGBT individuals and their network of diaspora living in the United States. (3) Social services that are hard to access and often nonexistent nondiscrimination policies leave LGBT asylum seekers on the fringes of society reliant upon a very small network of support. (4) And, socio-economic benefits of diaspora communities are often absent or inaccessible for LGBT asylum seekers.

I claim that these hurdles are not simply administrative annoyances. They are meaningful conditions that restrict rights and ultimately define a fundamentally unique sense of citizenship belonging. Accordingly, I argue that we can challenge formal notions of citizenship belonging among LGBT asylum seekers who are caught between oppressive and unequitable formal institutions. Drawing from existing migration theory and citizenship studies, I claim that LGBT asylum seekers may form identities and communities that are transnational in nature, defined by enclaves of LGBT-friendly diaspora and the pragmatic use of sexual orientation or gender identity. Ultimately, I conclude that for LGBT asylum seekers in the United States, citizenship – both in a formal or transnational sense – is a contested concept. And, while the relative safety to openly live as an LGBT person may be greater in the United States than an asylum seeker’s country of origin; civil, political, and social institutions are not capable of providing equal rights and protection to out LGBT asylum seekers. Looking forward, I offer a set of policy provocations aimed at questioning the current asylum regime and elevating the experiences of LGBT individuals within it.
The values underpinning Iceland’s food system risk: Implications for resilience planning

Some claim Iceland’s food security is in grave danger. Farms fear financial failure as they compete with cheaper imports; high import reliance renders the country vulnerable to natural, political, and financial volatility; climate change threatens to exacerbate these food system weaknesses. Yet Iceland has no contingency plan, and adaptation measures are absent from national climate change reports. While this gap could be perceived as negligence, to do so assumes a universalistic framework for risk and resilience—a trend currently seen in the global proliferation of formulaic, resiliency plans. Ecological resilience is defined as the ability of a system to absorb disturbance so as to retain essentially the same function. In a social-ecological system, however, what defines that function? Who decides what is at risk?

This thesis seeks to understand the defining parameters behind risk and resilience within Iceland’s social-ecological food system—a dynamic and evolving set of tensions between human livelihoods, legal frameworks, biological cycling, and emotive response. Interviews, backed by risk theory and corroborated with survey data, uncover the tendency for risk to be framed in the context of particular value logics. Explored through factor analysis, the aggregate risk scale that focuses on agricultural vitality, for example, correlates with a value scale that embeds preparedness and self-sufficiency, but also cultural heritage. These findings suggest several implications: First, there is a need to go beyond economic valuations in understanding risk. Moral, sentimental, and ideational values shape risk perception, and our current tools—such as discounting—cannot adequately consider what a future community will value. Secondly, if a value at stake underpins how risk is defined, then, inversely, preserving that value can define resilience. In other words, value-based resilience offers a framework for defining the function resilience preserves. And yet finally, this logic highlights a powerful hazard in resilience planning—the risk of systematically establishing preference for certain values, and perpetuating a dominant set of social, political, economic ideologies. Value-based resilience is thus a call to planners, designers, and policymakers to recognize the vulnerability built into the plans we make.
“Big Data” is in vogue, and the explosion of urban sensors, mobile phone traces, and other windows onto urban activities has generated much hype about the advent of a new urban science. However, translating such Big Data into a planning-relevant understanding of activity patterns and travel behavior presents a number of obstacles. This dissertation examines some of these obstacles and develops data processing pipelines and urban activity modeling techniques that can complement traditional travel surveys and facilitate the development of richer models of activity patterns and land use-transportation interactions.

This study develops methods and tests their usefulness by using Singapore metropolitan area as an example, and employing data mining and statistical learning methods to distill useful spatiotemporal information on human activities by people and by place from traditional travel survey data, semantically enriched GIS data, massive and passive call detail records (CDR) data, and Wi-Fi augmented mobile positioning data. I illustrate that regularity and heterogeneity exist in individuals’ daily activity patterns in the metropolitan area. I test the hypothesis that by characterizing and clustering individuals’ activity profiles, and incorporating them into household decision choice models, we can characterize household lifestyles in ways that enhance our understanding and enable us to predict important decision-making processes within the urban system. I also demonstrate ways of integrating Big Data with traditional data sources in order to identify human mobility patterns, urban structures, and semantic themes of places reflected by human activities. Finally, I discuss how the enriched understanding about cities, human mobility, activity, and behavior choices derived from Big Data can make a difference in land use planning, urban growth management, and transportation policies.
Christopher Jones
Thesis Advisor: J. Phillip Thompson

Power for The Public Good: Energy, Race and Class in The United States

Racial discrimination has led to measurable disparities in many domains, including such areas as housing, education and banking. Numerous studies within these domains of life illustrate that discrimination is a significant barrier to the full and equitable deployment of products and services to those who need or desire them. However, very little research exists for understanding the existence and impact of discrimination specifically within the energy domain. This absence of examination prompted the central question of this dissertation: To what extent does discrimination directly impact access to electricity? Utilizing the Tennessee Valley Authority (TVA) as the site of investigation, I approached the central question by asking three sub-questions: 1) does electric utility ownership mode matter in the delivery of energy services; 2) did discriminatory practices exist in the policy formation and implementation of the TVA; and 3) how and to what extent does discrimination impact outcomes of energy distribution and access in the United States today?

Because the study of discrimination can be a complex mix of social, political and economic dynamics, I applied quantitative and qualitative tools to this investigation. The application of multi-methods research is consistent with historical and policy studies that sought a comprehensive understanding of discrimination’s origins, its effects, and its on-going impacts.

Through this research, I argue that the TVA operated from a discriminatory framework and suggest that the racialized context within which the TVA existed led to discriminatory outcomes that run counter to the TVA’s original vision and goals. One central finding of this research is that certain groups were systematically excluded from access to, and thus the benefits of, energy. Having identified outcome differences that may be attributed to discrimination, I also identified measurable impacts of this discrimination.

This work is significant in that it is the first systematic examination of the role that group differences (race and class) play in access to electricity. The findings speak to the need for additional research to better understand the impact of energy discrimination on various populations and to more closely examine the role of energy policies in fostering or preventing discriminatory outcomes.
Zoning for Industry in a Post-Industrial Era: The Legacy and Potential of Chicago’s Planned Manufacturing Districts

In 1988, Chicago established a unique zoning mechanism intended to preserve manufacturing space in its downtown: the planned manufacturing district (PMD), which protects production-oriented land use in gentrifying neighborhoods where industrial buildings are at risk of conversion to housing or commercial space. The PMDs were rooted in an effort to retain manufacturing business, and the employment they supported, during a period of structural deindustrialization. In the 28 years since, the evolution of Chicago’s downtown has followed a decidedly post-industrial trajectory: the City has pursued an economic development strategy focused on service-sector growth, and industrial employment in the Loop has declined precipitously. Fifteen PMDs exist, however, and half are concentrated in neighborhoods that ring the downtown.

In 2014, Chicago’s second-oldest steel mill, Finkl Steel, relocated its production facility from Lincoln Park, a high-income residential neighborhood north of the Loop, leaving a 40-acre parcel vacant and creating the largest downtown redevelopment opportunity in 30 years.

The opening of the Finkl Steel site, coupled with a thriving tech sector eager to convert industrial space to office use, has sparked renewed debate over the value and purpose of industrial districts in downtown Chicago. This spring, the City launched a public review process intended to explore potential mixed-use development in its downtown PMDs.

To date, little public analysis has been completed to illustrate how well the downtown PMDs retain employment and business, both non-industrial and industrial. As the City takes stock of its PMDs, this thesis uses employment data collected through the Longitudinal Employee-Household Dynamics (LEHD) survey and Quarterly Census on Employment and Wages (QCEW) to illustrates the economic and employment dynamics of three PMDs in comparison with that of the City. I demonstrate that though downtown PMDs are losing employment in manufacturing more rapidly than Chicago on the whole, particularly following the Recession, they are swiftly adding jobs in non-industrial sectors.

Chicago’s emergence from the Recession has been shaky: its unemployment rate is among the highest in the country, the City is losing population, and for decades, it has been characterized spatially by entrenched segregation on basis of race and income. I argue that upzoning downtown PMDs, though an appealing means of growing the City’s downtown economic base, ignores the continued presence of jobs that form the backbone of Chicago’s economy. Though the PMDs merit reassessment, their value as spaces of employment should be upheld and preserved.
Over the past 40 years, governments across the world have been experimenting with randomized household-selection engagement methods designed to maximize the diversity and representative nature of their sampled citizen participants. Varieties of “mini-publics” have been asked to deliberate on topics as wide-ranging as electoral reform and health care policy. As they have become more widespread, the focus of randomly selected citizen bodies has also been moving from topics debated at the national and state level to more practical questions affecting specific cities and communities.

In this thesis project, I examine what happens when a city planning agency structures public engagement according to three particular characteristics: randomly selected participation, focused learning, and extended deliberation. The heart of my research is an investigation of the Toronto Planning Review Panel, a two-year civic lottery initiative begun in fall 2015 by the City of Toronto Planning Division. Toronto is a particularly compelling example because the process is not intended to aid elected officials, but instead professional civil servants. Moreover, it is not aimed at one specific question, but at the broader realm of city planning inquiry.

I present initial analysis of not only what the panel looks like in practice, but also how it performs as a deliberative body. Though I consider the outlook of both volunteer and professional participants, I place special emphasis on the convening agency’s perspective. While I present evidence to show that the panel’s contributions toward social justice and effectiveness strengthen the legitimacy of staff reports, I make a distinct argument that the panel’s popular element is, in fact, serving to validate the entire Planning Division within Toronto’s larger “deliberative system.”
How Can We Tackle Persistent Poverty In Deprived Neighborhoods? Lessons From The US And The UK

Since the late 1980s, there has been a broad consensus in the US and the UK that the persistent concentration of poverty in deprived neighborhoods results in negative area effects on local residents, including low aspirations and benefit dependency cultures. In order to transform the prospects of deprived neighborhoods, the governments in the two countries launched the most ambitious community revitalization programs. In the US, the Housing Opportunities for People Everywhere (HOPE VI) program (1993-2010) was started to transform the nation’s worst public housing and in the UK, the New Deal for Communities (NDC) program (1998-2008) was launched to tackle multiple deprivations in the poorest neighborhoods in England.

This research attempts to provide useful insights into addressing the problems of deprived neighborhoods in the US and the UK, exploring the HOPE VI and the NDC programs. In order to develop a conceptual framework that delineates the rationale for HOPE VI and NDC, the assumptions and theories around the problems of deprived neighborhoods are reviewed. It then analyses the evidence from existing research on HOPE VI and NDC including academic literature and policy documents to measure the outcomes. It also draws on information from interviews with academics and researchers to elicit their views on both programs. This research finds that on the basis of similar assumptions and theories to identify the causes of problems in deprived neighborhoods, the US and the UK governments took different approaches: ‘neighborhood transformation’ in HOPE VI and ‘neighborhood improvement’ in NDC. These different approaches were due to fundamental differences in social efforts designed to promote the basic physical and material well-being of people in need. However, it has been observed that the UK government adopted the US market driven approach and community revitalization policies in the two countries were actually converging and shared a common trajectory of change.
Most of us realize the value of property rights and law enforcement in our everyday lives. In fact, we could probably agree quite easily that our economy and society could not work without either of the two. In third world cities, a significant amount of economic activity happens informally with little or no intervention from state regulations or authorities. This, however, does not mean that the informal economy is chaotic or that it has no property rights, regulations, or enforcers. Yet, after decades of discussion surrounding the informal economy, we know very little about how property rights are defined and enforced in it.

This thesis uses the case study of “cuidadores” - the informal workers who take care of cars parked in the streets of Bogotá (Colombia) - to begin to understand how informal property rights in public spaces are defined and enforced. It has three main findings:

1. Informal property rights are a crucial aspect for the functioning of the business of on-street parking that cuidadores perform.
2. “Ownership” is defined through relationships with the community, formal authorities, and access to force.
3. Cuidadores often organize collectively to better protect their property rights. Although organizing is costly, one of the main benefits is increased access to force.

Since force is so important for the equilibrium of this informal property rights scheme, under some circumstances, external enforcement of property rights is necessary. The demand for external enforcement creates a market for protection that can be occupied by few suppliers other than corrupt members of the police and mafias.

While findings of mafia enforcement of informal property rights were rare in Bogotá’s on-street parking business, the notion that enforcement of informal property rights might create a market for organized crime should be a source of concern for local governments around the third world. Hopefully, this concern will push them out of the lethargic approach to the informal economy that has been typical and force them to develop pragmatic approaches to formalize businesses like on-street parking.
The Role of Health on Residential Advancement

The impact of the built environment on health has been a subject of intense research, where poor environments affect disproportionately the health status of its population. This study positions health as a risk factor of poor neighborhood attainment and overviews at the possible mechanisms that hinders sick people from living in low poverty neighborhoods. The study focuses on a group of households that have a child with Cerebral Palsy compared to a similar group of households that do not have a child with a special health condition. I approach this problem through a cross sectional analysis, using survey data to generate geospatial analyses and then do a test of means to compare differences. In addition, I conducted 16 interviews to get a qualitative sense of their environments. I find at a significant level, that families with a sick child live in lower SES neighborhoods and in low walkable environments. Potential mechanisms that explain the reason why families with a sick child live in poorer neighborhoods are statistically significant differences in income levels, higher uncertainty of future income and expenses, lower years of education attainment, and a higher rate of trading of a job for taking care of their child. I conclude that health plays a double burden on families by decreasing their capabilities to move to better neighborhoods, and exposing them to risks in the neighborhood environment that could potentially reinforce their poor health status.
Patchwork Places: Regional and Historical Variations in Suburban Poverty in the United States

The majority share of metropolitan poverty in the United States has shifted from cities to suburbs, however, varied histories of suburban development, class and racial/ethnic divisions within and among suburbs, and widening suburban inequality all suggest that understanding suburban poverty requires moving beyond a simplified view of low-income suburbs as a uniform set. Suburbs are embedded in regions and have different degrees of connection to their associated metropolitan areas. These differences hint that symptoms of economic disadvantage in suburbs today are historically related to local patterns of social and economic development, prompting the central question of this dissertation: How have location and regional development histories shaped the economic trajectories of suburbs that could today be considered poor?

The nature of the research question lent itself to a mixed-methods analysis of past and present suburban development. In the first part of this study I developed a five-category typology for more than 2000 low-income suburban Census Places. Mapping each category showed identifiable regional patterns suggesting a potential connection between major historical development processes and present-day spatial arrangements of poor suburbs. In the second part, I used the typology to select five case studies. Guided by a theoretical framework employing geological language of flows, deposits, and waves, I analyzed these individual locations whose narratives are engrainged in regional and national processes of place formation but mediated by the expansive development cycles of the 20th century. My research demonstrates that poor suburbs are multilayered, contingent processes with links back to the selection of their spatial locations and the functions established in their earliest years of settlement.

I argue that bound up in the socioeconomic status of individual suburbs are spatio-historical roots of those conditions. The variables contributing to change in suburbs do not simply move through time, but through space-time among a network of interdependent places. The economic development history of a suburb interweaves with its spatial location nested in different geographical scales to create its defining characteristics at any point in time. Strategies to address suburban poverty must therefore be contextualized and interscalar as well as backward and forward looking.
Better, Quicker, Together: Enabling Transit Service Quality Co-monitoring Through a Smartphone-Based Platform

Public transit system is an undeniably important part of cities. The quality of transit service – performance perceived by passengers – is thus an important urban indicator.

Customer satisfaction surveys have been the traditional methods for monitoring transit service quality, but they come with a number of weaknesses. They are administered too infrequently and ask subjects to provide only general ratings. The infrequency results in delay for agencies to receive feedback, and the abstractness reduces the possibilities of associating feedback to specific trips and using the data to inform service improvement decisions.

There is great value in engaging riders as additional sources of information. This reflects the concept of “co-monitoring” – agencies using public feedback to supplement official monitoring and regulation. This would make the data collection process more dynamic, low-cost, and real-time.

Equally importantly, it is poised to enhance agencies’ relationship with their customers – conveying to customers that their experiences and feedback are valued, and making them feel engaged.

This thesis documents the creation and piloting of a smartphone-based platform for engaging customers in becoming co-monitors of local bus services. I lead the team effort in adapting a smartphone-based travel survey system to collect real-time customer feedback and objective operational measurements on specific bus trips. The system (FMS-TQ) uses GPS, Wi-Fi, and Bluetooth data to track transit trips, while soliciting user feedback on trip experience with built-in questionnaires. FMS-TQ has been piloted in partnerships with transit authorities in Singapore and Boston. The pilots demonstrate the platform’s capability to collect high-resolution, trip-specific performance data in real-time.

The significance of this effort is three-fold. First, it embodies one of the first successes in making transit service quality data associable, attributable, and actionable. Second, the new kinds of data allow researchers to investigate new research questions related to travel preference and behavior. Finally, the system’s public deployment embodies the beginning of a mentality shift regarding customer-engagement and relationship-building in the transit sector. Collectively, the methodology and institutional innovations would contribute to a better transit service for the city and its people.
In the recent years, there has been a rapid development in smartphone technologies and significant increase in the smartphone penetration rate. Such changes brought new opportunities for performing citizen travel survey. This thesis discusses the survey design and implementation process as well as the mobility analysis methods, through performing such a survey with a smartphone app, Moves, in Beijing, China. The survey was launched in January 2016 and is expected to reach the goal of 1,000 subjects by the end of June 2016. The analysis of this thesis is based on data from 256 subjects.

Air quality is the other major topic of this thesis. As air pollution becomes increasingly severe in many big cities in China, there have been multiple reports on the objective measurement of the pollutants. However, citizens’ subjective feelings have rarely been investigated. This thesis develops the Perceived Air Quality (PAQ) measure that captures citizens’ sensory reactions to air pollution.

The PAQ data is collected through questionnaires, which is part of the smartphone-based travel survey. The PAQ ratings are compared against Air Quality Index (AQI) and pollutant concentrations. The correlation between daily average PAQ and average AQI is -0.8397. The strong correlation indicates that the PAQ could become a meaningful indicator for air quality. However, the strong correlation only exists in the aggregated level. In the individual level, different people have different senses about the same environment.

Finally, the thesis evaluates the association between travel behavior and air quality. An unbalanced panel data is generated from the travel and air quality survey, which is used for random effects regression analysis. The travel behavior is evaluated by both number of trips per day and percentage of non-motorized trips per day. The association between travel behavior and air quality is not very strong. It indicates that the air pollution in Beijing may not be as severe as to affect residents’ daily travel decisions.
Design Review and Residential Redevelopment in Seattle

In Seattle, a city with a robust public process around issues of urban growth, recent rapid redevelopment in low-rise neighborhoods has intensified the public debate over design and density. Conflict over individual development projects has escalated as the city struggles to balance economic and population growth with community needs, leaving many residents anxious about congestion, affordability, and a changing built environment. This thesis examines Seattle’s design review, which is the central public piece of the city’s development review process, and evaluates its success as a collaborative process in this context of divisive growth.

Urban design and regulations such as design review are often regarded as the exclusive realm of design professionals; this thesis argues that design review must embrace its role in a participatory planning process. Research draws on existing models of design review as well as collaborative planning theory to evaluate how Seattle’s design review can further employ deliberative strategies to reduce polarization over growth and better address community needs. Analysis suggests that the city’s framework for design review, which fosters stakeholder relationships and local knowledge as well as design expertise, could be further enhanced by emphasis on dialogue, training, and alignment with other city departments and neighborhood plans.
“They were burning our houses in the night. We lost everything. Then the policeman came, and the people thought they were here for our security. Until they started shooting.”

- Resident of Ilu Birin, Nigeria. Evicted to make room for a luxury high-rise.

By all accounts, the world has entered a modern displacement crisis. Unprecedented millions have been uprooted from their homes by armed conflict, disaster, and land grabs. The traumatic impact of forced displacement is well documented. Yet the initial displacing event is typically only the beginning. Once displaced persons are forced out, they encounter a maze of institutional arrangements that will determine their fate. National and state borders, decades-old international conventions, land and property regimes, and the varied logics of humanitarian response all circumscribe the experience of displacement.

In this thesis I examine Nigeria’s forced migration epidemic as an illustrative case. Nigeria faces twin displacement crises. The Boko Haram insurgency in the northeast has displaced more than 2.3 million people, both internally and across national borders. Meanwhile, development projects have displaced another estimated 2 million. The conflict-induced migration is well-documented in secondary literature. This study complements it through fieldwork in ten communities displaced by development projects in Lagos, Port Harcourt, and Ogoniland. Victims of land grabs and forced evictions in Nigeria face violence, homelessness, joblessness, family separation, food insecurity, increased disease morbidity, and disruptions to children’s education. Through a comparison of the institutional responses to this crisis, I interrogate existing displacement governance regimes, and begin to evaluate possible alternatives.
Each person experiences urban space through the shifting narratives of his or her own cultural, economic, and environmental perceptions. Yet within dominant urban design paradigms, many of these perceptions never make it into the public meeting, nor onto the abstract maps and renderings that designers frequently employ. This thesis seeks to demonstrate whether cinematic practice, or the production of subjective, immersive film narratives, can help urban designers to incorporate these highly differentiated perceptions into the design process.

By examining a single public space, Pershing Square in downtown Los Angeles, with three different films, a quasi-experimental case study design puts the methodology of each film to the test. The first film, “Pershing Square: Of Time and Place,” employs critical theories to examine the park through conflicts between political forces and park users that have propelled physical design interventions throughout its history. The second, “Pershing Square: Sense of Place,” employs an ethnographic approach to examine the park through the diverse perceptions of its users.

Finally, “Pershing Square: Visions of Place,” takes a constructivist approach to re-imagine the park through its users’ aspirations.

This project runs concurrent with an international competition to redesign the park, which provides a benchmark for stronger comparison between the project’s findings and conventional design processes. Although the project expands beyond the scope of this thesis, initial findings substantiate the use of cinematic methods in communicating broader narratives about urban places and in incorporating a pluralism of user perceptions into design thinking. It concludes by providing a preliminary toolkit for using cinema in urban design practice.

The final project will be posted in the near future on moodyfilm.com.
Affordable Housing in a “High-Tech Mayberry”: Site Selection and Policy Tools for San Mateo County, California

California’s Affordable Housing & Sustainable Communities (AHSC) program offers gap financing to affordable housing developments and infrastructure projects that demonstrate reductions in greenhouse gas emissions. Funded through revenue from the state’s carbon cap-and-trade market and motivated by statewide requirements to incentivize compact infill development near transit, AHSC challenges affordable housing developers, transit agencies, and city staff to work collaboratively to address issues of congestion, displacement, and transit access in the context of far-reaching sustainability goals. However, AHSC requirements in its inaugural year (2014-2015) favored projects in California’s largest, densest cities, leaving suburban communities skeptical of their ability to tap into the state’s largest new pot of funding for affordable housing.

One such place is San Mateo County, California, the suburban region on the San Francisco Peninsula that connects San Francisco to San Jose and Silicon Valley. It is within the context of the AHSC program in San Mateo County that I pose the question: to what extent should affluent suburban communities assume a portion of the region’s overall housing needs? I consider three scholarly discussions – suburbanization of poverty, spatial mismatch theory, and exclusionary housing policy – together to forge an alternative conception of affluent, transit-rich, and diverse inner-ring suburbs and their obligations to steward affordable housing development. To implement this conception on the ground, I consider the opportunities and barriers to affordable housing development in San Mateo County, identify sites that would be competitive for future rounds of AHSC funding, and propose policies and programs to protect critical sites.
In 2000, President Clinton signed legislation authorizing the Comprehensive Everglades Restoration Plan (CERP), a $7.8 billion, 68 project, 30 year effort to restore one of the most unique and diverse ecosystems in the world. For 16 years CERP has struggled through lawsuits, stakeholder disagreements and implementation delays, and all the while the Everglades ecosystem continues to decline. In 2011, with a sense of urgency, the Army Corps of Engineers and the South Florida Water Management District began planning for a new era of Everglades restoration. The Central Everglades Planning Project (CEPP) emerged in 2014 with the promise that it would be a bold new plan for the future of the Everglades and the surrounding communities that depend on it. This thesis analyzes how CEPP will not only mitigate the Everglades’ decline, but also how the plan will incorporate the emerging complexities of climate change and sea level rise. What I uncovered was a deeply political, reactionary planning process trying to manage contested resources, rapid urban expansion and economic ambitions.

Ultimately, I investigate how CEPP planners could improve ecosystem resilience through the introduction of nature-based infrastructure, redundancies in watershed governance structure, innovations in water conservation and a stronger emphasis on protecting drinking water supplies for South Florida.
The Commodification of Community in Residential Real Estate: The Developer as Community-Builder for Generation Y

As the Millennial generation flocks to urban neighborhoods, large apartment developers are developing new residential models that offer “community-oriented” living, externalizing some the features traditionally limited to private homes (e.g., communal kitchens, group party spaces, even shared pets) while simultaneously internalizing functions traditionally provided by the surrounding neighborhood (e.g., work, fitness, and entertainment). As a result, beyond merely offering another line of housing products for urban residents, these new approaches may be reshaping the social fabric of urban neighborhoods.

To explore the emergence of this phenomenon and the effects it may have on urban planning and community development efforts, I studied a sample of eleven apartments developments built in the last five years in the NoMA and H Street neighborhoods of Washington, DC.

Data was collected from interviews with developers, property managers, architects, and brokers, as well as property tours and property websites.

Situating this analysis within a framework of common tensions described in the fields of urban sociology and community studies, as well as John Freie’s critique of gated suburban communities, the study finds that developers frequently establish collective identity through strong branding; pursue social interaction through spaces modeled after retailers (e.g., Starbucks); and cater community to prospective rather than existing residents. Externally, developers build limited connection to surrounding neighborhoods through sponsored events, and surrounding areas are often mentioned -- yet misrepresented – in marketing.

While these new residential models may represent an evolution in the role of private developers as community-builders in urban neighborhoods, the analysis notes that many of these same tactics are already commonplace in suburban-gated communities, where they do not necessarily deliver the benefits associated with strong communities from a sociological perspective. Planners pursuing these community benefits should be aware of how developer efforts shape residents’ expectations for community and engagement with the surrounding area.
With growing concern about the risks of climate change, cities are beginning to consider and implement strategies to adapt. Preparing for the impacts of climate change through adaptation planning requires cities to manage collective risks and weigh tradeoffs. Thus, recommendations for adaptation planning often call for public engagement and collaborative decision-making. This thesis reviews current public engagement practices in adaptation planning in sixteen cities across the United States that are pursuing adaptation planning and have made commitments to public engagement. I find that there are three primary ways cities can engage the public in adaptation planning: 1) including the public in the planning and design process of broad adaptation strategies, 2) educating the public on climate risks, and 3) collaboratively problem-solving for a climate resilient future by addressing the long-term risks and tradeoffs of adaptation policies.

I find that several cities are moving forward on either or both of the first two types of engagement but cities are not making significant progress on the third. Furthermore, several cities are struggling to implement or have postponed implementing any type of engagement process on adaptation. Each city in the study has its own unique challenges to implementing engagement strategies but, through interviews with city staff, I identify common barriers to engagement in adaptation planning and offer recommendations for ways to overcome those barriers. I argue that cities should pursue public engagement strategies that build public and political support for adaptation planning in order to build capacity for more inclusive and collaborative engagement practices that allow stakeholders to weigh both short-term and long-term tradeoffs.
Neighborhood Sustainability Assessment: A Study of Four Standards in Denver, CO

Since the first neighborhood sustainability assessment (NSA) standard, HQE2R, was published in France in 2001 (Sharifi 2016), the number of standards in use around the world has climbed to 32 (Criterion Planners 2016). Yet, because these standards are no more than fifteen years old, there is relatively little written on them individually, and even less on how they compare to one another. The existing literature also has yet to examine the application of multiple NSA standards in a single city, or the relationship between standards and city-led efforts to advance sustainability (Haapio 2012; Sharifi and Murayama 2013; Berardi 2013; Reith and Orova 2015; Komeily and Srinivasan 2015).

This thesis examines this phenomenon by studying four standards in Denver, a city noteworthy for both the quantity and diversity of standards in use. It asks the following: What do NSA standards aim to achieve? Why are individuals, institutions, and cities adopting NSA standards? What is the relationship between NSA standards and city-led, city-scale planning?

Through a content analysis of their respective manuals, I find that LEED ND, 2030 Districts, EcoDistricts, and Sustainable Neighborhoods—the four standards I study—vary substantively, operating in different contexts, utilizing different strategies, and advancing different goals. In their Denver application, I find that the individuals adopting these standards are not doing so because they feel that neighborhood-based work or sustainability certification offer a superior way to advance sustainability, but rather because a particular standard provided a framework that was useful to their project. Finally, I find that these projects are well connected to the City of Denver but are not understood to intersect with the work of the Office of Sustainability.
Measuring Climate Adaptation: Assessing the Use of Indicators in U.S. Coastal Cities

With the effects of climate change already being felt and expected to worsen in the future, cities are planning for how to address climate change. Many U.S. cities have developed climate adaptation plans in recent years, but progress implementing these plans has been limited. Indicators have been used in many fields and have the potential to help cities track the implementation and effectiveness of their adaptation strategies. However, to date there has been a lack of information on whether U.S. cities are using indicators in their adaptation planning. Based on an analysis of adaptation plans and interviews with staff in nine large coastal cities in the United States, this thesis finds that most cities are not using indicators to measure their adaptation efforts, although several cities are considering developing them. It also finds that cities face a number of barriers to using adaptation indicators, including those related to resources, information, technical challenges, and organizational structure. Adaptation indicator sets and frameworks developed by research organizations and non-profits can help cities overcome some of these barriers and select and use adaptation indicators.

The thesis concludes by providing recommendations for cities as well as for nonprofit and research organizations for developing quality indicators, overcoming barriers to using adaptation indicators and advancing the state of knowledge about adaptation indicators.
Despite a single formal regulatory framework for street vendors within cities, there is significant disparity in tolerance; governments often allow street vendors in certain areas of the city, while relocating street vendors from sidewalks in others. In the absence of meaningful, in-depth datasets on urban informality, studies investigating this variation have had to rely on case studies, anecdotal material and qualitative neighborhood comparisons. As a result there have been no large-scale empirical studies undertaking city-wide analysis of the policing of urban informality.

This thesis overcomes such limitations by using a mix of administrative data, mobile sensing, GIS mapping and qualitative methods to uncover informality’s relationship with the state and the larger urban fabric in New York City. Through visualization and empirical analysis of the enforcement landscape vis-à-vis socio-economic variables in New York, this project highlights the underlying impulses that lead to inequitable regulatory outcomes: disparate claims on urban citizenship and a city’s move towards more privatized urbanism. At the same time, my methodology allows this thesis to display the unique interactions street vending has with each neighborhood’s socio-spatial environment, resulting in the creation of diverse vending cultures. By recognizing this vibrancy and detangling the determinants of the spatial landscape of vending rule enforcement, this thesis advocates for a fairer regulatory schema for informal commerce.
Are Gang Injunctions a Tool for Gentrification? The Case of the Glendale Corridor Gang Injunction

My research aims to understand the connections between police practices, court decisions, and gentrification, and focuses on the Glendale Corridor Gang Injunction. The injunction encompasses both the Silver Lake and Echo Park community, but mostly is in the Echo Park neighborhood. Echo Park is a community in Los Angeles that has undergone significant demographic changes in the past ten years. Local organizers and residents repeatedly questioned the function of the injunction in an area where crime has been decreasing and the neighborhood is increasingly attracting young white professionals. Indeed, residents critiquing the injunction are also addressing the tension arising from gentrification and the displacement of low-income communities of color across Los Angeles, like many other cities in the U.S.

Through both qualitative interviews and statistical analyses I investigate the motivations for pursuing the Glendale Corridor Injunction, the connection between the injunction and demographic changes, and the effects the injunction has for people on the ground. The research leads to a conclusion that while gang injunctions are not motivated primarily by gentrification, the fear of displacement and over policing communities of color is not mutually exclusive. Both gentrification and gang injunctions have negative impacts on community member’s sense of belonging in their own community.
In many US cities, the implementation of green stormwater infrastructure (GSI) in the right of way remains problematic. On one hand, many cities’ policies are espousing the complete streets model, an approach whereby streets should serve multiple users and purposes and combine different design elements, including GSI facilities; on the other hand, the collaboration between city agencies that would be required in complete streets project conflicts with the compartmentalized structure of city governments. This thesis analyzes the San Francisco experience with GSI, investigating citywide policies and actual street improvements that the city was able to deliver over the years. This investigation shows that although the city embraced the complete streets model and adopted policies that in theory encourage collaborative projects, it also did not create an implementation mechanism to support collaboration, which currently remains at the discretion of city agencies.

The thesis also shows that, from a San Francisco agency standpoint, collaboration in a street project can be perceived as a hamper, rather than as an opportunity. In particular, in the case of GSI, this resulted in one agency choosing to work independently in order to implement its projects, which as a result didn’t always score well in terms of completeness. This led to a paradoxical situation, by which as GSI-based street improvements were implemented over the years, agency acceptance toward GSI increased whereas agency collaboration decreased. Ascribing issues with collaboration to the fragmented structure of the city government, the thesis concludes with recommendations for both San Francisco agencies wishing to engage in collaborative projects, and for the agency in charge of GSI as it moves toward a new batch of GSI projects in the right of way.
In this thesis I investigate the relationship between the built environment and the residential segregation of immigrants at the building level. I examine micro-data that includes the exact address of all the foreign and native populations in Barcelona, and I combine these with geometric indicators for urban shape at the block level. From these data I construct measures of segregation over time to evaluate the degree to which individuals from different origins share building space with other immigrants or with native-born Spaniards. Differences in the built environment appear to have a sizable effect on how immigrants coexist with host communities. For example, in suburban areas the arrival of immigrants is associated with less segregation than in other areas. Certain spatial attributes of suburban areas, such as open space coverage and compactness, affect the degree to which immigrants become segregated. My results indicate that suburbanization could have decreased segregation between immigrants and natives, perhaps because in less dense areas native communities are less sensitive than their urban counterparts to coexisting with immigrant populations.
Climate change poses a range of threats to our infrastructure systems. Efforts to respond are complicated by the uncertainty and complexity involved. The uncertainties are pervasive, going beyond scientific and technical issues to include significant governance challenges. This dissertation examines how stakeholders are likely to make project-level decisions in practice, and how we can support better processes. It considers the implications of using multiple scenarios as a way to frame uncertainty, and of bringing multiple stakeholders together for decision-making. It is also concerned with the differences across governance regimes, focusing on Boston, Singapore and Rotterdam. The research process featured a role-play simulation (RPS) exercise run with participants as a way to introduce issues and facilitate experimentation. Participants overwhelmingly favored flexible approaches as a way to proceed despite uncertainties, making the best possible decisions today while leaving options open as conditions change and learning occurs.

Unfortunately, this research suggests that there are substantial barriers to institutionalizing flexibility. Participants were also extremely positive on the use of scenarios as a way to frame uncertainty. However, the exercise runs underscored the challenges associated with their use; scenarios encourage users to consider the implications of an uncertain future, but can concurrently deny them the single standards they are used to having. Another key finding is that adaptation planning efforts are deliberative processes in which facilitation, the behavior of participants, and process design matter; these factors had significant implications on exercise outcomes. Finally, participants behaved differently across the three cities, underscoring the importance of wider governance norms.

This dissertation concludes with three recommendations: First, the development of boundary organizations that can foster the dynamic institutions necessary to advance flexible adaptation. Second, given the importance of salient, credible and legitimate scientific and technical information, I recommend the use of joint fact finding (JFF) techniques. Because of the dynamic nature of climate adaptation, I suggest that JFF be explicitly iterative in nature. Scenarios can help JFF groups to consider the uncertainties involved. Third, I recommend that researchers consider using exercises as tools for action research, particularly when considering nascent and complex issues like climate adaptation.
Smartphone-based Mobility Mapping and Perceived Air Quality Evaluation in Beijing

This client-based thesis provides a review of three Detroit-based loan funds with the aim of understanding what developers have been able to access financing for multifamily and mixed-use developments in select neighborhoods. Though a great American city, Detroit has faced a declining population and dwindling economic base that has resulted in an upside down development market. Projects require complex capital stacks and high levels of subsidies, as rents alone cannot support development costs. The client, a national CDFI with expertise in health care, education, and senior-living facilities financing, was invited to Detroit to support a private sector and philanthropic initiative to redensify strong neighborhoods with amenity-rich, market rate housing.

Through a series of interviews and surveys with developers, fund investors and partner organizations, as well as a review of projects financed, this research determined that the majority of Detroit developers were high net worth individuals with significant experience in the market and that the majority of funds concentrated in the Midtown neighborhood. While this finding is not surprising, it does serve as a counterpoint to the CDFI’s other goals of building local and minority developer capacity and expanding into new neighborhoods. The report highlights challenges noted by newer developers and provides recommendations for how this CDFI can support strong deals while fulfilling mission drive goals around inclusivity and affordability.
Forecasting Service-Enriched Senior Housing: The Case for Housing + Services Innovation in Metropolitan Boston

This study analyzes the characteristics of service-enriched senior housing in the MetroWest region of Greater Boston. The study specifically examines the key drivers for service-enriched housing, the landscape of senior housing and Long Term Support Services (LTSS) sectors specific to Greater Boston as well as the existing and projected supply and demand for service-enriched housing for municipalities in the study region. Data is presented for the specific municipalities as well as in a comparative nature across the study region. The data shows enormous unmet need for service-enriched housing projected by 2030.

Due to the enormity of the issue, the recommendations outline strategies not only for increasing the overall supply of service-enriched housing but also reforming the availability of LTSS in existing housing. In order to build more robust models for calculating these projected shortfalls, the gaps in the data, which present challenges for proper forecasting are described, and future research opportunities are suggested.
Interest in green infrastructure as a potential strategy for addressing climate change has recently emerged in adaptation planning. Green infrastructure (GI), defined here as engineered systems that incorporate green space and natural systems to provide benefits to the public, can be used to address impacts such as: sea level rise, storm surge, inland flooding, and urban heat island effect. GI can often be implemented at lower-cost and faster timelines than grey infrastructure. It also provides a myriad of aesthetic and public health benefits, and can be an attractive “no-regrets” adaptation solution for policy-makers.

Despite these benefits there is a lag in scaling up green infrastructure and formally connecting it to climate adaptation policy. The planning efforts of Boston and Cambridge, MA are used as case studies to explore the barriers and drivers of employing GI as a strategy to address increased urban flooding due to climate change. An ecological history approach sets the foundation for the analysis of current and future challenges with stormwater management. This thesis uses a review of public planning documents and semi-structured interviews to explore how socio-political factors drive or prevent the use of GI. I found that path dependencies, navigating trade-offs in decision making, and shifting risk analysis act as barriers to using GI for adaptation. I also found that adaptive learning, knowledge networks, and collaboration might be used as strategies to overcome these and other barriers.
Public Housing Preservation and Organizational Restructuring with the Rental Assistance Demonstration at the Cambridge and Tacoma Housing Authorities

The Rental Assistance Demonstration (“RAD”) program is a controversial federal effort to address public housing’s financial crisis by opening it up to private investment and recapitalization; in essence, to mortgage public housing in order to save it. While some high profile examples of RAD’s implementation have confirmed critics’ fears about the loss of public control over a critical social safety net, other public housing authorities (“PHAs”) have begun to use the program to empower themselves and ensure the financial stability and health of their entire portfolios. Since the program’s pilot period began in 2012 at least three typologies of RAD implementation have emerged, each with their own unique outcomes and impact on PHA operation.

This thesis investigates the organizational implications for the most challenging of these approaches, the “All-In” strategy, in which PHAs comprehensively address the capital needs of their entire portfolio while retaining the maximum degree of control over the process through in-house development. While RAD’s use of private financing strategies is not new to public housing, the pressure on “All-In” PHAs to organizationally internalize some private-sector business practices is a significant development for the management of public housing. Case studies from Cambridge, MA and Tacoma, WA offer evidence of the unique challenges, emergent adaptations, and strategic opportunities for two “All-In” RAD agencies. The thesis describes the pressure on these PHAs to shift from a functional and hierarchical bureaucratic model to a flatter, more decentralized organizational structure and discusses some managerial strategies and tools public sector managers may use to navigate this transformation.
The social safety net available to veterans is far more robust than for civilians in the United States, however, veterans are still more likely to experience homelessness than their peers. As the number of veterans from the wars in Afghanistan and Iraq continues to increase, it is essential that planners consider whether the housing and homelessness policies designed for past generations meet the needs of today’s veterans. This is especially true as today’s veterans are more likely to be women, are experiencing more deployments, and are frequently coming from communities and families with limited resources.

Historically, policy-makers have provided veterans a range of social benefits, including federally subsidized housing. For example, many public housing projects were originally built for WWII veterans. In addition, since the passage of the Servicemen’s Bill of Rights of 1944, veterans have had access to Department of Veterans’ Affairs (VA) home loans. In more recent decades, the VA has funded several programs for homeless and at-risk veterans.

Using the Pioneer Valley of Western Massachusetts as a case study, I explore the experiences of post-9/11 veterans and the role of housing during the transition from the military to civilian life. Based on data collected through interviews with veterans and service providers, original survey data, observation of meetings, and analysis of administrative data, I outline the ways in which housing choices and policies contribute to the isolation of veterans from civilians in higher education settings, transitional housing, and in community settings. I argue that current housing policies do not address the social and physical isolation that returning veterans experience and, in some instances, these policies increase the isolation experienced by veterans. In addition, to experiencing isolation from the civilian community, many veterans, especially women veterans, experience isolation from the veteran community. Engagement with veteran service organizations and employment in veteran services helps to reduce this isolation and provides a sense of purpose to both male and female veterans. Finally, I argue for a community lens when considering veteran readjustment, as the resources available to veterans is tied to both their geographic location and social networks.
Subsidized Housing
Developers In Madrid. Cooperation Or Competition?

Subsidized housing construction is one of the main policy instruments used in Spain to facilitate the access to affordable housing. Public companies, private developers and cooperative associations coexist as providers of these subsidized units. Due to the financial crisis, some of the public companies decided to stop their role as developers and to focus in the management of their rental stock.

This study presents the Spanish subsidized housing system and analyzes the interaction among the three developers to understand whether public companies should continue with their construction activity or become a different player. Focusing on the Region of Madrid, we worked with data of the subsidized housing projects built from 2005 to 2014 and tested for the existence of a crowd-out effect at the district level. We analyzed the effect for the 10 years period and afterwards we analyzed it separately for the housing market boom and bust periods. Our results suggest that a crowd-out effect exists between public and private developers in the three periods of analysis.

However, cooperatives show a tactical alternation with public companies when analyzed at the boom and bust periods, but a strategic complementarity when analyzed as a single 10-year period. In the short-term, a crowd-out effect exists between cooperatives and public companies but in the long-term there is a crowd-in effect.

Although an analysis of the type and quality of the housing provided by each developer would be needed to complement this study, results suggest that the decision of public companies of changing their role from active developers to service providers could benefit the whole subsidized housing sector. If the right incentives exists, private and cooperatives will continue with the construction of new subsidized housing units, whereas public companies can follow a complementary housing policy, focused on promoting rental units and refurbishment of existing buildings in city centers.
Tatjana Trebic
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In pursuit of adulthood: the urban choices and trade-offs among a group of young low-income mothers in the aftermath of Hurricane Katrina

Why, against the promise of greater opportunity, do some young people choose to stay in or return to high-poverty, disadvantaged neighborhoods? As they transition to adulthood, young people begin to make decisions regarding residential choice, household economics, and their interpersonal and social obligations. Understanding the complexity behind these decisions can help demystify the calculations behind their urban choices. Recognizing the valid and poorly understood reasoning of this group can help planners rethink the urban amenities and services needed to support young people as they affirm their emerging adulthood identities in the modern urban context. This study traces the trade-offs and tensions faced by a group of low-income mothers navigating the reconstruction of their emerging adulthood lives in the aftermath of Hurricane Katrina. Focusing on the life stories of 53 young women between the ages of 19 and 29, this study reveals a new framework for the way emerging adults make decisions about which neighborhoods to live, work, study, and raise children in.

Based on the social and psychological milestones of adulthood which mark achievements in education, work, independent living, marriage, parenting and independence, this framework sheds light on the additional constraints and considerations low-income emerging adults must negotiate as they transition to adulthood in urban America.

Their considerations move beyond factors such as neighborhood safety, dwelling size and characteristics, and affordability: parental responsibility and economic scarcity compete with the achievement of personal milestones as young mothers straddle the choice between capitalizing on the support of their social network and attaining self-sufficiency. As the young mothers debated the feasibility of pursuing greater opportunity in new places or returning to familiar contexts, the neighborhoods that surrounded them served to magnify or clarify the various tensions they faced. Expanding on current knowledge about neighborhood choice, these findings provide additional insight on how a vital segment of our urban population makes the decisions it does. This work bears implications and provides suggestions for how planners and policy makers can better serve this transitioning group through improved policy and more appropriate social services and institutions.
Between 1956 and 1974, many cities in the United States pedestrianized their main shopping corridors in an effort to revive retail, draw middle-class white consumers back to the central city, and emulate the increasingly popular and profitable suburban shopping centers burgeoning at the fringe. By the late 1980s, pedestrian malls, once a panacea for struggling downtowns, had become the quintessential failed urban project. The rise and fall of the pedestrian mall marks a critical moment in the trajectory of modernism and the history of the American city. The recent and controversial demolition of one of the era’s foremost pedestrian malls, Fresno’s Fulton Mall (1964), planned by Victor Gruen Associates and designed by the landscape architect Garrett Eckbo, calls for a critical reappraisal of this overlooked chapter of city planning, especially as U.S. cities and downtown partnerships embrace “complete streets,” tactical urbanism, and “better blocks” as a strategy for economic revitalization.

By coding the visual material of downtown plans published from the late 1950s through the early 1970s, this paper traces the evolution of critical motifs, themes, and ideas embedded within plans that featured pedestrian malls. Four case studies, including Victor Gruen’s seminal plan A Greater Fort Worth Tomorrow (1956), Gruen’s central area plan for Fresno (1960), I.M. Pei’s central business district plan for Oklahoma City (1964), and the plan for downtown Buffalo by Wallace, McHarg, Roberts, and Todd (1971), demonstrate how different plan makers conceptualized pedestrianization as part of downtown renewal.

This thesis makes two contentions. First, it identifies the pedestrian mall as a critical precursor to the postmodern, festival marketplace and an expression of a “festival” or “townscape” modernism that represented a middle ground between the oppositional paradigms of clearance and preservation. Pedestrian malls reveal the humanism embedded within aspects of late modernism, and the modernism cloaked by the historicized festival marketplace. The second contention, based on close reading of downtown plans from the era, is that pedestrian malls were rarely accompanied by broader programs of reform, infrastructure building, and regional planning that might have made them successful. In many cases, their implementation coincided with a nadir in downtown retail and failed as a cosmetic resolution to embedded economic problems. Together, these findings provide planners and policymakers reshaping streets today with a critical historical context for revitalization efforts and important lessons relating to the scale, scope, and challenge of rebuilding downtowns.
Megaprojects and Globalization: The Case of Forest City in Johor, Malaysia

A growing number of large urban megaprojects undertaken in various parts of the world by foreign investors have faced serious challenges because the developers were unfamiliar with the political and regulatory settings within which they were operating. As Chinese developers in particular seek opportunities abroad, the potential for conflict and contestation between local priorities and developers with international ambitions will probably grow. The case of Forest City in Johor, Malaysia, illuminates many of these challenges. Dramatic shifts in the design of the Forest City project occurred after the developer, Country Garden Holdings, Ltd was well underway, reflecting the costs involved in accommodating regulators and responding to harsh reactions from local, regional, national and even international actors. This thesis uses the Forest City case to parse the government-developer-community interactions surrounding megaproject development by an international investor operating outside their home country. It examines how inter-scalar forces shape the development process in ways that are not initially obvious to developers operating on foreign turf.
Exporting Resilience: Evaluating US-Netherlands Collaborations Aimed At Enhancing Flooding Resilience in New York City and New Orleans

Since Hurricane Katrina, partnerships have developed between the Netherlands and various governmental bodies in the United States with the express goal of helping cities enhance their resilience to flooding. At the core of these partnerships is the belief that governmental and non-governmental institutions in the Netherlands have developed technical and conceptual expertise that could benefit cities in the U.S. An unspoken goal of these partnerships has also been to help Dutch engineering, design, and dredging firms compete for contracts offered in the United States under the banner of enhancing resilience.

Through interviews with nineteen senior Dutch and American officials involved with these partnerships, the author tests collaborations between the Dutch and the cities of New York and New Orleans against the policy transfer frameworks of Dolowitz and Marsh (1996 and 2000) and Matsuura (2006).

In New Orleans the linear transfer of policies from the Netherlands to the United States can be identified, while in New York, this analytical framework cannot clearly demonstrate policy transfer.
This thesis uses electricity consumption data from household and enterprise-level smart meters in Chengdu, China, and Turin, Italy, to explore temporal variations in urban energy consumption and thus urban activity. A central question is whether electricity consumption patterns vary between different economic sectors, across space, and between different days of the week and times of year. While certain patterns are more widespread in some sectors than others, there is significant overlap between pairs of sectors. Hence this thesis is able only to classify land use between residential and industrial categories, and is unable to classify land use to a meaningful degree of accuracy by analyzing electricity consumption. It is, however, possible to detect geographic differences, with the urban and industrial center consuming a higher percentage of its electricity on weekdays and during regular work hours than rural areas do.

In addition, the impact of various special occurrences on urban behavior is probed. This thesis provides measurement of the impact of various holidays on economic activity, using electricity consumption as a proxy. Furthermore, using observations at 15-minute intervals, I measure the short-term behavior shifts caused by daylight savings time’s start and finish. Lastly, I explore the impact of weather, and show that electricity consumption is higher during periods with less sunlight and higher temperatures; rain increases electricity consumption except on the hottest days.
The atoll nation of Tuvalu lies only a few meters above the seas of the equatorial Pacific, and is at high risk for inundation and cyclones due to climate change. However, in spite of the media narrative of “sinking” Tuvalu, when understood in broader contexts of time and space, the existence of atolls is highly temporal and dynamic, based on sediment hydrodynamics and coral reef production. The designation of Tuvalu as a ‘nation’ is also a narrow temporal framing, of colonial origin. The inhabitants of Tuvalu’s atolls were historically highly mobile peoples, moving from island to island in response to resource or social concerns. Tuvaluans today continue to be mobile peoples, migrating between atolls and globally, but this movement is now limited by global territorial sanctions. Climate change creates the risk of uncertain territory and uncertain identity for Tuvaluans; the submergence of the islands below mean sea level threatens rights to their territorial waters (EEZ) as well as their nationhood status as they lose the space to practice their cultural identity.

The modern nation-state views its contents (population and geography) as relatively static. The inherently fluid nature of these components in Tuvalu, further amplified by climate change, problematizes the hard lines of territory and state drawn sharply in the contemporary era. When both ground and people are acknowledged as fluid entities, how do we reimagine the spatial and social form of the Tuvaluan nation? How can Tuvalu continue to exert territorial claims when both the subject and object of nationhood are in flux? And how can Tuvalu’s spatially oriented cultural identity be maintained as its population becomes increasingly mobile?

Instead of ceding territory to the rising waters of climate change, this thesis posits ‘seeding’ territory as an alternative. The project explores the propagation of the architectural ‘seed’ as a way to ‘grow’ territory in the context of migratory populations and unstable geographies. The seeds consider territory both in the sense of transnational legislation (per the UN Law of the Seas) but also in the cultural sense of Tuvaluans, as a collective space of shared resources and identity. The seeds create both physical territory and facilitate social networks and identities. The design of these seeds is then conceptually tested in future social and environmental scenarios both for both the in- and ex-situ nation.