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College of Architecture and Environmental Design
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I am proud to introduce this issue FOCUS as the new Department Head of City & Regional Planning. I am committed to supporting the faculty—especially editor Dr. Vicente del Rio—and students who work hard to produce this journal that makes an important contribution to advancing planning and the learn-by-doing Cal Poly mission.

I want to take this opportunity to thank and recognize my predecessor, Dr. Hemalata Dandekar. Hema joined us as Department Head in 2009 and made numerous important contributions to the growth and development of the department. Hema served during the Great Recession that saw higher education budgets in California slashed and we were no exception. She was able to guide the Department through this challenging financial crisis and ensure that we continued to deliver a high quality education to our students. She successfully oversaw our accreditation by the Planning Accreditation Board and earned our first seven-year accreditation (many schools only get five). Finally, Hema secured one of the largest gifts ever to the CRP Department. The \$250,000 Errett Fisher Foundation gift will support student scholarships, student travel and field study, and studios and student service in low-income communities. She has left an important legacy for the department and she will continue to serve on the faculty as a committed educator.

Let me tell you a little about my background and plans. I arrived at Cal Poly in 1998 from Florida where I completed my Ph.D. in Urban & Regional Planning at The Florida State University. Prior to that I had worked as a professional planner at several different levels of government. In my time at Cal Poly I have focused on delivering high quality classes in planning theory, environmental planning, climate action planning, policy analysis, and a variety of other classes. And, I've kept a foot in practice by serving as a member of the City of San Luis Obispo Plan-



ning Commission. Other than serving as Department Head, my primary work these days is in two areas: developing tools and processes for addressing the climate crisis, and, assessing the implications of autonomous vehicles on our cities.

I have several priorities in this first year as Department Head. They include:

- Ensuring that our curriculum is preparing students to address California's most pressing problems including housing affordability, urban growth and livability, overburdened and outdated infrastructure, the climate change crisis, and natural hazards.
- Enhancing our classrooms with state-of-the-art technology so that students enter the job market ready to provide immediate value to communities and firms.
- Providing financial support to students in need; we believe that everyone who wants to be a planner should not be held back because of their financial situation.

I hope you will embrace these goals and partner with us. You can make a gift online at <http://www.caed.calpoly.edu> by clicking on the "give now" link and contributing to the CRP Fund for Excellence.

Finally, I want to express my sorrow over the loss of Dr. David Dubbink (see his eulogy on page 8). Dave was a mentor to me during my progress to tenure. We often co-taught environmental courses and he taught me what it really meant to teach in a learn-by-doing mode (which was different from my previous experience). I'm sure I'm where I am today because of his support. I will miss him.

Michael R. Boswell, PhD, AICP;
Professor and Department Head,
City and Regional Planning Department.

Superstitions apart, FOCUS 13 marks the end of an unusual year, and we share the universal hope that 2017 has to be better... In December, the CRP community lost David Dubbink, a dear colleague retired since 2006. David was responsible for most of the environmental planning courses and conducted internationally recognized work on noise impact assessment (see Michael Boswell's eulogy for David in page 6). And throughout 2016 the world seemed to get nastier: armed conflicts expanded; terrorism became more global; millions were killed, starved to death or suffered from lack of medical care; extremism and bigotry worsened; the internet became a place for misinformation and hatred; human actions continued causing irreversible environmental impacts; basic human rights are constantly ignored; too many still lack appropriate shelter... the list goes on, and it only gets worse with the nasty politics taking over much of the so-called "developed" world. Within this complicated context, we need to remind ourselves of our mission and of what attracted us to planning: the planning profession exists to serve the public, to seek equity and social justice, to protect the natural and the heritage of the built environment, and to promote development through fair and inclusive processes. These principles make sense of planning and teach us how we can make the future better than the past.

Fortunately, not all was bad in 2016, including the fact that we are publishing yet another FOCUS! New department head Dr. Michael Boswell opens this issue telling us his priorities for the CRP department which will certainly help our students to contribute counteracting some of the disparities delineated above. In *A Planner's Perspective*, Chris Cark touches on a touchy subject: the ill-based public comments opposing a project during an EIR process. The Special Section features Christopher Benninger, one of India's most decorated architect-planners and one of this year's speakers in the College of Architecture and Environmental Design Hearst Lecture Series.

Following last year's successful inauguration of a section with peer-reviewed articles, FOCUS 13 includes two important contributions. Jake Wegmann and Jonathan P. Bell discuss the disconnect between the planning profession and code enforcement, revealing the classic conflict between policies and implementation, plan and reality. William Riggs and John Gilderbloom show us a causal relationship between walkability and life longevity through a study in Louisville, Kentucky. The Essays Section starts with a gorgeous photographic essay by Gary Dwyer, Professor Emeritus of Landscape Architecture. Gary's internationally recognized work reveals an astute and reflective eye for critically observing the nature of our complex environments. Ivor Samuels, an English urban design educator who often contributes with FOCUS, follows with a discussion around today's appropriateness of the seminal "Towards an Urban Design Manifesto" by Donald Appleyard and Allan Jacobs, from the early 1980s. William Riggs, Michael Boswell and Ryder Ross discuss their street design study using an open-

source application as a community participation tool for San Luis Obispo's Downtown Vision Concept Plan revision process. In the last essay, I describe the making and implementation of the Charles Center Urban Renewal Plan, the first step towards the revitalization of Baltimore's famous Inner Harbor.

In the Faculty and Student Section Michael Boswell and Christopher Read discuss how California's cities are integrating climate adaptation planning into local policy and practice. Evan Evangelopoulos and Cornelius Nuworsoo elaborate on the most common themes from form-based codes literature: urban form and quality of life, specificity to locality, community vision, sustainability, clarity and improved structure of the coding document, and efficiency in the application process. Vicente del Rio and Amir Hajrasouliha describe the Midtown Wellness District Concept Plan, developed by their graduate studio for the City of Ventura. This section ends with Kai Lord-Farmer, William Riggs and Adrienne Greve discussing the transportation element of the Campus Climate Action Plan, developed by a graduate studio in collaboration with Cal Poly's Campus Facility Planning and Capital Projects Department.

Mexico is the highlight of this year's International Section. Hemalata Dandekar, Vicente del Rio, Alex Chapman, Audrey Ogden, Kara Tobin, Melissa Smith, and Tara Ash-Reynolds write about CRP's exciting summer field trip to San Miguel de Allende. In the following article, Hemalata Dandekar discusses a study using social histories as a method to reveal Mexican urbanism and, particularly, San Miguel Allende's development. BSCR student Ana Padilla tells us how much she learned about urbanism and her heritage from participating in the Architecture Department's summer-long program in Mexico. Closing the section, seniors Augustina Remedios and Justin Sauder write about their participation in a summer program on disaster risk and emergency management in New Zealand.

As is our tradition, the Spotlight Section opens with Dr. Hemalata Dandekar's account of CRP's studio work from last academic year, followed by interviews with alumni Jimmy Ochoa and Orchid Monroy-Ochoa --both planners at Cal Trans, and Norm Allinder --Madera County, planning director. Closing the section, the abstracts of all master's theses and projects from the academic year.

The novelty in FOCUS this year is that Cartoon Corners will feature throughout the journal, taking advantage of blank pages at the end of sessions. As FOCUS founder and managing editor, I take great pleasure in putting an issue together every year, and in seeing the final product as a sample of what the CRP Department offers to the students, to the planning profession, and to the community. I hope you enjoy FOCUS 13, and that it may help us all move forward to a better future.

Vicente del Rio, PhD.
Professor and Managing Editor.

Liars and Slanderers

Chris W. Clark

*JD; lecturer, City and Regional
Planning Department, Cal Poly.*

It is disconcerting to make a presentation to decision-makers, after months of investigation and analysis, and then hear someone dispute your findings, offering nothing but contrary conjecture. Even worse is to have the decision-makers then turn to you, and say “Well?”

Well what? I just made a great case, supporting every argument with facts, and my contrarian has offered blather. Why the false equivalence, meaning why is this verbiage held to the same rhetorical level as mine? Why not just tell them to shut up?

Well, we are in a democracy, and everyone gets their say, and all sides must...ad nauseam. The California Environmental Quality Act (CEQA) demands that, we respond to every comment made about an EIR by the public. We are allowed to say that a comment does not raise a question about the sufficiency of the analysis, but rather expresses what is ultimately an opinion about the project. We are not allowed to respond, “That is a

stupid and baseless point.” Although I have to admit to having typed that many times, for the purpose of salve, only later to replace it with “The commenter has expressed a concern that...blah, blah, blah.”

Let’s clarify, this is not a statement about all commentary and criticism. Much or most of that is truly helpful. Unknown facts, curious anomalies in data, and flat out mistakes are revealed by critics. That is the purpose of the Public Draft; in fact that is the brilliance of the authors of CEQA in calling the public EIR a “draft,” a characterization that welcomes additions and changes.

But enough with the good stuff, I want to get back to the evil that we do. And the planner’s work in contending with and countering statements that are false and damaging. First, here is my catalog of types of things the public can say about projects during an EIR process:

- Additional study
- Alternative approach
- Contrasting information
- Vacuous hyperbole
- *Ad hominem*¹

Additional study

I think there are two basic ways to defeat a proposed project. Either take arms against the project and end it (usually and eventually in the courts), or delay it until it dies from the burdens of time and money. The first often leads to the latter.

Requests for additional study are an easy method for delay. This becomes akin to the child who responds to every explanation with another “Why?” There is no end to knowledge. There are no limits to explanations. There is never 100% certainty. So it is a safe gambit to request additional information.

¹ I’m going to stop myself here because this will turn into a well-worn list of logical fallacies. Aristotle named them first, expanding on the work of his teacher, Plato. A fun website with a compendium of these is <https://yourlogicalfallacyis.com/>. Learn these, and be able to identify them in real time—that is a worthy skill.

The Scream, by Edvard Munch; 1893-1910.



In this, and in all other instances, it is up to the decision-makers to say “Enough is enough.” That they are satisfied, within the bounds of reason and reasonableness, that sufficient support has been provided. When they turn to you and say “Well, what about that?” then they have not reached that point. It is very frustrating, but you cannot tell them that the additional studies should stop. You can say that we have exhausted the rational means of inquiry. But the decision-makers have to end it.

Alternative approach

Opponents who are new to combat can go on-line and find lots of tactics to delay and stop the projects and plans they don't like. A classic is creating an “alternative” to the proposal. CEQA requires us to develop alternatives that would have lesser impacts than those of the proposal. Wise. Also wise is the CEQA requirement that alternatives meet the objectives of the original proposal. A proposed hospital cannot be switched with tennis courts. But no such constraint applies to opponents.

Example: a non-profit mental health organization was proposing the rejuvenation of an historic structure into housing for the mentally ill. The neighbors went nuts. But in a moment of calm, one of them proposed that the City Council consider instead turning the structure into an art center. One of the council members responded with “Well that's a good idea, too” or something like that. A proposal that had undergone many months of analysis and design, and was based upon the industry's vast experience, was countered with something made up on the fly.

Again the logical flaw of the false equivalency. This can take many forms, but here it is presenting something flimsy as the equal to something solid. Cities need art centers and they need facilities for the mentally ill. I may need a heart by-pass and I may need a beer. Humm? Note that my analogy created a false equivalency between a beer and an art center—wasn't fair, was it?

Contrasting information

Data can be incorrect, analyses faulty, and conclusions inappropriate. All fair game. But when these are improperly challenged, then we are dealing with either ignorance or lying. Or the weird combination where someone asserts something that they neither know to be correct or incorrect. This is brutally difficult to combat. It stems from the logical problem of trying to prove the negative.

A literal case in point. During hearings before the Coastal Commission, opponents to a sewer system argued that the Commission needed to consider the presence of red-legged frogs, an endangered species. The mere mention of an endangered species was sufficient to cause one of the Commissioners to demand a delay (a month) for the hearing. I was not prepared for this question. A study had been prepared for the area some time ago about red-legged frogs. Its conclusion was, which

I regretted not knowing during the heat of the hearing, that there were none. And we unearth another problem, there are thousands of possible questions that could come your way; you may not be ready for every one. And as the (German?, Italian?) proverb says, “any fool can ask a question that even seven wise men can't answer.”

Vacuous hyperbole

I came up with this phrase a long time ago, while sitting in a public hearing, listening to a project opponent describe a dystopian future, a post-apocalyptic horizon, beyond which life fades to meaninglessness. All this because of a parking garage.

A rule of good writing is to cool it on the use of adjectives and other means of description that influence the perception of the reader, in lieu of letting the reader's own mind create the vision. I've heard people say “this will destroy our community” when speaking of an apartment complex. Or “things will never be the same” when opposing a gas station. Projects are hideous, horrendous, and humungous. While precision is the hallmark of science and policy, exaggeration is all too common in public discourse.

Ventura was considering raising the allowed building height in the downtown, to five or six stories. Someone described this as the “Manhattanization” of the city. The Empire State Building has 103 stories, or roughly twenty times the height of the proposal. Truth is most Manhattan buildings range from 10 to 50 stories, and there are many under five. Still, it is an inappropriate description. I've been to Manhattan. Ventura is no Manhattan, nor will it ever approximate it.

You cannot say anything in response to vacuous hyperbole. Countering the assertion gives it credence. Your best defense is a raised eyebrow, or for drama, staring downward and shaking your head. But don't overuse that.

In a courtroom a long time ago, I listened to opposing council argue for a motion to dismiss my case after I had presented my evidence. The lawyer said things I thought were over the top. Then the judge turned to me and asked for my response. I said, “Are you kidding?” Based upon his honor's response to me, my advice to you is never ever say that.

Ad hominem

An argument is flawed, not because of what is said, but who said it. It is inevitable that the reputation of the speaker influences our perception of the validity of their statements. It takes discipline to look beyond the speaker and consider just the message.

In our own work, we review projects and reports all the time. We come to appreciate the firm that does consistently good work, and are wary of those that often have mistakes or lack depth. Nevertheless, each review must be consistent, while

recognizing that some will be easier than others. Plus, these prejudices we carry are in our minds. We can manage those.

It is insidious when people stand and say that a person's word is no good. That they can't be trusted. That their proposal is flawed because they are flawed.

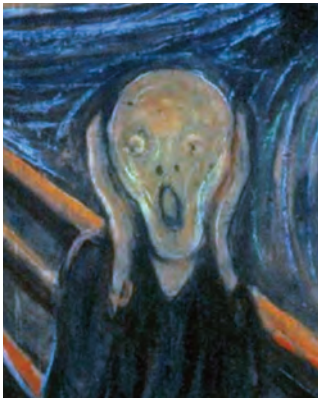
Again, there is no good response, other than "can we stick to the facts" or something like that. Once the attack on character is commenced, then the proceedings are unfairly colored by that. You can report that you've reviewed the material and it is, in your opinion, sound. It is fruitless, though noble, to defend the proponent.

.....

There are many more fallacies that rear themselves in our public deliberations. Over the course of your career, you will encounter them all. Stay calm, think clearly.

As an endnote it is important to repeat that most public discourse is fair, honest and intelligent. People care enough to stick to the matter at hand, deal with the facts, and clearly note when they voice their opinion.

But there are always a few apples riper than the others.



David Dubbink

Emeritus Professor

1945 - 2016



Dr. David Dubbink passed away in December after a year-long battle with cancer. Dr. Dubbink was a tenured faculty member in CRP from 1989 to 2006 where he primarily taught courses in environmental planning. He earned his MCP at the University of California, Berkeley and his Ph.D. at the University of California, Los Angeles.

Dave was an internationally-recognized expert in noise assessment and management. He was a consultant in environmental planning and developer of the *Interactive Sound experience (ISe)*. The *ISe* package has been used in community noise studies throughout the United States and in other countries. His clients included the FAA, the United States Army and Air Force, the Federal Office of the Environment of Germany, Transport Canada, and consulting firms in the US, Europe, Southeast Asia and Australia (among others). In 1993 the California Chapter of the American Planning Association awarded his work in the innovative use of technology.

Prior to Cal Poly Dave served as agency director and planner for several agencies including the *North Central Region of the Coastal Commission* and the *Tahoe Regional Planning Agency*. He also served as Regional Executive Director and Chief Planner for the California Coastal Conservation Commission (San Francisco, Marin, Sonoma Counties). He was a member of the American Institute of Certified Planners, the American Planning Association, and the Association of Environmental Professionals.

In the CRP Department, Dave taught a variety of classes and served on numerous committees. Of particular note, Dave served as field internship advisor for the HUD Community Development Fellowship program, and in that capacity placed under-represented students in local planning positions best suited to help them build successful careers. He was quite sensitive to individual student needs on both the personal and academic levels. Dave was also famous as the “noise guy.” He would bring his “noise machine” (a sophisticated hardware and software setup) to classes and college open house events and students and parents alike would be amazed at the noise simulation of aircraft flying over places like the Grand Canyon. This helped the department recruit students and to demonstrate the application of technology to professional planning practice.

Over the years Dave and his wife Cher have supported students with their generous donations to the CRP scholarship fund which helped recruit excellent out-of-state students to the MCRP program. Dave was a wonderful colleague and friend. He was a committed mentor of junior faculty and provided friendly, useful advice to students starting a career in planning. He was known for his sharp intellect, quick wit, and dapper style. He will be dearly missed.

FOCUS 13

Special



Hearst Lecture: Planning for Bhutan

Christopher Benninger

Architect and Town Planner; principal at CCBA and Distinguished Professor, Ahmedabad School of Planning, CEPT University, India.

Every quarter, the College of Architecture and Environmental Design's Hearst Lecture Series, endowed by a generous grant from the Hearst Foundation, brings to campus an impressive array of both long established and younger professionals from the design disciplines. In the Spring of 2016, Christopher Benninger, one of India's most highly decorated architects, was invited to present on his 45-year plus international work experience in the fields of planning, urban design, and architecture. At the occasion, he also launched his latest book "Architecture for Modern India", an impressive collection of his plans and projects.

My life in India, as opposed to my travels through Asia, began in an antique land called Bharat in October 1971. I came to India to initiate the School of Planning, along with my friend and mentor Balkrishna Doshi who had founded the School of Architecture at Ahmedabad in 1962.

Our focus was on the rational deployment of scarce resources to achieve inclusiveness and equality in sustainable environments, while facilitating peoples' struggles to meet their basic needs. The physical planning of neighborhoods, villages, towns, cities and regions were seen by us as mere tools of larger social changes. Our focus was on human development! We expanded our vision from physical planning to social, economic and cultural realms, employing investments, incentives and regulations that could temper development for better or for worse.

We slowly began to call this "the new planning," as the old planning was restricted to preparing two dimensional maps. These old maps were to control development; the new planning was to facilitate and empower people's socio-economic transformation.

Our method was not an end product or a destination; that is, a plan! Our planning was a process of empowering and facilitat-



ing people to create more inclusive, more equitable and sustainable opportunity systems through vehicles called human settlements. These two types of planning (that is, two-dimensional physical planning and multi-dimensional human development planning) were not understood. In the popular use of the word, a "plan" is a noun, an object, and a document. In our concept, planning is a verb, a process, and a way of "thinking-doing."

My journey in this search began when Sir Robert Jackson presented me with a lifetime subscription for Ekistics journal in 1963; when John F. C. Turner accepted my plea to

become my guide on a 1966 shelter project at Harvard; through Horacio Caminos at MIT under whom I worked on settlement processes; and thanks to my guru Josep Lluís Sert, the inventor of the urban design concept, who established the link between architecture and planning. In Greece, at the Athens Centre of Ekistics, Jaqueline Tyrwhitt the editor of Ekistics journal, Constantinos Doxiadis, Panayis Psomopoulos and my mentor the economist Barbara Ward instilled in me a sensitivity to the social dimensions of planning.

During many visits to Athens, and as their protégé at the Delos Symposium in the summer of 1967, I was sensitized to the holism of human settlements. In my subsequent visits to Athens, I lived in Jaqueline Tyrwhitt's house, "Sparozza," in Attica, designed by my teacher Jerzy Soltan. At the Athens Centre of Ekistics, I could listen to, talk to, argue with and learn from Buckminster Fuller, Arnold Toynbee and Margaret Mead. There were no lines drawn between physical, economic and social transformations. There were no lines drawn between teachers and students, seniors and juniors, or seasoned experts and emerging young professionals.

Note from the editor: Due to technical difficulties in recording Professor Christopher Benninger's lecture, with his approval, FOCUS decided to publish an excerpt from his book *Architecture for Modern India*. The illustrations, except where indicated, are also from the book. This excerpt reflects, in greater detail, part of his lecture at Cal Poly. Professor Benninger's work can be seen in more detail in his firm's website www.ccba.in

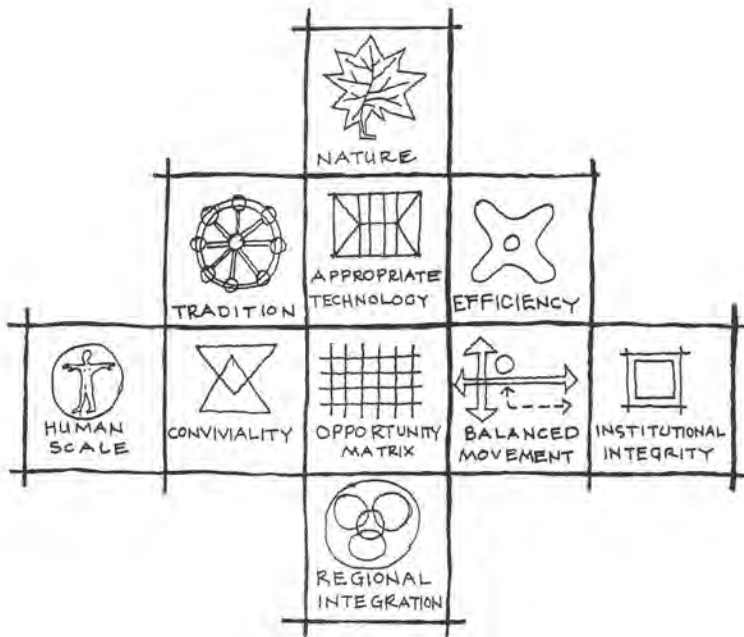


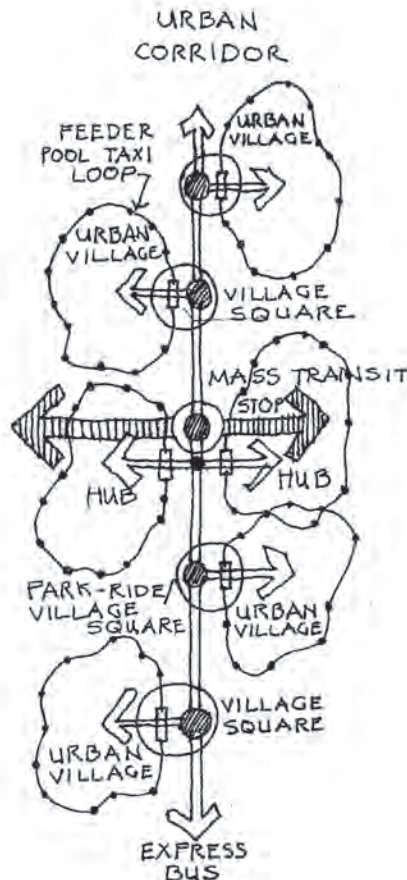
Figure 1: The Ten Principles of Intelligent Urbanism.

Principles of Intelligent Urbanism

This journey, my wonderful mentors, and my work in India, Sri Lanka and Bhutan led me to seek a “credo,” or a group of sacred axioms that would lay down a value based framework, within which participatory planning with stakeholders, experts and affected people can proceed. I call these axioms the Principles of Intelligent Urbanism, which were first published in *Ekistics* journal (2002), and soon after in Roger Caves’ pioneering *Encyclopedia of the City* (2005) (Figure 1). These short axioms are to be discussed, debated and amended by stakeholders during the early stages of the planning process and written into a consensual charter, guiding future decisions.

Based on these values, actual planning and design decisions can be debated, evaluated and confirmed in a rational framework. But before any issues, controversies and debates begin, the participants must debate over the value-based principles that act as a kind of a constitution against which any argument or any decision must be evaluated and judged. These axioms had gelled into a firm list of ten themes just as I began to prepare the capital plan of Bhutan. These Principles of Intelligent Urbanism were the basis upon which the Thimphu Structure Plan, local area plans and land pooling proposals could proceed in organizing the capital plan for the Himalayan Kingdom of Bhutan. Let me describe these principles briefly.

Figure 2: Balanced movement.



1. The first principle, Balance with Nature, emphasizes the distinction between utilizing natural resources and exploiting them. It focuses on a threshold beyond which deforestation, soil erosion, aquifer depletion, silting and flooding catalyzes one another in urban development, thereby destroying the natural environment. The principle promotes environmental impact assessments to identify common resources, natural habitats, bio-diversity, threatened ecosystems and utilization thresholds that can be protected through conservation, density control, land use planning and open-space management.
2. The second principle, Balance with Tradition, integrates planned interventions with existing cultural assets in consonance with traditional patterns and practices. It respects heritage precincts, historical assets and precedents of style that weave the past and the future into a continuity of values.
3. Appropriate Technology promotes building materials, construction techniques, infrastructural systems and management practices consistent with people’s capacities, geo-climatic conditions, local resources and investment capabilities.
4. Conviviality sponsors social interaction through public spaces in a hierarchy of civic places devised for interactive life (personal contemplation, companionship, romance, house-holding, neighborliness, the practice of community and public civic debate). It promotes basic

community units called urban villages that serve clusters of smaller neighborhoods within them, agglomerating into the form of a walking city. Most important, it promotes civility through logical debate and rational consensus amongst the population.

5. Efficiency promotes a balance between the consumption of resources like energy, time and financial expenditure that define “effort,” with planned achievements in comfort, safety, security, access, tenure and hygiene. It encourages optimum sharing of land, roads, facilities, services and infrastructural networks, thereby reducing unit costs and increasing affordability and civic viability. Using intelligent transportation systems, it structures nodes and hubs along urban corridors and networks, optimally reducing travel distances to a minimum. All of this increases physical, social and economic access.
6. Human Scale encourages ground-level, pedestrian-oriented urban arrangements based on anthropometric dimensions, as opposed to machine-scale mammoth buildings and infrastructure. Walkable, mixed-use, pedestrian villages are encouraged as opposed to single-function blocks that need extensive motorways and huge parking lots to connect isolated functions spread over a low-density city.
7. Creative effective Opportunity Matrices enrich the city as a vehicle for personal, social and economic development through access to institutions, services and facilities. These create opportunities for fulfilling basic needs, education, employment, shelter, health, safety, business, social mobility and recreation. This approach sees settlements as vehicles empowering and facilitating people to achieve their optimal capacities and future dreams. A good plan prioritises human resources development, creative occupational engagement and the involvement of its residents in inspiring livelihood activities.
8. The principle of Regional Integration envisions cities as an organic part of larger environmental, socio-economic and cultural-geographical systems essential for civic sustenance.
9. Balanced Movement promotes integrated transport systems of walkways, cycle paths, express bus-lanes, light rail-transit corridors and automobile channels. The modal split points between these movement systems become public domains around which high density residential clusters, urban hubs and mixed-use villages emerge.
10. Institutional Integrity, the last principle, recognizes that good practices inherent in these principles can only be realized through accountable, transparent, competent and participatory local governance founded on an appropriate data base, entitlements and civic duties.

The Principles of Intelligent Urbanism promote a range of facilitative urban development management tools, and good practices, to achieve rational urban processes, systems and forms.

I have always seen cities as essential vehicles through which humanity’s rustic nature is transformed into refined civility. Civilization has emerged from the cauldron of urban dialogue and the evolution of civic ideas. It is only in cities that minorities are empowered and facilitated to optimally utilize their individual talents and capabilities. I see the ultimate purpose of cities as nurturing creativity and catalyzing transcendental moments of ecstasy.

My Experience in Bhutan

An ancient culture spreading across the Tibetan Plateau, including Tibet, Ladakh, Nepal, Mustang, Sikkim, and Bhutan evolved over thousands of years into a great civilization, with Buddhism as its spiritual path and a unique set of mores, cuisines, dress habits, and architecture, that adapted to the desert highlands of Ladakh and to the rainy forests of Bhutan.

The modern project of nation building left Bhutan as the only society that is a “living Himalayan civilization,” with the other entities having been incorporated into larger cultures and nations. Bhutan entered the twentieth century as a medieval kingdom isolated by its arduous mountain passes and protected by its mountainous terrain.

When I visited Bhutan in the late 1970s as one of the few Caucasians allowed entry, its capital city Thimphu had a population of about eight thousand people. There was no airport, less than a hundred telephones, and only jeep tracks to move through the mountainous valleys between scattered settlements. Governance was administered from ancient fortress monasteries, known as *dzongs*, that dominated each valley. National planning had begun in the 1970s with a lead sector of hydroelectric power identified to drive the economy. Its success brought a modicum of national wealth, enabling a range of development activities.

By the beginning of the new millennium, urbanization had gathered momentum, and many youngsters were studying advanced courses in India. Seeing the decline of monarchs across the world, His Majesty set in motion several fundamental transformations. One was introducing a democratic constitution, and another was enhancing communications through a national airline, improved roads, and mobile phones. A third strategy was to open up the society through limited tourism in the luxury sector. Banking institutions were modernized, encouraging people to become entrepreneurs. Realizing the importance of cities to expand its businesses; house an expanding administration; cater to tourists; and to bring education and healthcare to the people, city planning emerged as a national priority.

By the year 2001, Thimphu's population had grown chaotically to thirty-seven thousand people, and the Royal Government needed to act quickly to introduce modern infrastructure. It was at this critical juncture that I was called to the kingdom again to engage in the planning of the nation's capital city.

Thimphu: From Village to Capital

In the late 1970s, the United Nations asked me to tour Bhutan to assess whether my rural development concepts from India could be applied to the kingdom. His Majesty insisted that I "see the country," so I set out in a Land Rover exploring deep into the mountains. At that time, I did not realize that Bhutan would make up a large slice of my life; that I would replan two border towns, a hill town; design Denchi, a new town; or, that I would plan the capital city, its Supreme Court and many of the key government buildings.

Thimphu's elevation of seven thousand feet above sea level, with its hilltop neighborhoods another thousand feet higher, made it one of the highest capitals in the world. Streams flowing down from the mountains bore clear water. Blue pine forests reached up from the town to white snow peaks in the Western distance, and to the east, a steep green hill was lined at the top with colorful prayer flags. Apple orchards occupied the middle zone between the town and the steep pine slopes.

As an outcome of my first visit, I set up a small office in the Ministry of Agriculture with four planners, from where we prepared the first integrated area development plans of the country (1980-86).

When I began preparing the capital plan in 2001, the main road Narzim Lam was crowded with five-storied buildings, and bungalows were being built in the villages along the Wang Chu River running through the valley. The massive fortress monastery, the Trashichhoe Dzong, still dominated the valley as the national icon. Many woodworking, auto repair, metal fabrication and artisan workshops had opened. The army

and the national police force had constructed major housing colonies. At a closer look, the streams coming down from the mountains had dramatically widened and deepened, the Wang Chu River was brown with silt, and houses had begun to appear on the upper hills of the valley. The orchards were being cut, and one could see erosion on the mountainsides. Shangri-La was in danger!

The Themes of the Thimphu Structure Plan

The Thimphu Capital Plan was first and foremost an environmental plan based on a detailed assessment of topography, slopes, hydrology, biodiversity, fauna, flora and human habitat. Ecologically fragile zones were identified, and seasonal bird habitats were demarcated. The interrelations between natural resources systems were analyzed, and the impact of various development options evaluated. Our proposed development control rules were largely regulations to protect the fragile ecosystem.

The plan's second theme was to concentrate growth in urban villages. Each was centered on a village square that had an express bus stop, a day-care center, medical shop, café, gym and other amenities. Ground plus three or four-storied walk-up apartments clustered near the village squares, and lower densities spread off with cycle tracks to reach lower-density cottages.

The third theme was to create an urban corridor, or stem, along which the urban villages would be located. This corridor would have space to accommodate trunk sewerage pipes and electrical and water supply lines.

Another theme was to define the urban core and to pedestrianize it to the maximum. A "charge-to-park" scheme was implemented and a pedestrian system designed connecting the upper markets to the main Sunday market along the river's edge.

As Open Space System was identified, interconnecting the riverfront parks, biodiversity pockets, playgrounds, gardens



Figure 3: Thimphu, Buthan's capital, spreading along the Wang Chu River Valley marked by steep mountains. (photo from www.bjokabhutan.com.bt)

and reserved areas. A promenade was designed along the river, with a jogging track and bike path. A contour line was identified running above and around the city, along which a paved pedestrian path and picnic spots were to be placed. This loop demarcated the city below it from the no-build zone on the steeper and higher slopes above it. Urban precincts with unique characteristics were defined, and each would have its unique development control rules. Some were heritage areas; the urban core was another; and bungalow areas, as opposed to apartment areas, were others. Workshops and *godowns* (warehouses) were gathered into a specific type of precinct. The concept was to separate non-conforming uses while encouraging mixed uses.

Identifying urban assets and linking them to the open-space system was a theme that protected heritage buildings, religious structures, and national monuments, giving them special protection. The Wang Chu River and its streams were protected with setbacks from their edges. A structure plan for the entire city was prepared to identify major road arteries, water bodies, national heritage structures and open spaces. After designing the trunk infrastructure components, the local area plans were fit into this pattern.

The structure plan was discussed and openly debated with the stakeholders and chamber of commerce before being finalized. Local area plans were prepared for each of the fifteen watersheds along the river where traditional villages had emerged. Land pooling was employed wherein each landlord deposited their land in a land bank and the local area was then laid out with accessibility to each plot. Ten percent of the land was left for open spaces and five percent for amenities. An additional twenty percent was allotted for roads. The remaining land was redistributed to the original owners, near their original land holdings. When returned to the owners, the smaller areas were worth many more times their original value.

The Thimphu Capital Plan broke from standard practices of regulatory planning born out of romantically high, Western standards. It addressed ability to pay, accessibility to shelter and livelihood through mixed use and site and services measures. High density, walkable neighborhoods, a bicycle track system, and a rapid bus network transformed the transit scenario, reducing dependency on automobiles. Dissuading people from driving to the city centre through high parking fees encouraged them to use public transport. The planning process involved stakeholders.

The plan was an organic one, fitting within the valley contours, rather than forcing a Cartesian grid upon a natural landscape. Zoning and mono-functional areas were dispensed with and, instead, precincts with traditional functions and uses were created. Most of all, the plan showed the way for planning Green Cities in Asia, respecting the carrying capacity of the land, protecting fragile water edges, honoring biodiversity areas and planning in response to environmental assessments. The Thim-



Figure 4: The Thimphu Structure Plan.

phu Plan introduced fundamental concepts for promoting the idea of a green city.

Denchi New Town: The Theme of Decentralization

Bhutan has the lowest density of any country in Asia with its small villages spread across rugged mountains, often accessible only along footpaths. Urbanization has concentrated in the western region of the country, with Thimphu, Phuentsholing and Paro growing the fastest. Industries have developed along the south-western border with India. Major hydroelectric projects--and tourism too--have concentrated in the western region.

Health, education and administrative facilities are located in Thimphu, resulting in a backlog of development in the east, where specialized medical and higher education facilities are missing. This imbalance was a major consideration for developing a new town in the eastern region of Bhutan. There was a need for a second capital in the east, and the new town of Denchi marked the beginning of this process.

A relatively level site in the district of Pemagatshel, at a low elevation, was selected for the new town's location. The site lay on a point affording views up and down the Marung Chhu and Brongkola Chhu River valleys. Whatever government facilities were in the present town of Pemagatshel, lay scattered along the main district road, where there were also about thirty makeshift shops. There are no proper housing facilities for administrators and technical staff. Lack of schools and health facilities pose a deterrent for educated families to live in the area.

Denchi was envisioned to be a model hill town and administrative capital of the eastern region. The proposed town centre,

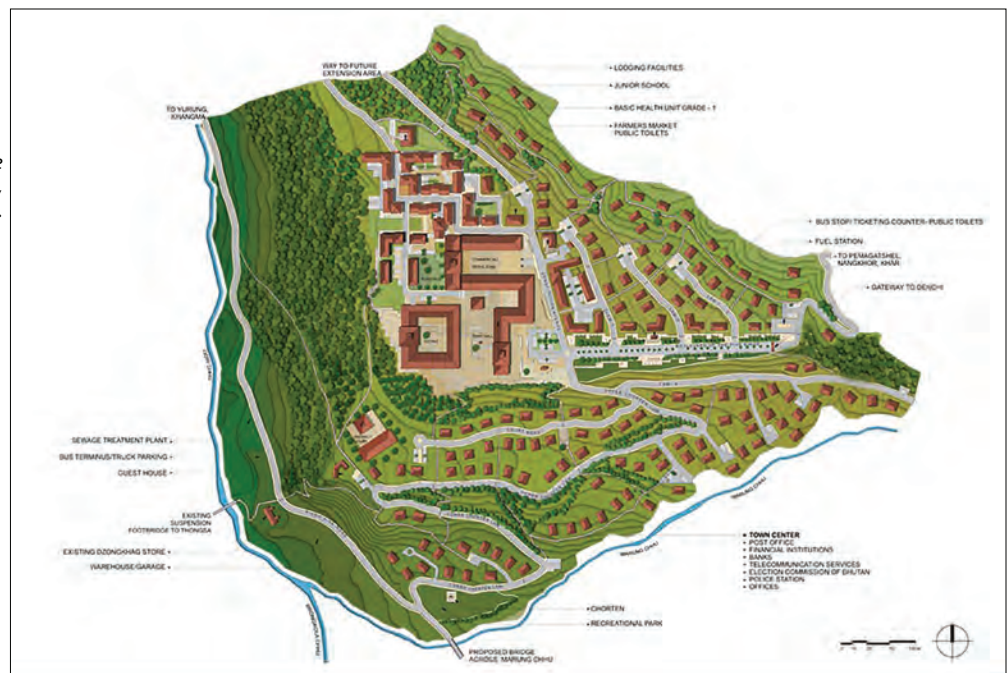
with an administrative *dzong*, was the governing factor for the initiation of the plan and would drive expected future growth. Thus, it was a mandate for the new town to provide space to build apartment buildings for more than two hundred families, cottage plots for another one hundred and fifty families, a health centre, a secondary school, lower schools, a town hall, a district court, a shopping centre, a fuel centre and an administrative centre to be housed in a new *dzong*. Offices for private businesses were to be provided in the town centre.

The physical planning challenge lay in creating accessibility throughout a small site of forty-six hectares whose elevation descended one hundred and eighty metres across that short distance. Another twenty hectares were reserved for future town extension. The site lay nine hundred metres above sea level, or about six hundred metres below the present Pemagatshel administrative facilities, making it warmer and less expensive to heat in the winter.

The major components of the new town were its road system, storm drainage, street lightening, sewerage management and water supply infrastructure; the administrative centre or *dzong*; the central market and commercial offices; the high density apartments, health care centre and school; the high court; plotted development for cottages; and a lower-level road along the river for workshops, auto repairs; storage and small scale industries.

It was envisioned that local masons and woodworkers, employing local materials and techniques, would build the town's infrastructure. Accordingly, the imagery of the town was created around traditional Bhutanese themes of built form and iconographic imagery.

Figure 5: The town centre and administrative area, Denchi New Town.





Strategies for District Capitals

Early in 2003, the Prime Minister of Bhutan informed me of the Royal Government's decision to urgently develop three of the nation's district capitals into unique growth centres that would help jump-start the nation's economy. With a rising number of graduates, there were higher demands for employment in managerial and technical positions. Manual labour was in short supply. Unless new jobs could be created, the spectre of unemployed youth would emerge in an aspirational society, fueled by its opening to the World Wide Web, mobiles and multi-channel television. Students were going to India to study in hundreds and subsequently in thousands. Could they not study in Bhutan itself? Where would they work? Could a modern society gain a right livelihood from a subsistence agriculture base?

The Cabinet emphasized the opportunities to harness Bhutan's cheap electricity, abundant raw materials like bauxite and timber, combined with inexpensive Indian labour just over the border. This combination offered a magical opportunity for young Bhutanese entrepreneurs, managers and technicians. They could create and operate a new industrial belt bordering India if the settlements along that zone had industrial parks, communications and the social services to support them. A Bhutanese dream of a better life was emerging, and redeveloped towns offered a golden opportunity to realize that dream and decentralize growth from Thimphu.

Three towns were selected, including Samtse and Gelephu whose municipal boundaries shared borders with India. These could become centres of industries and exports. Damphu, the capital of Tsirang District, was chosen to become a Knowledge City, as it was at a moderate elevation, suitable for year-round operations, and was more central to the nation's population. It was also close enough to India to develop as a tourist retreat during summers, due to its mild climate and green forests.

Figure 6 to 9: Views of the town centre and administrative area, Denchi New Town.



The planning approaches gleaned lessons from Thimphu. A structure plan was prepared for each settlement, with the non-negotiable trunk infrastructure, ecologically fragile areas and heritage sites protected and integrated. Local area plans were prepared, applying land pooling and public participation. Unique precincts were identified, and urban villages became the basic socio-economic planning units, assuring that all urban necessities were within walking distance, including an express bus stop. In each case, efforts were made to direct traffic around the settlements, via bypasses. Most of all, each city plan kept balance with nature and with tradition as the pillars of development. The ten Principles of Intelligent Urbanism (see Figure 1 above) were the underpinning value system upon which each plan was crafted.

Samtse: The Theme of Symbiotic Opportunities

Samtse represented the larger opportunities found in the small places scattered along the border with India. Accessible to Bhutan only via a road cutting across the northern plains of India, Samtse combined the resources of bauxite, cheap electric power and inexpensive labour within cycling distance across the border. An existing cement factory and established small-scale industries had set in motion an export-oriented economy. A pleasant small town had developed around a small central park, and serviced a lineal region spread to the west, running along the border with India.

The scenario threw up problems that could be easily solved, and the result would become a model for other towns. In this apparently simple conundrum lay the significance of the planning project itself.

First, the town needed basic public health infrastructure: potable water, storm drains, waste collection, and sewerage management; these were planned for. The town needed an orderly system of public roads, footpaths, drains, streetlights

and bus stops. The town also required an open space system with playgrounds, gardens and conservation areas; these were planned for. Additionally, a planned commercial core and residential neighborhoods with schools, clinics and amenities were essential. Most of all, the town needed an economic base from which to draw sustenance in the form of incomes and a municipal tax base. For this, a large area was delineated for industrial development, planned in a manner that allowed trucks with goods and buses carrying workers to come and go without entering the main town. This small town plan became a model for further urban development actions.

Gelephu: The Theme of an Economic Engine

Gelephu offered huge potentials and opportunities to develop the nation. Located on a large open plain between the Mao River to the east; the cliff-like edge of the Himalayan mountains to the north, curving around to the west; and the Indo-Bhutan border to the south; the city offered one of the flattest areas in the country for urban development. There was ample and willing labour just across the border and a major electric line carrying power towards India, with more to come! This augured well for the creation of a future city of industry. There was space for an airstrip aligned with the border, taking advantage of the no-build strip there, in the correct direction for aircraft movements. A broad gauge rail line in India could be extended up to Gelephu bringing in engineered goods for the country's infrastructure expansion, for its new power plants, and for exporting finished goods from Bhutan, employing cheap power, ample raw materials and Bhutan's young labour force.

The city could become the central gateway to the Kingdom, a large industrial centre, and a dry port, with rail connections south to Assam, Bangladesh and the Subcontinent. The plan envisioned a new town core and redevelopment of the old town core, linking the two with a major boulevard. A number of urban villages, each with its own village square, with an

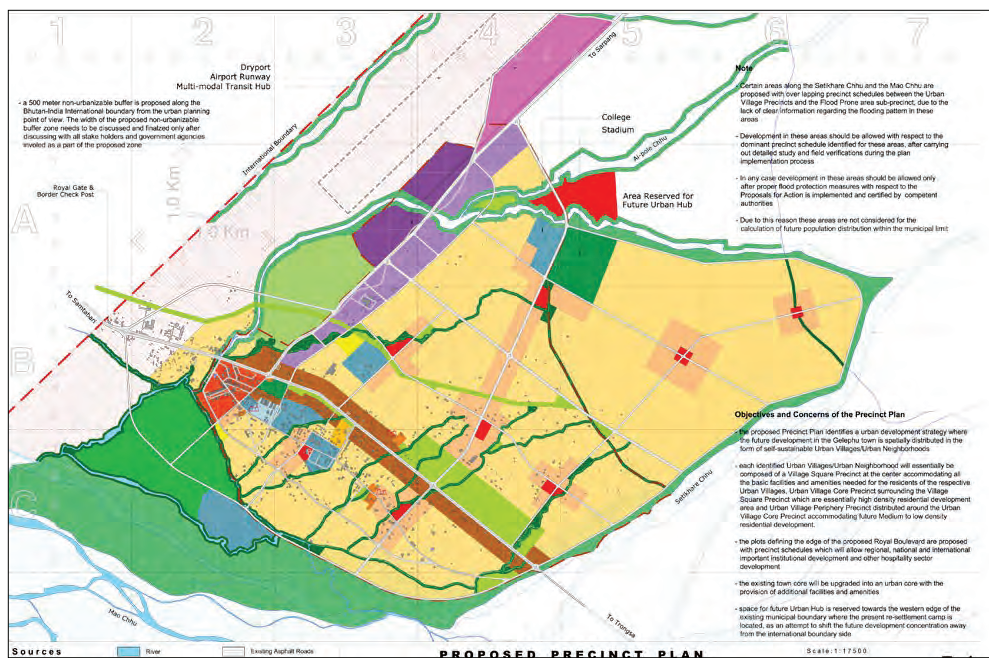


Figure 10: The master plan for Gelephu envisioned it to become a gateway to Bhutan from Assam, Bangladesh, and the Subcontinent.

express bus stop would link the new city into a hierarchy of open spaces, through connecting green corridors. A large industrial zone, running twenty kilometers to the west along the border was planned with a central transport hub managing immigration and welcoming visitors. This multi-modal hub would connect the airport lounges, the railway station hall, a bus terminus and a taxi stand, each on one of the sides of a central atrium with amenities and an interior garden.

The thrust of the city plan was to morph the local economy from one of consumption and service activities into one of the economic-base activities that would export value-added goods, catalyzing an inflow of capital to Bhutan. This was a large-scale vision requiring planning at the international, national, and the local level.

Damphu: The Theme of a Knowledge City

For some years the town of Damphu was accessible only by crossing the Indian plains from other southern Bhutanese settlements. With a new highway entering Damphu from the north, it became well connected to the capital and the central region of Bhutan. It had always been a centre of citrus cultivation and spices. In addition to which it boasted of higher literacy and educational achievements, and its salubrious climate augured well for residential schools and colleges.

The town was selected for three reasons: one, to improve the level of governance in the district by enhancing services and facilities in the centrally located capital; two, it could easily be developed into a tourist centre by the private sector; and, three the town could morph into a knowledge city with residential secondary schools, colleges, and even an International Centre of Himalayan Studies.

The new plan allocated land for a knowledge precinct and facilitated tourism through building control rules conducive to low-intensity development matching to the carrying capacity of the land. The plan also envisioned rerouting national traffic from the central core through a bypass and organizing the town's internal traffic patterns. New water and sewerage management systems were proposed and environmental management processes were put into place.

FOCUS 13

Peer-Reviewed



The Invisibility of Code Enforcement in Planning Praxis: The Case of Informal Housing in Southern California

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In this article, Jake Wegmann and Jonathan Pacheco Bell argue that more and better engagement with working class neighborhoods and communities of color are urgent imperatives for the planning profession. Drawing on a survey, interviews, and their professional experiences with the informal housing market in Southern California, they show that, although much of this work is managed by code enforcement officers, the planning profession largely holds code enforcement at arms' length. Wegmann and Bell show that ending the estrangement between code enforcement and planning would offer numerous benefits including inculcating cultural competence in planners, addressing vexing issues such as housing unaffordability, and creating better codes and policies.

More and better engagement with working class neighborhoods and communities of color are urgent imperatives for the planning profession as the United States transitions to a “majority minority” population. Code enforcement personnel are already doing much of this work, normally in a much more collaborative and less heavy-handed manner than the name of their profession would suggest. However, at present the planning profession largely holds code enforcement at arms’ length. Using the example of the informal housing market in Southern California—managed on a daily basis by code enforcement officers, yet largely unaddressed by planners—we draw on survey and interview data and our own professional experiences to make four propositions about code enforcement work. These are that code enforcement work is unusually cumbersome; it is chronically understaffed; its personnel cope by working reactively rather than proactively; and the profession suffers low prestige as a result. We argue that ending the estrangement between code enforcement and planning would offer numerous benefits to the latter, including inculcating cultural competence in planners through “learning by doing” and working at street level, and injecting sorely needed “community data” (Issac, 2013) into efforts to address vexing issues such as housing unaffordability.

Introduction

Recently a homeowner in Florence-Firestone, an unincorporated community about seven miles south of downtown Los Angeles, converted his garage into an apartment without proper permits. A short time later, he was paid a visit from a zoning inspector, who notified him that the county had received a report of an illegal garage conversion. He was then asked for per-

mission to inspect it. In some similar cases residents demand to know who complained (confidentiality requirements prevent disclosure); sometimes they bark “Get a warrant!” and slam the door shut; occasionally they become emotional. But as is most often the case, this homeowner simply cooperated and allowed access. The inspector then photographed the bedroom, kitchen, and bathroom built inside the garage. Having confirmed the violation, he explained how the unpermitted apartment violates zoning laws that require on-site covered parking, and building codes that prohibit living in an unauthorized dwelling without permitted gas, plumbing, and electrical service. After his visit, the inspector mailed a notice specifying each zoning code violation and a correction period. The notice also noted the consequences of noncompliance, which included hefty fines and a potential criminal case filing. As is typical, the homeowner complied and the case was eventually closed.

A similar scene plays out daily in cities and counties across California. Most jurisdictions employ code enforcement officers or building inspectors to perform this municipal enforcement function. But in this case in Florence-Firestone, the official making the inspection was a Los Angeles County urban planner.

Sometime in the 1970s, L.A. County transitioned to hiring planners to perform zoning code enforcement. The impetus for the change was the realization that planners possess a robust knowledge base in zoning, politics, socioeconomics, community development, and problem-solving, and that they would be well-positioned to educate community members about the complex permitting process. As a result, an L.A. County planner who begins her career in code enforcement develops strong community partnerships. She inevitably gains crucial aware-

ness of what is happening “on the ground,” leading to better understanding of which zoning codes and land use policies are working and which are not. Her *in situ* knowledge is eventually translated into new ordinances and policies. Communities also benefit from having these “embedded planners” who work closely with stakeholders on improving quality of life. But the planner-as-code enforcement inspector remains the exception to the rule. Things do not work this way in most California planning departments.

In general, the discipline of code enforcement is kept at arm’s length by the broader planning profession. In this article we argue that this constitutes a missed opportunity for the planning profession to “up its game.” This is particularly problematic in low-income neighborhoods and communities of color that are home to the nonwhite soon-to-be majority of the US population (and present-day California majority). To do so, we examine the issue of widespread informal housing in Southern California—one confronted daily at street level by code enforcement officers, but at present largely ignored by practicing planners.

Informal housing is an under-recognized and yet pervasive phenomenon in urban, suburban, and rural communities throughout Southern California. Although we firmly believe that unpermitted dwellings ought to be a matter of great concern to planners, at present this vast, officially “unaccounted for” housing market is largely managed by code enforcement officers. They are classic “street-level bureaucrats” (Lipsky, 1980) who must muddle through contradictory imperatives. On the one hand, they are expected to uphold the “letter of the law” of zoning ordinances and building codes, however profoundly out of step with daily lived reality. On the other hand, they are often called upon to avoid heavy-handedly trampling on the lives of community members, particularly those left with few other options in an unforgiving housing market.

And yet, as we will argue, code enforcement practitioners are largely shunned by the planning profession via both official policies that govern its institutions and by a set of widely held norms and beliefs. We believe this to be a hindrance to the planning profession’s oft-professed aspiration to meaningfully engage with members of disenfranchised communities. It is a missed opportunity to gather what has been referred to previously in the pages of *Focus* as “community data” (Isaac, 2013). And it is a missed opportunity to deepen the training and subsequent effectiveness of planners who are beginning their careers.

The rest of this article unfolds as follows. First, we briefly summarize past research that documents the chronically tight housing market conditions of Southern California, and the informal housing market that has sprung up as a result. We then give an overview of the code enforcement profession in California. Next, we describe the empirical methods used in this paper, including a survey with responses from 114 Southern California code enforcement officers. The heart of the article

recounts four propositions gleaned from these methods. Building on the propositions, we then describe several specific ways in which the planning discipline as practiced in Southern California holds itself at arm’s length from the code enforcement profession. These include exclusion from professional certification; a lack of coverage in academic curricula; and a pervasive disdain for street-level problem-solving work, in contrast with the valorization of more abstract analysis. We close with a brief set of recommendations on how the planning profession could narrow the divide that presently separates it from code enforcement.

A chronically tight housing market and informal housing in Southern California

It will come as no surprise to *Focus* readers that high housing costs are a longstanding and still intensifying concern in California. While statewide house prices were just 30% above the nationwide average in 1970, by 2015 they were 150% higher (California Legislative Analyst, 2015: 3). Average monthly rent is 50% higher in California than in the United States as a whole (*ibid*). Real incomes have increased nowhere near fast enough to avoid escalating housing cost burdens on the typical household. Meanwhile, rates of housing construction have plummeted since the 1970s, particularly in coastal areas (California Legislative Analyst, 2015: 11).

What is much less well understood is that one of the ways Californians have coped with the collision of these forces has been the growth of informal housing. Informal housing exists outside the law by virtue of its noncompliance with zoning regulations and other laws. It is a phenomenon that has long been intensively studied in various settings, but has been largely associated with the developing world (Arnott, 2009). Recent research, including by the present authors, has begun to identify and describe informal housing processes underway today in the United States, particularly in Los Angeles (Mukhija, 2014; Bell, 2014; Wegmann, 2015).

Informal housing in Southern California looks nothing like, for instance, the *colonias populares* of nearby Mexico or the *chawls* of faraway India. Part of the reason is that rather than being situated in contiguous communities, informal housing Southern California-style is most typically grafted onto neighborhoods originally subdivided as new suburban communities, where it assumes a variety of physical forms (Figure 1). These informal dwellings are all built without official permission or the benefit of inspection during and following construction.

Overview of code enforcement

Efforts by governmental authorities to regulate noncompliant land uses have a deep history. Enforcement has existed in some form since the early days of cities (Sanderson, 1969; Underwood et al, 2012). Legal remedies against nuisance properties date back to English common law (Editors of



Figure 1: Common types of informal dwellings in Greater Los Angeles: 1) garages retrofitted to house people rather than cars; 2) garden sheds converted to rental apartments; 3) recreational vehicles parked in driveways and yard areas used as permanent housing and connected to water and sewer lines; 4) travel trailers used for housing; 5) single-family houses subdivided into multiple units; and 6) freestanding dwellings added to backyards. Photos by Jonathan Pacheco Bell (1 to 4) and Erika Pinto (5 & 6).

Fordham Law Review, 1961). These mechanisms serve as the foundation on which modern-day code enforcement is based.

In the US, rapid urbanization in the decades after the Civil War accelerated the need to enact nuisance, building, zoning, and health laws aimed at maintaining order and public safety. For instance, in 1904, the City of Los Angeles adopted a “districting” ordinance that excluded laundries and washhouses from three newly created districts. Four years later, the city used this ordinance to create six new residence districts that prohibited numerous manufacturing businesses (Whittemore, 2010).

Notwithstanding these beginnings, municipal code enforcement in the US developed in earnest during the post-war period, a time of population increases and city development in many places, including Greater Los Angeles. “The construction boom that followed World War II caused a rapid expansion of the big city code enforcement agencies and the creation of many new agencies in the suburbs and smaller cities” (Sanderson, 1969: 185). In the 1960s, code enforcement was retooled as a mechanism for slum clearance in service of “urban renewal” in Los Angeles and other American cities (Greer, 1965; Marco and Mancino, 1969).

Today, every California city and county has a regulatory department responsible for enforcing local codes and ordinances. Department names range from Code Enforcement or Zoning Enforcement, to Code Compliance, to Neighborhood and Community Preservation. The variation in nomenclature reflects the different roles and expectations of code enforcement agencies within their respective jurisdictions. Increasingly, code enforcement officers are expected to solve the myriad violations constituents report to government, from unlicensed home businesses, to improperly drained pool water, to unpermitted garage conversions and much more (Moore, 2007: 11).

Methodology

Our arguments presented in this article rest on a three-legged methodological stool. The first is a *Code Enforcement Officer Survey (“the Survey”)*, administered in the winter of 2013. Responses to a Web-driven survey instrument were solicited from code enforcement professionals working at least partially at street level (i.e., excluding those solely in a supervisory role) from all 205 incorporated and unincorporated local governments in the five counties including and surrounding Los Angeles, plus San Diego County. Responses were first requested from a notice placed on the California Association of Code Enforcement Officers (CACEO) listserv. Next, emails were sent to every e-mail address for code enforcement officers listed online. Finally, postcards were mailed to every community from which at least one response had not already been received. The postcard mailings were repeated two additional times for communities whose officers had not provided at least one response. These efforts yielded a total of 114 individual responses representing 79 distinct incorporated and unincorporated

jurisdictions. The Survey asked respondents to estimate the prevalence of unpermitted housing in the jurisdictions where they were employed, to answer questions about their workload, and to assess whether political interference, bureaucratic obstacles or other factors hindered their work.

Our second method is *interviews with code enforcement professionals*. These occurred in two ways: first, the Survey invited respondents to provide further open-ended written commentary. The other was six in-person and telephone interviews conducted from the fall of 2012 to the spring of 2013 with code enforcement officers—in some cases singly and in others with groups—working in various communities in Los Angeles and Orange Counties. Some of these involved “ride alongs,” which entailed one of us (Wegmann) riding in a car with one or more code enforcement officers in the communities where they worked and attempting to understand the realities of their jobs.

Our third method is *direct and participant observation*. One of us (Bell) has worked full-time as a planner and zoning enforcement inspector for Los Angeles County since 2006. The other (Wegmann) monitored email communications among code enforcement professionals on the CACEO listserv for over a year.

How code enforcement officers cope with the informal housing market in Southern California

In this section, we rely on our findings from the three methods discussed above to put forth four propositions. Each of them concerns how code enforcement officers in Southern California navigate the complexities of their unintended roles as regulators of the informal housing market. The propositions build upon each other in sequence, culminating in the final one which helps explain code enforcement’s estrangement from the planning profession.

Before we present the four propositions, a cautionary note is in order. The propositions constitute our best interpretation of the “big picture” emerging from the totality of our survey and interview results and, perhaps most importantly, professional experiences (in the case of coauthor Bell). Competing explanations for our results, or similar empirical findings from elsewhere, deserve further exploration. Given that code enforcement is so under-researched in the planning field, the emergence of critical perspectives, even those contrary to our own, would indicate an across-the-board increase in interest in this topic, and in our opinion would only be a positive outcome. Bearing in mind these caveats, we now proceed with four propositions that sum up the relationship between code enforcement and planning in Southern California as we see it.

Proposition #1: Code enforcement work is unavoidably painstaking and cumbersome.

To complain that one’s work is difficult and time-consuming is likely universal, and there is no shortage of such complaints from professional planners. However, there are a number of

structural factors, which we believe are poorly understood, that must be pointed out to someone who wonders why code enforcement officers cannot always “just enforce the law.”

The first is that *code enforcement work mostly takes place on private property*. This contrasts with police work, where suspects are often contacted while in the public realm. In code enforcement, most cases concern people occupying private spaces to which they have ownership or at least access. Gaining entry to private property without the occupants’ consent in cases where there is no imminent threat to health and safety requires an inspection warrant from a judge. This is a time- and paperwork-intensive procedure. It is certainly true that code enforcement officers can often detect a potential code violation on the basis of what they can see from the public street, such as a garage that appears to be inhabited. However, in most instances investigating that suspected condition (deriving, for instance, from a complaint from a neighbor) requires gaining admittance to the interior of a private residence.

What is more, code enforcement officers must abide by the legal concept of *the expectation of privacy*. This means that they cannot act on conditions that they see if in order to observe them they had to use vantage points considered intrusive. For example, if a code enforcement officer were to visually gather evidence of an improperly inhabited garage by peering over a fence while standing on a milk carton in a neighboring yard, a judge would rule that the officer had violated the suspected homeowner’s expectation of privacy. Any photographic evidence would be inadmissible. This would result in the judge refusing to grant a warrant to enter the offending property, thus preventing the officer from acting on her hunch. For similar reasons, code enforcement officers cannot rely solely on satellite imagery from widely available sources like Google Maps as a legal basis for initiating an enforcement action. This is true even if unpermitted conditions are obvious when seen using such tools.

As in our opening anecdote, most homeowners willingly grant access to their properties to code enforcement officers who request entry. However, a sufficiently determined, hostile and empowered homeowner can greatly increase the time and difficulty of an enforcement action brought by a code enforcement officer. One of the side effects of these dynamics, in addition to increasing the burden on code enforcement officers and their departments, is that a large share of the unpermitted buildings and occupancy conditions on private residential properties remain out of view as seen from the public street.

In addition, a code enforcement officer’s ability to take action against a noncompliant homeowner is constrained by the need to follow sometimes onerous procedures. A quote from an L.A. County zoning enforcement inspector about the sequence of steps he follows when taking action on an unpermitted dwelling on a residential property makes this clear:

We send a first NOV [Notice of Violation] typically giving 30 days to abate [i.e., for the homeowner to remove

the unauthorized unit.] Next we send a certified Final Order giving 15 days to abate plus an additional 15 day appeal period. Now the violation has continued [past the original 30 day notice period] for 30+ days. We continue to do rechecks and if the “vios” [violations] remain, we send a certified Noncompliance Fee notice giving 15 days to pay [the] \$704 fee. By the way, anytime a certified notice is returned undelivered we have to recreate it and post it at the property. More time drag. Now the case has been open for 45+ days. Whether or not they [the homeowners] pay, they still have to abate, and if they don’t we send a DA [District Attorney] referral notice. But now we have to write a lengthy report to the DA and include all the evidence, all the while trying to juggle new complaints, other cases, and the multitude of other planning projects we handle. So cases can drag on because violators don’t see swift action from [the code enforcement department]. These protocols are built into the zoning code so, we have no choice but to follow. Violators have the advantage.

Proposition #2: Code enforcement departments, particularly in low-income jurisdictions, tend to be chronically understaffed in relation to the volume of cases.

As shown in Table 1, by far the leading reason (cited by 81% of the respondents to this question) for a shortfall in enforcement as perceived by the code enforcement officers responding to the Survey was a lack of staff capacity. A related theme that emerged from the interviews was that code enforcement officers are faced with far more zoning code violations, especially comparatively major ones such as garage conversions than they can possibly address. This is particularly true in low-income areas. Unsurprisingly, all of the factors discussed under Proposition #1 above contribute to this reality. These could be termed the “supply side” of what one might call the code

Table 1: Reasons there is less code enforcement activity than respondent would prefer (percentage of respondents reporting), n=53

Lack of staff capacity	81%
Pressure from elected officials or their staff	30%
Pressure from department leader	13%
Prefer not to say	8%
Pressure from staff from other departments	2%
Other	25%

The reasons cited by Code Enforcement Survey respondents for why there is less code enforcement activity in their department than they would prefer. Only respondents who had previously indicated that they would prefer to see more enforcement activity in the jurisdiction for which they work were posed this question. Respondents could select multiple answers, which explains why the responses do not add up to 100%.

enforcement gap. The gap arises because the “supply” of code enforcement capacity is greatly exceeded by the “demand” by local residents for enforcement cases to be opened. But the demand side of the gap is equally formidable, especially within low-income jurisdictions. This is borne out by our data.

In the Survey, there were three questions in which respondents were asked to estimate the percentage of 1-4 unit properties in their territories for which: i) at least one unauthorized dwelling unit is present; ii) overcrowding, as defined by any applicable local ordinance or state or federal law, occurs; and iii) non-compliant conditions of any sort are present. In Figure 2 the mean percentage of noncompliance estimates are shown according to the median family income (MFI) quintile of the city or unincorporated area covered by the respondent.¹ For all three questions, responses were well distributed among the five income quintiles.²

The results shown in Figure 2 show a clear trend. They are derived from estimates reported by code enforcement officers, and thus should be interpreted with due caution. Nevertheless, there is a striking downward trend in property non-compliance, measured in the three different ways, with increasing jurisdiction median family income.

The prevalence rates for unpermitted units, as well as other non code-compliant conditions, are very high in relation to the staffing levels that would be needed to address most of them through enforcement. Two survey questions sought to gauge this code enforcement gap. When asked what percentage of non-code compliant (for any reason) 1-4 unit properties they had addressed in any way in the last 30 days, the respondents (n=73) reported an average of 38%. This percentage varied relatively little according to the income quintile of the jurisdiction. This suggests that the typical code enforcement officer has, at any given time, a backlog of just under two open cases concerning 1-4 unit residential properties for every one that she is actively pursuing in some way. Of course, this result tells us little about how large the officer’s actual backlog is in relation to the potential number of cases. As will become

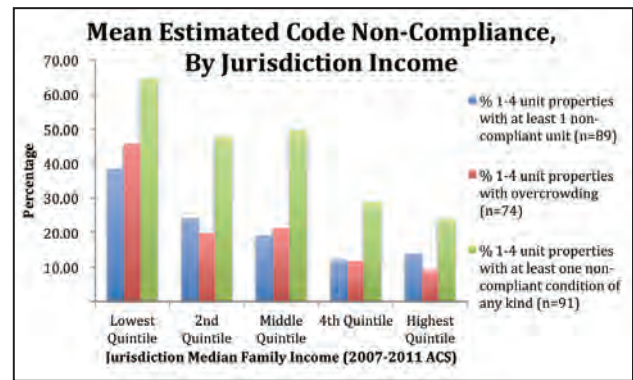


Figure 2: Percentages of residential (1-4 unit) properties estimated to have various non-code compliant conditions, as reported by respondents to the Code Enforcement Survey. Percentages are grouped according to the median family income quintile of the jurisdiction for which the respondent works. Multiple responses from the same jurisdiction are averaged together.

clear in our discussion of Proposition #3, the vast majority of potential enforcement cases never gain the attention of the local code enforcement department.

Proposition #3: Most code enforcement departments cope with high caseloads and low staffing by enforcing reactively rather than proactively.

All of the code enforcement officers interviewed, in addition to a great many of the Survey respondents providing written comments, highlighted the distinction between “proactive” and “reactive” code enforcement. In proactive enforcement, code enforcement officers drive on pre-determined routes and visually inspect properties from the public street to look for clues of violations. If any are found that are sufficiently apparent, officers open cases and pursue enforcement action. By contrast, reactive enforcement entails investigating complaints that are made by members of the public and other agencies, typically on anonymous telephone tip lines.

Most code enforcement officers tend to view proactive enforcement as an ideal state, and reactive enforcement as a lamentable concession to the nature of their work. For instance, one anonymous survey respondent from a city in San Diego County, when asked why his/her³ department is not able to achieve as much enforcement activity as he/she would prefer, stated that it is “mostly because we are not proactive in our approach to code enforcement. For example, in driving around the city I can see garage conversions on virtually every residential block. But if we do not receive a complaint we do not pursue it.”

The contrast between proactive and reactive code enforcement approaches is suggestive of the distinction Wilson (1978) made

¹ While it was straightforward to look up the median family income for incorporated cities in the 2007-2011 American Community Survey, assigning median family incomes (MFIs) to unincorporated areas covered was less straightforward. To do so, we relied on responses to a question in which we asked survey respondents what their territory was. From this, we assigned officers to Census-Designated Places (CDPs, or unincorporated communities) and then calculated an overall MFI as the population-weighted average of the MFIs for the CDPs covered by the officer. Where we could not reconstruct the officer’s territory, we used the overall MFI for the entire unincorporated area of the county.

² Response rates were relatively robust, though somewhat depressed for the question about overcrowding (with 74 responses compared to 89 and 91 for the other two questions). Written feedback from survey respondents suggests that this is because many jurisdictions have no specific definition or standards for what constitutes excessive occupancy of a residential space.

³ The respondent’s actual gender is unknown.

between law enforcement and order maintenance in police work. The first is concerned with, to the extent possible, enforcing the laws on the books. The latter is instead concerned with maintaining order and resolving disputes in the community, even at the cost of overlooking a multitude of infractions.

In his in-depth research on 1960s-era police departments throughout the US, Wilson (*ibid*) identified three styles of police department management: the watchman style, which emphasizes order maintenance; the legalistic style, in which strict law enforcement is the aspiration; and the service style, in which police intervene frequently but often not formally. Because code enforcement officers have relatively little ability to intervene in disputes in real time, the service style is not a viable option. Thus, the watchman and legalistic styles, representing reactive and proactive enforcement, respectively, are the main poles in code enforcement work.

The legalistic, or proactive, style of code enforcement appears to be more common in communities that are affluent, or that at least have high homeownership rates. In communities in the midst of a dramatic rise in the prevalence of unpermitted units and other non-code compliant conditions, the continued application of the legalistic style leads to extreme political tensions, disruption of neighborhoods, an erosion of trust among neighbors and between citizens and their elected officials, and widespread frustration over the ineffectuality of crackdowns. More commonly, in some cases following a period of turmoil, the watchman or reactive style is the path of political least resistance for elected officials.

Where code enforcement is reactive, complaints become a vehicle through which code enforcement officers paradoxically uphold the norms of the underground housing market. This is how code enforcement officers are thrust into the somewhat strange position of essentially managing the local informal housing market they are officially charged with suppressing. In interviews and in our professional work we have frequently encountered disgruntled tenants. Some are dissatisfied with the condition of their unpermitted dwelling, and others are in conflict with the landlord over payment terms. The result can be anonymous calls to tip lines knowing full well that enforcement could lead to the tenant's dwelling—and with it a portion of the landlord's livelihood—being dismantled.

In the absence of recourse to the dispute-resolution mechanisms that exist in the formal housing market, anonymous complaints are one of the few ways for community members to police the behavior of their neighbors who are acting as off-the-books landlords. By helping discourage extreme behavior, complaints ironically help perpetuate and legitimize the informal housing market. They do so via appeals to those who are officially devoted to shutting it down altogether, but who in reality simply manage it as best as they can.

Proposition #4: The code enforcement profession suffers from low visibility and prestige.

A consistent theme repeated by interviewed code enforcement officers was the relatively low public profile and prestige of the profession when compared to other professions, such as planning and particularly police work. A building inspector working for a predominantly working class city in Orange County noted that recruitment for code enforcement work can be difficult. This is particularly so since City Council members and others frequently criticize enforcement officers for being too strict or too lenient. Too much enforcement and officers are accused of being overly punitive and out of step with community norms. Too little, and they are accused of being insufficiently diligent and of allowing poor neighborhood conditions to fester. A quote anonymously received via the Survey from an officer employed by a blue-collar city in Los Angeles County is revealing:

This profession is highly political. I wish that I could speak to you more openly, but we have been hit hard with layoffs and do not enjoy the same prestige or value that public safety has. We are at-will employees that must always remember that when carrying out our jobs. The general public does not understand that we ARE public safety as well. We enforce building codes, fire codes, health codes and are the only department that handles quality of life issues. We must always be aware of our public image, sometimes deal with the media, deal with irate citizens and inspect potentially dangerous properties alone. We do not receive the same training as public safety does.

As both a consequence and a cause of the low visibility of code enforcement, it is placed within highly varying institutional structures in Southern California cities and counties. As can be seen in Table 2, a summary of the types of departments in which respondents to the Survey worked, there is no

Table 2: Number of survey responses by type of department containing code enforcement functions in jurisdiction (n=98)

Building	5%
Development Services	8%
Economic/Community Development	40%
Housing	1%
Housing and Neighborhood Development	1%
Planning	28%
Public Safety	4%
Public Services	2%
Public Works	3%
Quality of Life	6%
Resource Management	2%
Total	100%

The wide distribution of types of city or county departments housing code enforcement functions among Code Enforcement Survey responses. Note that separate responses received from more than one officer working for the same jurisdiction are only counted once in this table.

consistency about where code enforcement fits within a municipal government.

While such institutional flexibility allows code enforcement to be tailored to the individual character of a given city or county, it also contributes to an amorphous character to the profession. In strong contrast to a police, or even a planning, department, the mission and *raison d'être* of code enforcement are poorly defined.

One consequence of the low-visibility, low-profile nature of the code enforcement profession is political interference in its work. An officer who formerly worked for a city in Southeast Los Angeles County noted that politicians interfere with code enforcement work to a far greater extent than they do with the police, whose independence from city politics tends to be insisted upon by voters. An attorney specializing in code enforcement work stated that a jurisdiction's enforcement approach depends on a great deal on its political "temperament." In other words, the code enforcement profession appears to be seldom insulated from the political priorities of local elected officials. Public safety functions such as fire and police departments, while not immune from political interference, are likely to be more protected as a result of their greater levels of prestige among the general public.

Political interference appears to be quite common based on results from the Survey. Of 108 responses received from identifiable Southern California jurisdictions, 97 respondents answered a question about whether or not they would prefer for there to be more, less, or the same volume of enforcement activity taking place in their jurisdiction. Of the 97, 43% thought that current levels of enforcement were "about right," a majority of 55% thought that there should be more, and only 2% thought that there should be less. The 55% who thought that there should be more enforcement were then asked why there is not more: among these, the second and third most commonly stated reasons were pressure from elected officials and their staff (30%) and pressure from the leadership of the respondent's own department (13%) (shown earlier in Table 1). Thus, while it cannot be said that political interference is ubiquitous in Southern California, it certainly appears to be common.

Institutionally-specific ways that planning shuns code enforcement

In the introduction, we argued that through policies, norms and practices, the planning profession in Southern California deliberately keeps code enforcement at arm's length. Below, we highlight the ways this separation is maintained. The examples are drawn from our experiences working in and researching code enforcement in the Greater Los Angeles region.

AICP membership denial

The American Planning Association (APA) offers an optional

certification through the American Institute of Certified Planners (AICP). Earning membership in this professional credential program conveys a level of prestige and competency upon the practicing planner. Years of professional planning experience coupled with planning education must be demonstrated in the AICP application's screening essays before one can sit for the exam. In 2008, a planner in the Zoning Enforcement section at L.A. County's Department of Regional Planning applied to take the AICP exam but was denied. The applicant possessed a graduate degree in planning and over two years of professional planning experience enforcing L.A. County's zoning code. The applicant described his professional planning experience in the screening essays, and the responses focused on enforcement as code and plan implementation. He did not anticipate difficulties since his combined educational and professional experience seemed to exceed the minimum standards. But AICP evaluators disagreed, determining that work in Zoning Enforcement "does not constitute professional planning." The application denial letter went on to say:

While important, zoning enforcement officers do not take on the personal responsibility, initiative and judgment of professional planners. Zoning Enforcement does not lead to technical accomplishments such as new plans, developing new planning policy, drafting new codes or proactively developing new initiatives in anticipation of changing regional, community or neighborhood conditions. Zoning enforcement officers assist planners by enforcing what planners have implemented; they do not participate in the actual planning itself.⁴

Appeal letters from the applicant and County Planning Director were rejected.

Lack of code enforcement education in planning curriculum

Code enforcement is virtually non-existent in planning education in California.⁵ A review of course offerings in the five Los Angeles area universities that award planning degrees⁶ confirmed our colloquial knowledge from the field: municipal

⁴ *Contra* the AICP reviewer's argument, one of the co-authors of this paper (Bell) drew upon his zoning code enforcement experience to lead a comprehensive update to the L.A. County yard sale ordinance in 2015. The "on the ground" knowledge of the County's extensive yard sale problem enabled the development of an enforceable ordinance that balanced the competing interests of yard sale vendors, "brick and mortar" businesses, and community members.

⁵ One recent and commendable exception is UCLA professor Vinit Mukhija's "Informal City" seminar. One of us (Bell) recently delivered a lecture on informal housing for this class. See Week 7 of the Spring 2016 syllabus: <http://164.67.121.27/files/UP/Syllabi/S16/219S16%20Mukhija.pdf>

⁶ We reviewed online course descriptions at the following five planning programs in the Greater Los Angeles region: University of California, Los Angeles; University of Southern California; University of California, Irvine; California State Polytechnic University, Pomona; and California State University, Northridge.

code enforcement is rarely if ever discussed in the classroom of planners-in-training. This is standard practice in planning education despite the fact that the all-important value of “implementation” is, we believe, synonymous with “enforcement.” Individuals interested in learning about code enforcement⁷ and code administration⁸ would have to pursue such education in non-planning programs at a handful of California community colleges⁹ and state universities around the US. Otherwise, the code enforcement function appears to be a topic anathema to planning curriculums.

Street-level problem-solving work of code enforcement is considered “beneath” the work of desk-bound, office based (Ivory tower-like) planners

One of the authors (Bell) has personally witnessed dismissive attitudes towards code enforcement in the municipal workplace, at APA conferences, and during planning school-sponsored events, among other settings. Planning practitioners have scoffed at the idea of a planner doing zoning code enforcement. “I didn’t go to planning school to do THAT,” is their common refrain. A common perception is that “real” planning work entails doing analysis, thinking, dreaming, writing, map-making, communicating, advocating, and reviewing and stamping plans—all activities conducted indoors. Fieldwork is often taken to mean visiting a project site or attending a community meeting but not knocking on a homeowner’s door to ask about an unpermitted conversion of a garage into an apartment. In spite of a still-recovering economy, planning school graduates have balked at the idea of working in a code enforcement role. Some candidates turned down job offers at L.A. County upon learning their assignment would be in the enforcement section.

Conclusion

As the United States transitions towards becoming a majority-minority society—a milestone that arrived decades ago in Southern California—meaningful engagement with communities of color to address pressing issues such as unaffordable housing becomes more essential each year. Within the planning profession, innovative approaches, such as James Rojas’ technique of collaborative community visioning via the playful usage of everyday objects, are emerging but many more are needed (Main, 2012). We have argued that one of these could be a rapprochement between planning and code enforcement.

On its face, given that code enforcement by its very name suggests a heavy-handed governmental body imposing its

will on a community, our suggestion might initially seem odd. However, as we have described in this article, code enforcement as it is actually practiced in Southern California usually differs greatly from police work, and resembles much more a praxis of community problem solving, however constrained by laws, local politics, and limited resources.

“[H]istorically, code enforcement has been the planning profession’s unwanted step-child” (Fulton & Shigley, 2012, pp. 160). Yet, the code enforcement profession has a lot to contribute to the planning profession, much of which the latter desperately needs. This includes an ethic of learning by doing rather than simply analyzing data. As an inevitable byproduct, this entails gaining a much-needed street-level feel for neighborhoods and for the people who live in them. This “embedded governance” helps code enforcement officers—and potentially planners—overcome their lack of cultural competency in the communities where they work. This is particularly vital for those who are from middle class or affluent backgrounds and who are working in and on behalf of working-class neighborhoods and communities of color with which they are personally unfamiliar.

A link to the code enforcement profession could also help planners create better codes and policies. The informal housing market provides a perfect example: when a city is contemplating updating a zoning ordinance, the question of whether and how enforcement will occur should be considered from the beginning of the process rather than following its passage. New policies that have never been considered, such as code revisions, graduated permitting, homeowner improvement loans, and others, may surface when code enforcement officers with access to “community data” are at the table (Isaac, 2013).

All of these potential benefits are already latent in code enforcement work occurring on a daily basis in Southern California and beyond. To realize them, the planning profession needs to take the first step of casting aside its collective stigma towards code enforcement work.

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⁷ See: <http://www.iccsafe.org/Education/Documents/InspectionPrograms.pdf>

⁸ See: <http://www.iccsafe.org/Education/Documents/AdminPrograms.pdf>

⁹ See: <http://www.sccollege.edu/Departments/CareerEd/CodeEnforcement/Pages/default.aspx>

References

- Arnott, R. (2009). Housing Policy in Developing Countries: The Importance of the Informal Economy. In Michael Spence, Patricia Clarke Annez, Robert M. Buckley (eds.) *Urbanization and Growth*. Washington, DC: World Bank, pp. 167-196.
- Bell, J. P. (2014). Response to Comments: The Informal Housing Debate Remains Open. *UrbDeZine*. URL: <http://losangeles.urbdezine.com/2014/11/12/response-to-comments-the-informal-housing-debate-remains-open/>
- California Legislative Analyst's Office. (2015, March 17). *California's High Housing Costs: Causes and Consequences*. URL: <http://www.lao.ca.gov/reports/2015/finance/housing-costs/housing-costs.pdf>
- Editors of Fordham Law Review. (1961). Zoning and the Law of Nuisance. 1961. *Fordham Law Review* Vol 29, pp. 749 - 756.
- Fulton, W. & Shigley, P. (2012). *Guide to California Planning* (4th ed.). Point Area, Calif.: Solano Press Books.
- Greer, Scott A. 1965. *Urban Renewal and American Cities: The Dilemma of Democratic Intervention*. Indianapolis: Bobbs-Merrill.
- Isaac, C. B. (2013). Ethics of Navigating Complex Communities. *Focus* Vol. 10, Issue 1, Article 11.
- Lipsky, M. (1980). *Street-Level Bureaucracy*. New York: Russell Sage Foundation.
- Main, K. (2012). Outreach in Diverse Communities: A Conversation with James Rojas. *Focus*, Vol. 9, Issue 1, Article 11.
- Marco, R. J. & Mancino, J. P. (1969). Housing Code Enforcement: A New Approach. *Clev.-Marshall Law Review* 18, pp. 368 - 383.
- Moore, S. (2007). *The Code Enforcement Survivor Handbook: Some Basic Information to Help You Survive a Career in Code Enforcement*. Bloomington, IN: AuthorHouse.
- Mukhija, V. (2014). Outlaw In-Laws: Informal Second Units and the Stealth Reinvention of Single-Family Housing. In Vinit Mukhija and Anastasia Loukaitou-Sideris (eds) *The Informal American City: Beyond Taco Trucks and Day Labor (Urban and Industrial Environments)*. Cambridge, Mass.: MIT Press, pp. 39-58.
- Sanderson, R. L. (1969). *Codes and Code Administration: An Introduction to Building Regulations in the United States*. Chicago: Building Officials Conference of America.
- Underwood, L., Ramani, C., Bassi, P, King, B., Olk, J., Karimi, A., Burger, S., Dicine, J. R., Paarlberg, K., Naderi, H., & Watts, D. (2012). *Building Department Administration*, 4th ed. Country Club Hills, IL: International Code Council.
- Wegmann, J. (2015). Research Notes: The Hidden Cityscapes of Informal Housing In Suburban Los Angeles and the Paradox of Horizontal Density. *Buildings and Landscapes* 22(2), pp. 89-110.
- Whittemore, A. (2010). *The Regulated City*. PhD diss., University of California, Los Angeles.
- Wilson, J. Q. (1978). *Varieties of Police Behavior: The Management of Law and Order in Eight Communities*. Cambridge, Mass.: Harvard University Press.

The Connection Between Neighborhood Walkability and Life Longevity in a Midsized City

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Riggs and Gilderbloom discuss a study for Louisville, KY that confirms the relationship between walkability and health, offering lessons for similar urban areas. Investigating years of projected life lost as it relates to neighborhood walkability, they found that more walkable areas are predictors of longevity. The study suggests that the trend toward longer lifespan may be connected to gentrification-related displacement and racial homogenization in walkable neighborhoods. The findings can help shape urban design policies and interventions that support physical activity.

With a population in the United States exceeding 300 million, and 80 percent urbanized, the ‘complex web’ of causality between the urban environment and health is getting renewed interest (Corburn, 2005; Krieger, 1994). In recent years, many practitioners and researchers in planning and public health have sought to reinforce the synergies between the built environment and health outcomes. They have looked at large cities like Seattle, San Francisco and Minneapolis, suggesting that increased walkability, through greater urban density, land use variation and street grid connectivity, can help improve activity levels and address broader public health issues such as obesity.¹ Yet, there is little research on mid-sized cities—which face similar challenges but different urban dynamics.²

Research has shown that many of these mid-sized cities face similar issues related to the built environment travel and health, as they compete to maintain economic competitiveness and increase livability for residents.³ Mid-size city geographies and neighborhood characteristics differ from megacities (Appelbaum, 1978; Batty, 2013; Coulton, Korbin, Chan, & Su, 2001). Very little work has evaluated the relationship between the built

environment attributes that facilitate active travel and health. While some work has evaluated urban design and level-of-service indicators (Ameli, Hamidi, Garfinkel-Castro, & Ewing, 2015; Sahani & Bhuyan, 2014; Van Loon et al., 2013), none focuses on accessibility-based measures and quantifiable public health outcomes such as reduction in lifespan.

This study evaluates the connection between walkability and one of the most widely used public health indicators—estimating years of potential life lost (YPLL). This evaluation uses the case of Louisville, Kentucky—a mid-sized city with more far-reaching validity and normative policy outcomes than larger cities that have been the subject of prior work. The authors provide a brief review of the literature on the relationship between walkability and health, and discuss the data and methods, noting the unique attributes of neighborhoods in mid-sized cities. The analysis and discussion makes policy recommendations in the spirit of the new epistemology of public health and planning research (Corburn, 2007; Krieger & Higgins, 2002), which seeks to translate research into meaningful action.

Literature

Many studies suggest less walkable locations have less active residents who are obese, or have obesogenic trajectories.⁴ Despite this many neighborhoods have been designed for automobiles, with little connectivity, limiting the ease of moving via walking or cycling to schools, stores and workplaces.⁵ Research has confirmed these connections between built envi-

¹ See: Cao, 2014; Cervero & Kockelman, 1997; Cho & Rodríguez, 2015; Ewing & Cervero, 2010; Ewing & Cervero, 2001; Ewing, Hajrasouliha, Neckerman, Purciel-Hill, & Greene, 2015; Forsyth & Krizek, 2010; Forsyth, Oakes, Schmitz, & Hearst, 2007a; Frank, Andresen, & Schmid, 2004; Frumkin, Frank, & Jackson, 2004; Riggs, 2011; Riggs, 2016b; Smith et al., 2008.

² See: Appelbaum, Bigelow, Kramer, Molotch, & Relis, 1976; Bolton & Hildreth, 2013; Brewer & Grant, 2015; Burayidi, 2013; Hall & Pfeiffer, 2013.

³ See: Gilderbloom, Ambrosius, Squires, Hanka, & Kenitzer, 2012; Gilderbloom, Riggs, & Meares, 2014; Hummel, 2014; Martinez-Fernandez, Audirac, Fol, & Cunningham-Sabot, 2012; Riggs, 2014; Riggs & Gilderbloom, 2016.

⁴ See: Cao, 2015; Cho & Rodríguez, 2015; Ewing, Schmid, Killingsworth, Zlot, & Raudenbush, 2003; Frank et al., 2004; Kurka et al., 2015; Lovasi, Hutson, Guerra, & Neckerman, 2009; Riggs, 2014.

ronment attributes and active travel (Ewing & Cervero, 2010), and shown that increased time in cars and decreased walking can lead to increased probability of hypertension, obesity and race-related health disparities.⁶

There is now consensus in the medical community that being overweight and obese increases the risk of high blood pressure, high cholesterol, heart disease, stroke, certain types of cancer, gall-bladder and respiratory disease, joint and bone disease and many other afflictions, including diabetes (Avenell et al., 2004; Pi-Sunyer, 1993; Reilly & Kelly, 2011; Withrow & Alter, 2011). Inactive lifestyles are associated with elevated risk of obesity and diabetes, showing that even light-to-moderate activity correlates with reduced risk of developing such conditions (Hu, Li, Colditz, Willett, & Manson, 2003; Thompson, Edelsberg, Colditz, Bird, & Oster, 1999). Compounding issues of obesity, less walkable locations have been associated with social isolation and disconnection—conditions likely to result in chronic mental or physical health conditions (Cerin, Leslie, & Owen, 2009; Cutts, Darby, Boone, & Brewis, 2009; Putnam, 2001; Sturm & Cohen, 2004). Much of this work looked at built-environment attributes correlated with such activity.

More recent work has documented revealed travel behavior and is beginning to suggest a stonger relationship (Carlson et al., 2015; Duncan, Cash, Horn, & Turkheimer, 2015). Obesity affects large portions of the US population regardless of socioeconomic status. However, public health studies connect socioeconomic and race to increased risk of obesity (Ellen, 2008; Ellen, Cutler, & Dickens, 2000; Ellen & Turner, 1997; Lovasi et al., 2009). These studies do not consider the growing issues of marginalization, disinvestment and displacement in many small and mid-sized urban communities, where the attributes correlated with walking and active travel are not present (Martinez-Fernandez et al., 2012; Vojnovic et al., 2014). Many cities experience pressures of dispersion as downtowns gentrify. This is a social justice issue that policy needs to address.⁷

This study hypothesizes that the walkable aspects of the built environment are significantly connected to population health, or years of potential life lost, in midsized cities. Thus, investing in walkable areas will promote both health and social justice. Equitable attention to neighborhood walkability has the potential to improve the duration and quality of life for residents of all races and socioeconomic groups. To test this hypothesis, the study uses the case of Louisville, Kentucky, a typical mid-sized city in the United States (US) that is semi

isolated and not located within another 90 miles of another mid-sized city of 50,000 or more and has been used many times to study modern neighborhood dynamics of a city.

The city of Louisville, Kentucky contains both walkable urban neighborhoods and less walkable suburban neighborhoods. The 170 Census Tracts in Louisville provide an excellent case study because of: 1) their translatable scale for other cities and geographies; 2) their stable and modest market dynamics; 3) the availability of high-quality data at the Census Tract level;⁸ and 4) the Tract level more accurately reflects the neighborhood scale in Louisville—an attribute has been shown to be similar in other mid-sized cities including Cleveland, Ohio, Jackson City, Mississippi, and Raleigh-Durham, North Carolina.⁹

These factors make the scale of Louisville large enough for a thorough assessment of urban trends, but small enough to comprehend. Louisville is one of 375 metropolitan areas identified by the U.S. Census and ranks as the 47th largest metropolitan area. Its population of roughly 741,000 spreads across 385 square miles along the Ohio River, in a simple, relatively mono-centric format, ringed by two freeways. It has one central business district (CBD), with approximately 52,000 jobs (13 percent of the total), forming an inner beltway with high density housing, an in-between area with smaller homes, and an outside beltway where there has been increased building of larger, more suburban homes (Ambrosius et al., 2010).

This urban / suburban dynamic is an important distinction to make because of the differences in physical form at the neighborhood level that might influence walking, as well as the underlying behavioral /driving habits for those who live outside of the CBD. Research has shown that areas of higher density may encourage more walking for transportation purposes; however, lower density areas offer more opportunities for leisure walking (Kang, Moudon, Hurvitz, & Saelens, 2015). Louisville provides a range of these neighborhood types, with a large variation in density and walkability—representative of trends in smaller and midsized cities versus a megalopolis such as New York, San Francisco, Chicago or Los Angeles.

Methods

Model & Data

From a methodological perspective this study uses a statistical model based on the ecological model framework that has been well-explored in the literature.¹⁰ This model takes into account intrapersonal characteristics within the context of the

⁵ See: Frank et al., 2006; Kurka et al., 2015; Renalds, Smith, & Hale, 2010; Riggs, 2011; Saelens & Handy, 2008; Sallis et al., 2009; Sallis, Frank, Saelens, & Kraft, 2004a.

⁶ See: Brulle & Pellow, 2006; Cerin & Leslie, 2008; Forsyth et al., 2007a; Gordon-Larsen, Nelson, Page, & Popkin, 2006; Macintyre, 1989; Sooman & Macintyre, 1995; Williams & Jackson, 2005.

⁷ See: Gilderbloom, Anaker, Squires, Hanka, & Ambrosius, 2011; Gilderbloom, 2015; Goetz & Chapple, 2010a, 2010b; Schafran, 2013; Zuk et al., 2015.

⁸ See: Ambrosius et al., 2010; Appelbaum, 1978; Appelbaum et al., 1976; Hanka et al., 2015; Molotch, 1976.

⁹ See: Coulton et al., 2001; Coulton & Pandey, 1991; Morland, Wing, Diez Roux, & Poole, 2002.

¹⁰ See: Giles-Corti, Timperio, Bull, & Pikora, 2005; Sallis et al., 2006; Sallis et al., 2008; Sallis & Owen, 2015.

neighborhood and policy environments, as shown in Figure 1. This focuses on the intrapersonal and neighborhood factors. Beginning with intrapersonal factors, the associated variables are rotated in to multiple regression models to analyze the correlation between walkability (the dependent variable in most cases), years of potential life lost (YPLL) and other controlling variables typically used to account for issues of multicollinearity and heteroscedasticity, consistent with the described ecological model. β coefficients (and 95% CIs) from the best fitting regression models are reported.

For independent variables, the authors rely on data from the following sources: the 2000 and 2010 U.S. Census; the U.S. Census Bureau's Transportation Planning Package; the Louisville Metro Police Department (LMPD); Louisville Metro Department of Health and Wellness; and, the City Louisville Property Value Assessor (PVA). The study employs the 'Street Smart' Walk Score™ tool developed by Frontlane to incorporate many neighborhood level factors associated with livability and accessibility.¹¹ This Street Smart' Walk Score™ tool aggregates variables that account for most of the classic land use D's that have been associated with walking behavior, including residential density, destination accessibility (a gravity function as distance increases up to a 1 ½ mile buffer), land use diversity (the number of varied uses in this buffer) and design (block length and number of intersection nodes / intersection density) (Cervero & Kockelman, 1997; Lee & Moudon, 2006). More on this measure can be found on the Walk Score™ website (<https://www.walkscore.com/methodology.shtml>).

Since Walk Score™ is obtained at an individual address level, this study uses ArcGIS to aggregate individual scores at the Census Tract level by applying the average Walk Score™ for each residential address to a Tract-level GIS centroid. This approach to measuring walkability is limited in that it measures only an indicator of built environment attributes that have been associated with walking behavior and propensity to walk (not behavior). This approach may suffer from some aggregation error and does not account for the aspects of street quality related (such as the presence of trees, sidewalk width, etc.), safety (from traffic or crime) and terrain characteristics (slope). Yet, this model allows us to compare data at the Census level to this metric and may help wash out issues related to spatial auto-correlation in the analysis (e.g. any unforeseen measurement errors are consistent across tracts).

Census and all other covariate data were obtained from publicly available databases housed at the Kentucky State Data Center at the University of Louisville. Covariates for crime were from the Louisville Metro Police Department. This includes all types of crimes reported annually by geo-coordinate. Foreclosures were similarly treated, received with exact geo-coordinates

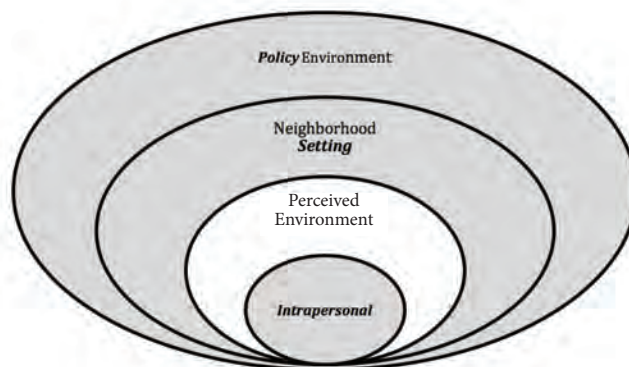


Figure 3: Conceptual model.

from the Jefferson County Property Valuation Administrator and then aggregated to the Census Tract level. These variables are summarized in Table 1 next page.

Dependent Variable: YPLL

To measure premature death, at the neighborhood level, the analysis uses one of the most common public health indicators that measures social and economic loss due to premature death—years of potential life lost (YPLL) (Blane, Smith, & Bartley, 1990; Gardner & Sanborn, 1990). Similar to methods used by the Centers for Disease Control and Prevention, this is calculated per 100,000 residents over a multi-year period between 2000 and 2010 (Centers for Disease Control and Prevention, 2008; Colton & Manderscheid, 2006). The YPLL variable stems from data collected by the Louisville Metro Department of Health and Wellness, giving the year of death, age at death, and last known address of all deceased persons in Jefferson County, between the years 2000 and 2010. This data was received anonymously, with all of the individual addresses and personal identifiers scrubbed, and converted this data into the YPLL variable using the following equation:

$$YPLL = \sum (E - A)/P$$

Where:

E is the standardized expected age of death (=75),

A is the age at death,

P is the 2010 population of each Tract divided by 100,000.

Total YPLL is summed by tract, and divided by each Tract's population (Census 2010), then divided by 100,000 to control for the differences in population across tracts. Higher numbers denote increases in YPLL—indicating a decreased life expectancy. This method allows us to evaluate how pre-mature death affects younger age groups, even in areas with a greater concentration of older adults and it highlights potential geographic clusters where individuals experience premature death. Due to the secondary use of anonymous data, this project did not require full human subject review. Researchers were required

¹¹ See: Cao, 2010; Carr, Dunsiger, & Marcus, 2010, 2011; Duncan et al, 2013; Duncan et al, 2011.

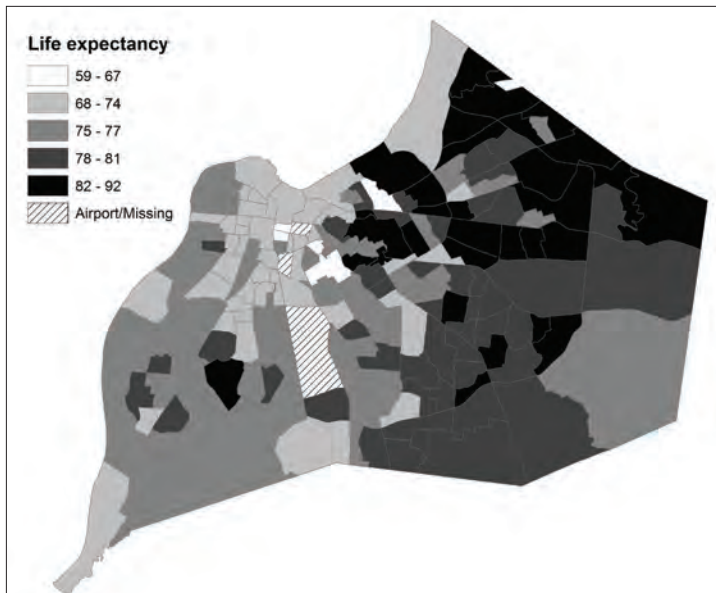
Table 1: Descriptive Statistics.

	Years of Potential Life Lost (YPLL)	Median household income, 1999 (2000 Census)	Percent of nonwhite residents, 2000 (ratio*100)	Distance to the central business district (CBD) tract (49) in miles	Walk High	Walk Score
Type	Interpersonal	Interpersonal	Interpersonal	Setting	Setting	Setting
Year	2000	2000	2000	2000	2010	2010
Source	JCHD	Census	Census	Census	Walkscore	Walk Score
Measure	rate per 100k	\$	%	Mile	#	#
Min	2477.5	6086	1.4	0.0	0.0	0
Max	21688.0	110472	99.4	18.6	1.0	97
Mean	8455.6	40524.5	25.4	7.0	0.2	42.7
Std Dev	3883.7	19527.8	29.5	4.0	0.4	23.6
N	170	170	170	170	162	170

	Median housing age, 2000	Number of housing units, 2000	Total Crimes per 100,000	High interest loan foreclosures	Foreclosures 04-08
Type	Setting	Setting	Setting	Policy	Policy
Year	2000	2000	2007	04-08	04-08
Source	Census	Census	LMPD	JCPVA	JCPVA
Measure	#	#	# per 100,000 residents	NA	\$
Min	2	10	193.7	0	0
Max	60	3358	51216.6	38	197
Mean	38.7	1296.4	6500.3	9.9	54.8
Std Dev	15.1	605.0	5432.8	7.3	44.6
N	170	170	170	170	170

Notes: JCPVA= Jefferson County Property Valuation Administrator; LMPD= Louisville Metro Police Department; WI=Walkability Index; MAV= Median assessed value; AAV= AVG Assessed Value; FS= Foreclosure sales; YPLL= Years of Potential Life Lost; JCHD= Jefferson County Health Department.

Figure 2: Distribution of Life Expectancy in Louisville Neighborhoods.



to ensure that personally identifiable information would be removed from the data collected. Figure 2 maps the YPLL variable across Louisville’s neighborhoods.

Statistical Model

The analysis makes use of OLS regression to predict neighborhood years of projected life lost, with the key test variable—walkability, and other control variables consistent with the model. Multiple models were tested for the appropriate control variables. Consistent with ecological models on population health, the variables for education and income were found to be collinear. Since income provided a better fit, it was chosen as an appropriate control. Age was not significantly correlated; thus, it was not included in final models. For purposes of validity and reliability, all models shown were tested for multicollinearity by calculating tolerance scores and examining zero-order correlation coefficients (Lewis-Beck, 1980; Oakes, 2004). All tolerance scores for variables used in the equation exceed 0.30. The full final regression equation is as follows:

$$YPLL = \beta_0 + \beta_1 * Nonwhite\ percent + \beta_2 * Housing\ age + \beta_3 * Income + \beta_4 * Crime\ rate + \beta_5 * walkability + \epsilon,$$

Where β_1 through β_6 are the coefficients to be estimated and ϵ is the error term.

Results

As is shown in Table 2, the analysis found a connection with many factors that underscore previously discussed epidemiological models about the complex nature of health planning, something scholars like Webber have defined as a ‘wicked’ problem— one without easy solutions (Rittel & Webber, 1974; Webber, 1979).

In Model 1, which had an explanatory value of .72 based on the adjusted R square and looked at individual characteristics, the analysis revealed a significant negative relationship between income and YPLL, and a highly significant positive relationship between non-white residents and increased mortality. This is consistent with literature by Massy and Williams, which documents the weathering effect chronic poverty has on racial minorities (Massey, 2004; Williams & Jackson, 2005). It also illustrates that factors such as income (or education) can serve as intervening factors, especially in areas that are gentrifying (Riggs, 2014).

When adding built environment setting and policy-related factors, there are correlations between walkability and housing characteristics that extend beyond the individual, as well as a significant relationship with foreclosures. Specifically with regard to walkability factors, the model shows that when walkability decreases, the YPLL increases – a factor significant at the .05 level.

When moving to Model 2, it is evident that, in the most walkable locations, the connection between health, interpersonal and environmental factors increases in significance. When rotating in a dummy variable focused on the most walkable locations (Walk High), the significance of the walkability covariate improves, and there is a better fitting model altogether. Again, the most walkable areas have less YPLL by a factor of 10, significant at the .05 level. The adjusted R square also improves and explains four fifths of the variation.

Discussion

This analysis confirms that the impacts of walkable neighborhoods in a mid-sized city are not isolated to the econometric factors that other literature has found to be connected to such environs (Gilderbloom et al., 2014; Pivo, 2013; Pivo & Fisher, 2011). In fact, the analysis shows there are true ‘human costs’ to less walkable and livable environments. Specifically, people

Table 2: Relationship Between YPLL and Neighborhood Factors.

Specification	Model 1		Model 2	
	Unst.	Beta	Unst.	Beta
Constant	6963.160***		56.108***	
Median household income, 1999 (2000 Census)	-.079***	-.396*	.000**	-.188**
Percent of nonwhite residents, 2000 (ratio*100)	54.652***	.415***	.662***	.437***
Distance to the central business district (CBD) tract (49) in miles	57.340	.060	2.693**	.224**
Walk Score (Model1) / Walk High (Model 2)	-23.041*	-.140*	-11.722**	-0.103**
Median housing age, 2000	67.196***	.261***	.885***	.287***
Number of housing units, 2000	.220***	0.034***	.022***	.294***
Total crimes per 100,000 residents 2007	.140***	.196***	.001	.069
High interest loan foreclosures	8.426	.016***	3.036***	.495***
F	55		85.12	
R Square	0.732		0.814	
Adjusted R Square	0.719		0.804	
N	170		170	

Notes: Unstandardized coefficients (standardized Beta). P<0.1. *p<0.05. **p<0.01. ***p<0.001. DV = Years of Potential Life Lost (YPLL) rate per 100k. Model 1 uses WalkScore index as Independent Variable. Model 2 uses Walk High group as Independent Variable

tend to die at a younger age in these locations. When walkability is sacrificed, YPLL is likely to increase. Specifically, in Louisville's more walkable environments there are often historical concentrations of poor and higher minority individuals, there is a clear gain in life longevity. This result confirms other studies focusing on large municipalities with similar findings.

Limitations

The concept of walkability has limitations in that it is both aggregate in nature and provides an index of correlates related to walking behavior, not a representation of actual behavior. The analysis did not control for local spatial autocorrelation, however, other work suggests that there is a lack of significant autocorrelation at the zipcode and Tract level using these aggregate measures (Bjørnstad, 2004; Riggs & Sethi, 2016; Zuur, Ieno, Walker, Saveliev, & Smith, 2009).

An important limitation of this study is cross-sectional in nature. It provides a snapshot, not accounting for residential location changes over a lifespan. For example, the key variable YPLL basis assumes age at death relative to a nominal standard of 75 years. This is summed over all deceased persons, and then converted into a metric per 100,000 people in the census tract population. This does not account for: 1) changes between walkable vs. nonwalkable tracts during the lifespan; 2) the related environmental exposures associated with residential changes; or 3) the notion that the geography of Tract may not define a neighborhood. The Census Bureau indicates that most moves occur before the age of 20 after which there is a large taper (Chalabi, 2015); however, it is possible the numbers are impacted by older adults who move in later life. Furthermore, it is possible (although not probable) that this traditional public health indicator may be undermined by the urban migration trends of Millennials (Myers & Pitkin, 2009), who often locate in walkable locations, only to live a normal, long life and not die young.

These limitations represent a complicated dynamic that relates back to Krieger's classic web of causality. Clearly there are individuals that are not representative of residents in the cohort of those who die in the each Census Tract, and clearly there are residential self-selection issues at play. While much of these relate to the aggregate nature of the data, these factors illustrate issues that continue to confound researchers in public health and planning, and emphasize the continued need for research in this area, as well as the need for policies. This is especially the case gentrification and displacement may be occurring among the poor and elderly causing them to locate in places other than the most walkable areas.

Policy Implications

The analysis suggests potential policy strategies, even if there are self-selection or location-based concentration-related issues embedded in this analysis. A growing body of literature documents higher concentrations of minorities and the poor

moving to suburban areas, as urban areas gentrify and experience revitalization (Riggs, 2011; Schafran, 2013). This trend of displacement relates to the classic resource equity cases made by several scholars.¹² If the trend toward gentrification continues, planners and policy makers may begin to see even greater locational disparity between public health indicators like YPLL, where those in the least accessible and walkable areas are also the least healthy. Policy is needed to address this disparity in small and mid-sized communities. To conclude, the authors propose two policy solutions that can be rationally applied at both scales: 1) a focus on active design solutions in the built environment; and, 2) a programmatic behavioral approach to active living.

One policy strategy of active design is wider adoption of healthy design standards. One intervention method that is driving this market shift is the LEED-ND (Leadership in Energy and Environmental Design – Neighborhood Design) program. The LEED Reference Guide, published by the US Green Building Council, recommends many cost-saving and ecological methods of building design that can have an impact on health (Ewing, Kreutzer, & Frank, 2006; USGBC, 2008). Although the recommendations are voluntary, and based on developer preference, they are becoming highly visible in the construction world, since the standards recognize the impact of physical design on human health. Site selection for new structures should be sensitive to the ecosystem and the factors that have been correlated with physical activity including density and mix of uses, as well as simple transportation demand management strategies such as education and wayfinding, inclusion of showers, changing rooms, and bike storage (Black & Schreffler, 2010; William Riggs, 2015; Thompson & Suter, 2012).

Implementing many of these building-level design methods, and providing increased emphasis on transit-oriented development, could yield additional intervention methods and health benefits. The successful examples of developments in small or suburban cities, such as Orinco Station in Oregon, Atlantic Station in Georgia, and Village Homes near Davis in California, have been catalysts for healthier cities, providing opportunities for green developments along transit as well as incidental and non-incidental exercise (Szibbo, 2016; Hannon & Brown, 2008). In such communities, aspects of the built environment are associated with higher levels of adult walking, including measures to improve accessibility and safety. One example is the effort to increase the "percentage of blocks with sidewalks, mixed use (residential and at least one other use) and public space (outdoor, open spaces such as gardens, plazas, etc.)." Additional elements strongly associated with recreational walking are "including more windows facing the street and more street lighting, and fewer abandoned buildings, graffiti, rundown buildings, vacant lots,

¹² See, for instance: Kuklys, 2005; Kuklys & Robeyns, 2005; Nussbaum, 1986; Nussbaum & Glover, 1995; Rawls, 1975, 1988; Sen, 1999.

and undesirable land uses" (Alfonzo, Boarnet, Day, Mcmillan, & Anderson, 2008, 44).

There are recognizable fiscal tradeoffs for this kind of healthy design strategy. Based on data from the San Francisco Bay Area's Metropolitan Transportation Commission, street-level design elements such as bulb-outs and chokers, surfacing techniques and raised crosswalks, can cost as much as \$20,000. Yet, this investment is not a loss for communities. Literature has already indicated that these strategies have an economic benefit and that design of streets and sidewalks yields higher property values, a higher tax base, and more a more resilient downtown community (Gilderbloom et al., 2014; Glaeser, 2008; Pivo, 2013; Riggs & Gilderbloom, 2015). Based on these studies, future work may find a direct return-on-investment from project specific on-street expenditures.

Another avenue for meaningful policy action is the encouragement of active living programs that shift behavioral norms—especially for smaller communities that may not have the financial means to engage in larger capital improvement projects. Literature indicates that behavioral programs represent a shift in public health strategies and necessitate the involvement of many disciplines (Sallis, Frank, Saelens, & Kraft, 2004b). Rather than focusing solely on the built environment, they focus on health-promoting activities that address personal and behavioral factors (Frank & Engelke, 2005). These include programs such as "Get Lean Houston", aimed at the fattest city in the US, a national "Active for Life" elderly fitness education program, and the pedometer-based step competitions used by some employers to reduce healthcare costs.

The work of Cerin and Leslie (2008) suggests that these immediate social and behavioral norm interventions can be especially effective, if they are

aimed at reducing the gap in participation between socio-economic group... (and inform) the most disadvantaged segments of the population about the benefits of an active lifestyle and teaching them behavioral skills that can help to increase self-efficacy for regular engagement in leisure-time physical activity. (p. 11)

Cerin and Leslie discuss how such a program can encourage social and community groups to support increased physical activity, forging relationships that are sustained after policy-related programs have ended.

Technology can play a role in helping to reshape healthy behaviors. Recent work has looked at a how mobile frameworks can be used to gamify activities and change behavior using either social or market norms.¹³ The use of self-tracking data to influence behavior is found in health-related applications such as Strava, Nike+ (run calculator & tracker), Zeo (sleep patterns),

and Calorie Counter (caloric intake). The ability to know and disseminate location-based information including trips, time traveling, money spent, activities conducted, has created the idea of the "quantified self" – a theme useful for communities interested in influencing behavior using tools that positively influence knowledge, skills, attitudes and behaviors in relation to health and physical exercise (Papastergiou, 2009). Active design and behavior change strategies open the door for a portfolio of active-lifestyle policies for small-to-midsized communities that may not have resources to address built environment issues.

Conclusion

This research advances the urban science of how urban form shapes health. The study provides models that show a health connection with the most walkable locations. It confirms the hypothesis that walkable areas are significantly connected to a decrease in years of potential life lost, in midsized cities. Furthermore, this study finds that many of these locations are highly urban, minority dominant, and facing pressures of gentrification and displacement. Given this, investing in walkable areas may be a means to promote both health and social justice.

Such work is not without limitations, given the complex nature of such webs of causality, potential for aggregation error and the limitation of how public health indicators track residential changes over a lifetime. Nevertheless, the fit of the models is consistent with prior research and highlights factors worthy of the attention of public servants and an active citizenry. Figure 3 shows a street in Louisville suffering from neglect and disinvestment. The results are evident to the naked eye based on the inaccessibility of sidewalks for walking, lack of bike lanes for cycling, overgrown landscaping, and lack of places for socialization and community. In many communities the lack of active living features and pedestrian limitations are commonplace—something which can degrade housing

Figure 1: Housing in Louisville.



¹³ See, for instance: Carrel, Ekambaram, Gaker, Sengupta, & Walker, 2012; Dugundji & Walker, 2005; Riggs, 2015, 2016a; Riggs & Kuo, 2015.

quality and impede the choice of active transportation and healthy lifestyles.

Research has documented that an environment with access to walking trails, bike routes, and green space, can increase the likelihood of exercise. Community-gathering places that encourage human interaction, are basic building blocks for mental health. Data shows that people who exercise are healthier and less susceptible to chronic health or mental issues than people who do not exercise. A built environment that encourages and supports walkability and exercise, can result in a more physically and mentally fit populace, which is less costly for society.

Such logic underscores the importance of policies supporting healthy community design and active living. These policies can mitigate some of the observed conditions in places like Louisville, Kentucky. Indeed, the benefit of engaging in policies that make neighborhoods greener and more walkable, may be greater than the cost. While construction of a healthier community does not fully address complexities of the ecological models, it likely has few downsides. It might yield more children walking to school on collision-free streets and more people grocery shopping without the use of their cars, while also aiding to unravel some of the mysteries behind the complex web of disease causality in global cities.

REFERENCES

- Alfonzo, M., Boarnet, M. G., Day, K., Mcmillan, T. & Anderson, C. L. (2008). The Relationship of Neighbourhood Built Environment Features and Adult Parents' Walking. *Journal of Urban Design*, 13(1), 29.
- Ambrosius, J. D., Gilderbloom, J. I. & Hanka, M. J. (2010). Back to Black... and Green? Location and policy interventions in contemporary neighborhood housing markets. *Housing Policy Debate*, 20(3), 457–484.
- Ameli, S. H., Hamidi, S., Garfinkel-Castro, A. & Ewing, R. (2015). Do Better Urban Design Qualities Lead to More Walking in Salt Lake City, Utah? *Journal of Urban Design*, 20(3), 393–410.
- Appelbaum, R. P. (1978). Size, growth, and US cities. Praeger. Retrieved from <http://www.getcited.org/pub/101887418>
- Appelbaum, R. P., Bigelow, J., Kramer, H. P., Molotch, H. & Relis, P. M. (1976). *The Effects of Urban Growth: A Population Impact Analysis*. Praeger: New York.
- Avenell, A., Broom, J. I., Brown, T. J., Poobalan, A., Aucott, L. S., Stearns, S. C. & Grant, A. M. (2004). Systematic review of the long-term effects and economic consequences of treatments for obesity and implications for health improvement. Health Technology Assessment. Retrieved from <http://tees.openrepository.com/tees/handle/10149/58250>
- Batty, M. (2013). A Theory of City Size. *Science*, 340(6139), 1418–1419.
- Bjørnstad, O. N. (2004). ncf: Spatial nonparametric covariance functions. R Package Version, 1–0.
- Black, C. S. & Schreffler, E. N. (2010). Understanding Transport Demand Management and Its Role in Delivery of Sustainable Urban Transport. Transportation Research Record. *Journal of the Transportation Research Board*, 2163(1), 81–88.
- Blane, D., Smith, G. D., & Bartley, M. (1990). Social class differences in years of potential life lost: size, trends, and principal causes. *BMJ*, 301(6749), 429–432.
- Bolton, T. & Hildreth, P. (2013). Mid-sized cities. Retrieved from <http://www.centreforcities.org/wp-content/uploads/2014/08/13-06-18-Mid-Sized-Cities.pdf>
- Brewer, K. & Grant, J. L. (2015). Seeking density and mix in the suburbs: challenges for mid-sized cities. *Planning Theory & Practice*, 16(2), 151–168.
- Brulle, R. J. & Pellow, D. N. (2006). Environmental justice: human health and environmental inequalities. *Annual Reviews in Public Health*, 27(3), 1–22.
- Burayidi, M. A. (2013). *Downtowns: revitalizing the centers of small urban communities*. New York: Routledge.
- Cao, J. (2014). Residential self-selection in the relationships between the built environment and travel behavior: Introduction to the special issue. *Journal of Transport and Land Use*, 7(3), 1–3.
- Cao, X. J. (2010). Exploring causal effects of neighborhood type on walking behavior using stratification on the propensity score. *Environment and Planning A*, 42(2), 487–504.
- Cao, X. (Jason). (2015). Examining the impacts of neighborhood design and residential self-selection on active travel: a methodological assessment. *Urban Geography*, 36(2), 236–255.
- Carlson, J. A., Saelens, B. E., Kerr, J., Schipperijn, J., Conway, T. L., Frank, L. D. & Sallis, J. F. (2015). Association between neighborhood walkability and GPS-measured walking, bicycling and vehicle time in adolescents. *Health & Place*, 32, 1–7.
- Carrel, A., Ekambaram, V., Gaker, D., Sengupta, R. & Walker, J. L. (2012). The Quantified Traveler: Changing transport behavior with personalized travel data feedback. Retrieved from <http://www.uctc.net/research/papers/UCTC-FR-2012-12.pdf>
- Carr, L. J., Dunsiger, S. I. & Marcus, B. H. (2010). Walk Score™ As a Global Estimate of Neighborhood Walkability. *American Journal of Preventive Medicine*, 39(5), 460–463.
- Carr, L. J., Dunsiger, S. I. & Marcus, B. H. (2011). Validation of Walk Score for estimating access to walkable amenities. *British Journal of Sports Medicine*, 45(14), 1144–1148.

- Centers for Disease Control and Prevention (CDC). (2008). Smoking-attributable mortality, years of potential life lost, and productivity losses--United States, 2000-2004. *MMWR. Morbidity and Mortality Weekly Report*, 57(45), 1226-1228.
- Cerin, E., & Leslie, E. (2008). How socio-economic status contributes to participation in leisure-time physical activity. *Social Science & Medicine*, 66(12), 2596-2609.
- Cerin, E., Leslie, E. & Owen, N. (2009). Explaining socio-economic status differences in walking for transport: An ecological analysis of individual, social and environmental factors. *Social Science & Medicine*, 68(6), 1013-1020.
- Cervero, R. & Kockelman, K. (1997). Travel demand and the 3Ds: density, diversity, and design. *Transportation Research Part D: Transport and Environment*, 2(3), 199-219.
- Chalabi, M. (2015, January 29). How Many Times Does The Average Person Move? Retrieved from <http://fivethirtyeight.com/datalab/how-many-times-the-average-person-moves/>
- Cho, G.-H. & Rodríguez, D. A. (2015). Neighborhood design, neighborhood location, and three types of walking: results from the Washington DC area. *Environment and Planning B: Planning and Design*, 42(3), 526 - 540.
- Colton, C. W. & Manderscheid, R. W. (2006). Congruencies in Increased Mortality Rates, Years of Potential Life Lost, and Causes of Death Among Public Mental Health Clients in Eight States. *Preventing Chronic Disease*, 3(2).
- Corburn, J. (2005). *Street Science: Community knowledge and environmental health justice*. Cambridge: MIT Press.
- Corburn, J. (2007). Reconnecting with our roots: American urban planning and public health in the twenty-first century. *Urban Affairs Review*, 42(5), 688.
- Coulton, C. J., Korbin, J., Chan, T. & Su, M. (2001). Mapping Residents' Perceptions of Neighborhood Boundaries: A Methodological Note. *American Journal of Community Psychology*, 29(2), 371-383.
- Coulton, C. J. & Pandey, S. (1992). Geographic Concentration of Poverty and Risk to Children in Urban Neighborhoods. *American Behavioral Scientist*, 35(3), 238-257.
- Cutts, B. B., Darby, K. J., Boone, C. G. & Brewis, A. (2009). City structure, obesity, and environmental justice: An integrated analysis of physical and social barriers to walkable streets and park access. *Social Science & Medicine*, 69(9), 1314-1322.
- Dugundji, E. & Walker, J. (2005). Discrete choice with social and spatial network interdependencies: an empirical example using mixed GEV models with field and panel effects. *Transportation Research Method*, 1921, 70-78.
- Duncan, D. T., Aldstadt, J., Whalen, J. & Melly, S. J. (2013). Validation of Walk Scores and Transit Scores for estimating neighborhood walkability and transit availability: a small-area analysis. *GeoJournal*, 78(2), 407-416.
- Duncan, D. T., Aldstadt, J., Whalen, J., Melly, S. J. & Gortmaker, S. L. (2011). Validation of Walk Score® for estimating neighborhood walkability: An analysis of four US metropolitan areas. *International Journal of Environmental Research and Public Health*, 8(11), 4160-4179.
- Duncan, G. E., Cash, S. W., Horn, E. E. & Turkheimer, E. (2015). Quasi-causal associations of physical activity and neighborhood walkability with body mass index: A twin study. *Preventive Medicine*, 70, 90-95.
- Ellen, I. G. (2008). Continuing isolation: Segregation in America today. In J. Carr & N. Kutty (eds), *Segregation: The Rising Costs for America*. New York: Routledge, 261-77.
- Ellen, I. G., Cutler, D. M. & Dickens, W. (2000). Is Segregation Bad for Your Health? The Case of Low Birth Weight [with Comments]. *Brookings-Wharton Papers on Urban Affairs*, 203-238.
- Ellen, I. G. & Turner, M. A. (1997). Does neighborhood matter? Assessing recent evidence. *Housing Policy Debate*, 8(4), 833-866.
- Ewing, R. & Cervero, R. (2001). Travel and the Built Environment: A Synthesis. *Transportation Research Record: Journal of the Transportation Research Board*, 1780(-1), 87-114.
- ____ (2010). Travel and the Built Environment -- A Meta-Analysis. *Journal of the American Planning Association*, 76(3), 265-294.
- Ewing, R., Hajrasouliha, A., Neckerman, K. M., Purciel-Hill, M., & Greene, W. (2015). Streetscape Features Related to Pedestrian Activity. *Journal of Planning Education and Research*, 36(1), 5-15.
- Ewing, R., Kreutzer, R. & Frank, L. (2006). *Understanding the relationship between public health and the built environment*. US Green Building Council.
- Ewing, R., Schmid, T., Killingsworth, R., Zlot, A. & Raudenbush, S. (2003). Relationship between urban sprawl and physical activity, obesity, and morbidity. *Urban Ecology*, 567-582.
- Forsyth, A. & Krizek, K. (2010). Promoting Walking and Bicycling: Assessing the Evidence to Assist Planners. *Built Environment*, 36(4), 429-446.
- Forsyth, A., Oakes, J. M., Schmitz, K. H. & Hearst, M. (2007a). Does Residential Density Increase Walking and Other Physical Activity? *Urban Studies*, 44(4), 679.
- Forsyth, A., Oakes, J. M., Schmitz, K. H. & Hearst, M. (2007b). Does residential density increase walking and other physical activity? *Urban Studies*, 44(4), 679-697.
- Frank, L. D., Andresen, M. A., & Schmid, T. L. (2004). Obesity relationships with community design, physical activity, and time spent in cars. *American Journal of Preventive Medicine*, 27(2), 87-96.

- Frank, L. D., & Engelke, P. (2005). Multiple impacts of the built environment on public health: Walkable places and the exposure to air pollution. *International Regional Science Review*, 28(2), 193.
- Frank, L. D., Sallis, J. F., Conway, T. L., Chapman, J. E., Saelens, B. E., & Bachman, W. (2006). Many pathways from land use to health: associations between neighborhood walkability and active transportation, body mass index, and air quality. *Journal of the American Planning Association*, 72(1), 75–87.
- Frumkin, H., Frank, L. D., & Jackson, R. (2004). *Urban sprawl and public health: Designing, planning, and building for healthy communities*. Washington, DC: Island Press.
- Gardner, J. W., & Sanborn, J. S. (1990). Years of Potential Life Lost (YPLL)-What Does it Measure? *Epidemiology*, 1(4), 322–329.
- Gilderbloom, J. (2015). Ten Commandments of urban regeneration: creating healthy, safe, affordable, sustainable, and just neighbourhoods. *Local Environment*, 21(5), 653–660.
- Gilderbloom, J., Anaker, K., Squires, G., Hanka, M., & Ambrosius, J. (2011). Why Foreclosure Rates in African American Neighborhoods are so High: Looking at the Real Reasons. In ERSA conference papers.
- Gilderbloom, J. I., Ambrosius, J. D., Squires, G. D., Hanka, M. J., & Kenitzer, Z. E. (2012). Investors: The Missing Piece in the Foreclosure Racial Gap Debate. *Journal of Urban Affairs*, 34(5), 559–582.
- Gilderbloom, J., Riggs, W., & Meares, W. (2014). Does Walkability Matter: An Examination of Walkability's Impact on Housing Values, Foreclosures and Crime. *Cities*, 42, PartA, 13–24.
- Giles-Corti, B., Timperio, A., Bull, F., & Pikora, T. (2005). Understanding physical activity environmental correlates: increased specificity for ecological models. *Exercise and Sport Sciences Reviews*, 33(4), 175–181.
- Glaeser, E. L. (2008). *Cities, Agglomeration, and Spatial Equilibrium*. The Lindahl Lectures. Oxford: Oxford University Press.
- Goetz, E. G., & Chapple, K. (2010a). Dispersal as anti-poverty policy. *Critical Urban Studies: New Directions*. (pp. 149–164). State University of New York Press.
- Goetz, E. G., & Chapple, K. (2010b). You gotta move: Advancing the debate on the record of dispersal. *Housing Policy Debate*, 20(2), 209–236.
- Gordon-Larsen, P., Nelson, M. C., Page, P., & Popkin, B. M. (2006). Inequality in the built environment underlies key health disparities in physical activity and obesity. *Pediatrics*, 117(2), 417.
- Hall, P., & Pfeiffer, U. (2000). *Urban future 21: A global agenda for twenty-first century cities*. New York: E & FN Spon.
- Hanka, M. J., Ambrosius, J. D., Gilderbloom, J. I., & Wresinski, K. E. (2015). Contemporary neighborhood housing dynamics in a mid-sized US city: the policy consequences of mismeasuring the dependent variable. *Housing and Society*, (ahead-of-print), 1–29.
- Hannon, J. C., & Brown, B. B. (2008). Increasing preschoolers' physical activity intensities: An activity-friendly preschool playground intervention. *Preventive Medicine*, 46(6), 532–536.
- Hu, F. B., Li, T. Y., Colditz, G. A., Willett, W. C., & Manson, J. A. . (2003). Television watching and other sedentary behaviors in relation to risk of obesity and type 2 diabetes mellitus in women. *Jama*, 289(14), 1785.
- Hummel, D. (2014). Right-Sizing Cities in the United States: Defining Its Strategies. *Journal of Urban Affairs*, 37(4), 397–409.
- Kang, B., Moudon, A. V., Hurvitz, P. M., & Saelens, B. E. (2015). Utilitarian and Recreational Walking Differ in Their Associations with the Built Environment. Retrieved from <http://onlinepubs.trb.org/onlinepubs/conferences/2015/ActiveTransportation/Presentations/Bumjooon%20Kang.pdf>
- Krieger, J., & Higgins, D. L. (2002). Housing and health: time again for public health action. *American Journal of Public Health*, 92(5), 758.
- Krieger, N. (1994). Epidemiology and the web of causation: has anyone seen the spider? *Social Science & Medicine*, 39(7), 887–903.
- Kuklys, W. (ed.). 2005, ed.). *Amartya Sen's capability approach: theoretical insights and empirical applications*. New York: Springer.
- Kuklys, W., & Robeyns, I. (2005). Sen's capability approach to welfare economics. In W. Kuklys (ed.) *Amartya Sen's capability approach: theoretical insights and empirical applications*. New York: Springer.
- Kurka, J. M., Adams, M. A., Todd, M., Colburn, T., Sallis, J. F., Cain, K. L., ... Saelens, B. E. (2015). Patterns of neighborhood environment attributes in relation to children's physical activity. *Health & Place*, 34, 164–170.
- Lee, C., & Moudon, A. V. (2006). The 3Ds+ R: Quantifying land use and urban form correlates of walking. *Transportation Research Part D: Transport and Environment*, 11(3), 204–215.
- Lewis-Beck, M. S. (1980). *Applied regression: An introduction* (Series: Quantitative Applications in the Social Sciences Vol. 22). Thousand Islands, Calif.: Sage.
- Lovasi, G. S., Hutson, M. A., Guerra, M., & Neckerman, K. M. (2009). Built environments and obesity in disadvantaged populations. *Epidemiologic Reviews*, 31(1), 7–20.
- Macintyre, S. (1989). The West of Scotland Twenty-07 Study: health in the community. In Martin C. and MacQueen, D. (Eds.) *Readings for a New Public Health* (pp. 56–74). Scotland: Edinburgh University Press.

- Martinez-Fernandez, C., Audirac, I., Fol, S., & Cunningham-Sabot, E. (2012). Shrinking cities: urban challenges of globalization. *International Journal of Urban and Regional Research*, 36(2), 213–225.
- Massey, D. S. (2004). Segregation and stratification: a biosocial perspective. *Du Bois Review: Social Science Research on Race*, 1(01), 7–25.
- Molotch, H. (1976). The City as a Growth Machine: Toward a Political Economy of Place. *American Journal of Sociology*, 82(2), 309–332.
- Morland, K., Wing, S., Diez Roux, A., & Poole, C. (2002). Neighborhood characteristics associated with the location of food stores and food service places. *American Journal of Preventive Medicine*, 22(1), 23–29.
- Myers, D., & Pitkin, J. (2009). Demographic Forces and Turning Points in the American City, 1950–2040. *Annals of the American Academy of Political and Social Science*, 626(1), 91–111.
- Nussbaum, M. (1986). The discernment of perception: An Aristotelian conception of private and public rationality. In *Proceedings of the Boston Area Colloquium in Ancient Philosophy*, Vol. 1, p. 151).
- Nussbaum, M. C., & Glover, J. (1995). *Women, Culture, and Development: A Study of Human Capabilities: A Study of Human Capabilities*. Oxford: Oxford University Press.
- Oakes, J. M. (2004). The (mis) estimation of neighborhood effects: causal inference for a practicable social epidemiology. *Social Science & Medicine*, 58(10), 1929–1952.
- Papastergiou, M. (2009). Exploring the potential of computer and video games for health and physical education: A literature review. *Computers & Education*, 53(3), 603–622.
- Pi-Sunyer, F. X. (1993). Medical hazards of obesity. *Annals of Internal Medicine*, 119(7 Part 2), 655.
- Pivo, G. (2013). Walk Score and Multifamily D The Significance of 8 and 80. Retrieved from http://www.fanniemae.com/resources/file/fundmarket/pdf/hoytpivo_mfhousing_walkscore_122013.pdf
- Pivo, G., & Fisher, J. D. (2011). The Walkability Premium in Commercial Real Estate Investments. *Real Estate Economics*, 39(2), 185–219.
- Putnam, R. D. (2001). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.
- Rawls, J. (1975). Fairness to Goodness. *The Philosophical Review*, 84(4), 536–554.
- Rawls, J. (1988). The Priority of Right and Ideas of the Good. *Philosophy and Public Affairs*, 17(4), 251–276.
- Reilly, J. J., & Kelly, J. (2011). Long-term impact of overweight and obesity in childhood and adolescence on morbidity and premature mortality in adulthood: systematic review. *International Journal of Obesity*, 35(7), 891–898.
- Renalds, A., Smith, T. H., & Hale, P. J. (2010). A systematic review of built environment and health. *Family & Community Health*, 33(1), 68–78.
- Riggs, W. (2011). *Walkability and Housing: A Comparative Study of Income, Neighborhood Change and Socio-Cultural Dynamics in the San Francisco Bay Area* (Doctoral Dissertation). University of California, Berkeley.
- Riggs, W. (2014). Inclusively Walkable: Exploring the Equity of Walkable Neighborhoods in the San Francisco Bay Area. *Local Environment*. <https://doi.org/10.1080/13549839.2014.982080>
- Riggs, W. (2015). Testing personalized outreach as an effective TDM measure. *Transportation Research Part A: Policy and Practice*, 78, 178–186.
- Riggs, W. (2016a). A43-Testing Social Norms As an Incentive to Active Transportation Behavior. *Journal of Transport & Health*, 3(2), S30.
- Riggs, W. (2016b). Inclusively walkable: exploring the equity of walkable housing in the San Francisco Bay Area. *Local Environment*, 21(5), 527–554.
- Riggs, W., & Gilderbloom, J. (2015). Two-Way Street Conversion Evidence of Increased Livability in Louisville. *Journal of Planning Education and Research*, 0739456X15593147. <https://doi.org/10.1177/0739456X15593147>
- Riggs, W., & Kuo, J. (2015). The impact of targeted outreach for parking mitigation on the UC Berkeley campus. *Case Studies on Transport Policy*, 3(2), 151–158.
- Riggs, W., & Sethi, S. (2016). Testing Metrics: Comparing WalkScore Results with Behavior. CalPoly Working Papers.
- Rittel, H., & Webber, M. (1974). Wicked problems. *Man-Made Futures*, 272–280.
- Saelens, B. E., & Handy, S. L. (2008). Built environment correlates of walking: a review. *Medicine and Science in Sports and Exercise*, 40(7 Suppl), S550.
- Sahani, R., & Bhuyan, P. K. (2014). Pedestrian level of service criteria for urban off-street facilities in mid-sized cities. *Transport*, 0(0), 1–12. <https://doi.org/10.3846/16484142.2014.944210>
- Sallis, J. F., Cervero, R. B., Ascher, W., Henderson, K. A., Kraft, M. K., & Kerr, J. (2006). An ecological approach to creating active living communities. *Annu. Rev. Public Health*, 27, 297–322.
- Sallis, J. F., Frank, L. D., Saelens, B. E., & Kraft, M. K. (2004a). Active transportation and physical activity: opportunities for collaboration on transportation and public health research. *Transportation Research-Part A Policy and Practice*, 38(4), 249–268.
- Sallis, J. F., Frank, L. D., Saelens, B. E., & Kraft, M. K. (2004b). Active transportation and physical activity: opportunities for collaboration on transportation and public health re-

- search. *Transportation Research-Part A Policy and Practice*, 38(4), 249–268.
- Sallis, J. F., Owen, N., & Fisher, E. B. (2008). Ecological models of health behavior. *Health Behavior and Health Education: Theory, Research, and Practice*, 4, 465–485.
- Sallis, J. F., Saelens, B. E., Frank, L. D., Conway, T. L., Slymen, D. J., Cain, K. L., ... Kerr, J. (2009). Neighborhood built environment and income: examining multiple health outcomes. *Social Science & Medicine*, 68(7), 1285–1293.
- Schafran, A. (2013). Discourse and dystopia, American style. *City*, 17(2), 130–148.
- Sen, A. (1999). *Commodities and capabilities*. OUP Catalogue. Retrieved from <http://ideas.repec.org/b/oxp/obooks/9780195650389.html>
- Smith, K. R., Brown, B. B., Yamada, I., Kowaleski-Jones, L., Zick, C. D., & Fan, J. X. (2008). Walkability and Body Mass Index:: Density, Design, and New Diversity Measures. *American Journal of Preventive Medicine*, 35(3), 237–244.
- Sooman, A., & Macintyre, S. (1995). Health and perceptions of the local environment in socially contrasting neighbourhoods in Glasgow. *Health & Place*, 1(1), 15–26.
- Sturm, R., & Cohen, D. A. (2004). Suburban sprawl and physical and mental health. *Public Health*, 118(7), 488–496.
- Thompson, D., Edelsberg, J., Colditz, G. A., Bird, A. P., & Oster, G. (1999). Lifetime health and economic consequences of obesity. *Archives of Internal Medicine*, 159(18), 2177.
- Thompson, R., & Suter, S. (2012). Development of Standard Performance Measures for Transportation Demand Management Programs. Transportation Research Record: *Journal of the Transportation Research Board*, 2319(-1), 47–55.
- USGBC. (2008). LEED for Neighborhood Design Characteristics of Pilot Projects. Retrieved September 21, 2010, from <http://wlan.berkeley.edu/login/?http://www.twitter.com/>
- van Loon, J., Shah, T., Fisher, P., Thompson, M. E., Minaker, L., Raine, K. D., & Frank, L. D. (2013). Analysis of Built Environment Influences on Walking Trips and Distance Walked in a Mid-sized Canadian City. Presented at the Transportation Research Board 92nd Annual Meeting. Retrieved from <http://trid.trb.org/view.aspx?id=1242310>
- Vojnovic, I., Kotval-K, Z., Lee, J., Ye, M., Ledoux, T., Varnakovid, P., & Messina, J. (2014). Urban Built Environments, Accessibility, and Travel Behavior in a Declining Urban Core: The Extreme Conditions of Disinvestment and Suburbanization in the Detroit Region. *Journal of Urban Affairs*, 36(2), 225–255. <https://doi.org/10.1111/juaf.12031>
- Webber, M. J. (1979). *Urban Spatial Structure: An Information Theoretic Approach*. Hamilton: Department of Geography, McMaster University.
- Williams, D., & Jackson, P. (2005). Social sources of racial disparities in health. *Health Affairs*, 24(2), 325.
- Withrow, D., & Alter, D. A. (2011). The economic burden of obesity worldwide: a systematic review of the direct costs of obesity. *Obesity Reviews*, 12(2), 131–141.
- Zuk, M., Bierbaum, A. H., Chapple, K., Gorska, K., Loukaitou-Sideris, A., Ong, P., & Thomas, T. (2015). *Gentrification, Displacement and the Role of Public Investment: A Literature Review*. Community Development Working Papers. Federal Reserve Bank of San Francisco.
- Zuur, A. F., Ieno, E. N., Walker, N. J., Saveliev, A. A., & Smith, G. M. (2009). *Mixed effects models and extensions in ecology*. New York, NY: Springer-Verlag.



Is it in the Code?

by **Chuck Barber**

Chuck received both his BCRP (1981) and MBA (1984) from Cal Poly. He was a political cartoonist for Mustang Daily for 5 years. He is currently a VP at Citibank in San Diego.



Dream Homes

by **Tarcisio Bahia**

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FOCUS 13

Essays



NEW Nature: A Photographic Essay

Gary Dwyer

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Gary Dwyer is an internationally accomplished educator, landscape architect and artist in a variety of landscape, sculpture and photographic genres. His photographic assignments have sent him worldwide, including climbing expeditions in the Himalayas and a UNESCO assignment to photograph World Heritage Sites in Vietnam. He was a Resident Artist at the American Academy in Rome in 2005. In this contribution to FOCUS, Gary's images provoke us to think about the collisions between environmental and cultural values.

"We must, between periods of digging in the dark, endeavor always to transform our tears into knowledge."

Alain de Botton

Even though writing about photography is like dancing about architecture, there are a few things that need to be said. There always has been a compulsion to explain all types of images. It is a desire to tell what pictures are about, or more importantly, to tell us what the pictures mean. There have always been captions. Sometimes ad-libbed, sometimes integral, but somebody always has a comment. Occasionally even the photographer.

New Nature? It sounds like it is what is left over after we have made a mess of almost everything, and perhaps it is. The jury is still out on that one. Seamus Heaney has written that, "Poetry or great writing of any kind provides a culture with images adequate to its predicament." Most images are about recording. Making evidence. Trying to hold an instant in your eyes. Yet there are other types of image making. Some walk in the land of fantasy. Some dwell in the realm of the macabre, but many exist as questions. The most interesting are those that don't provide answers. Probably we photographers have not the patience for the cumbersome process of change. Hearing and listening are entirely different from seeing.

The images presented here are tools for pondering. They are not about beauty. They are about wondering and wandering. They are questions. And most of them ask the question, "What in the world is going on here?" Occasionally, they provoke smiles, hardly ever do they provide any answers.

See Gary's work at <www.garydwyerphotography.com>. His books are available on iTunes, Lulu, and Amazon.



Photographers have often made images of what we identified as 'Nature' or its destruction. Instead, my interests are those places where environmental and cultural values have collided visually. Of course, much of what we consider as 'Nature' is wrapped up in botany as the representative. But our new concept of botany is much closer to ornamental horticulture than it is to wild and dangerous nature so what we are used to seeing is plants that have been managed and somewhat tamed. Much of the new nature is the new botany. The resulting images contain duality, irony, and reflection. My images often indicate constraints and isolation and demonstrate the increasing complexity of our relationship with the totality of our environment and are evidence of "The New Nature".

It was thought that 'Nature' was something out there; rocks, trees, and etc. Some contemporary theories believe 'Nature' now, is us. And, now, we collectively inhabit visually saturated and image dominated cultures. A time when our images commonly present disparate, discordant visual elements. And, not surprisingly, also a time of incessant simultaneity. In our actions and our images, the currents and suppositions of contemporary cultures are colliding; crashing in waves of turbulence and confusion. If you think a photograph is a simple truth, you have not been paying attention.



*Two forms of power,
near Nafplio, Greece.*

*Apartment mural,
Warsaw, Poland.*



*One storm in front and one behind, Eastern
Sierra, California.*



'Nice tree, stay in your box.'
Grenoble, France.



Solo surfer,
Kalapana, Hawaii.

Horse's ass in the rain,
San Carlos, Nicaragua.



*School playground,
Monteverde, Costa Rica.*



*Sun bleach,
Alsace, France.*



*Palace grounds,
Menaggio, Italy.*



*Desert Campsite,
near Las Vegas, Nevada.*



*"Harold, it's time to trim that hedge again."
Dunedin, New Zealand.*



*Laguna Lake,
San Luis Obispo, California.*

*Black beach,
Santorini, Greece.*



Dust storm, Death Valley, California.



*The concrete deer has lost an ear,
San Luis Obispo, California.*





McMansions bordering the freeway, near San Jose, California.

Near the town of Volcano, Hawaii.



River trout, Cahors, France.





*Empty billboard,
Algarve, Portugal.*



*Inside climber,
San Francisco, California.*



*Red table,
Central Indonesia.*

“Toward an Urban Design Manifesto” Revisited

Ivor Samuels

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“Toward an Urban Design Manifesto”, co-authored by Donald Appleyard and Allan Jacobs in the early 1980s, was highly influential in how we understand urbanism in the XXI century. Like other seminal documents, it represented the paradigm shift from modernism to contemporary planning and urban design. Professor Ivor Samuels, an international expert on urban morphology and urban design who often contributes to FOCUS, discusses the Manifesto’s continuing relevance to European and wider contexts.

“Non locis viri, sed loca viris efficiuntur honorata”

(Places do not add splendour to people but people add splendour to places)
Inscription on Canon’s House in Katedralna, Ostrow Tumski, Wroclaw.

Toward an Urban Design Manifesto was prepared by Alan Jacobs and Donald Appleyard, two notable United States urban design practitioners and academics. The former is perhaps best known for his books *Great Streets* (1995), *The Boulevard Book* (2003) and *The Good City: Reflections and Imaginations* (2011) and the latter for his important *Livable Streets* (1981) published before his tragic early death in a car accident in 1982.

The work is organised into three sections. The first identifies and discusses problems for modern urban design, followed by a section where the authors set out six goals for urban life which they consider “essential for the future of a good urban environment.” The final section covers their proposals for “An urban fabric for an urban life”. This paper concentrates on the problems of the first part of the Manifesto, and is based on a presentation given at the 11th International Virtual Cities and Territories Congress in Krakow, Poland, in July 2016.

The Manifesto was presented at an American Planning Association conference in San Francisco (1980), as a working paper from the University of Berkeley (1982), and as an article with a new prologue by the American Planning Association Journal (1987). A generation later, this review examines its continuing relevance in response to changed circumstances and also whether this document, produced on the West Coast of the United States, is relevant to a European context in general and in particular to the United Kingdom with which this author is most familiar. This seems to be a legitimate exercise since Jacobs himself, in a prologue composed after Appleyard’s death, writes about “the need for a lot more work and research on all

the terribly important pieces that make up good urban living environments” (Jacobs and Appleyard, 1987: 112). This paper represents a small contribution to this process.

Problems for Modern Urban Design

The Manifesto is introduced by a discussion of what the authors describe as problems of modern urban design. They identify eight, each of which will be considered here for their relevance to current issues in a European context:

- Poor living environments,
- Giantism and loss of control,
- Large-scale privatisation and the loss of public life,
- Centrifugal fragmentation,
- Destruction of valued places,
- Placelessness,
- Injustice,
- Rootless professionalism.

Poor living environments

These are considered by Jacobs and Appleyard to be the problems of the external conditions of urban life since the authors suggest that internal “housing conditions in most advanced countries have improved in terms of such fundamentals as light, air, and space.” In a British context, this assertion can be questioned, and it is discussed below under their heading of Injustice. Jacobs and Appleyard note that “our surroundings are frequently dangerous, polluted, noisy anonymous wastelands.” These assertions need to be considered in more detail, and it is proposed to undertake this after Jacobs and Appleyard’s other seven problems are reviewed.

Global problems

- Giantism and loss of control,
- Large-scale privatisation and loss of public life,

- Injustice,
- Rootless professionalism

Following the consideration in some detail of aspects of the general problem of poor living environments, it is suggested that the other problems identified by Jacobs and Appleyard could be considered in two groups. The four above problems form a closely interlinked group whose significance has been exacerbated by the decades of neo liberal economic policies and globalisation since the Manifesto was first drafted in 1980.

Housing is of great political and social concern and, in formal terms, it is central to the shape of our cities. In the UK housing development is increasingly dominated by a few large operators whose main responsibility is to their shareholders and the growth of their profits. These large corporations operate through a series of regional offices in which the lead role is taken by land buyers. They have accumulated large land banks which make it difficult to for smaller house building firms to compete in the market (Hayward et al. 2015). This has left a market which has seen house prices rise, ownership levels fall, and there is an increase in private sector renting with lower standards of space and maintenance, and the associated problems of insecurity for tenants.

This loss of control has been exacerbated by the public sector withdrawal from housing provision which, since the Second World War, had been mainly built by local authorities under the control of local councils. In the 1970s almost one-third of Britons lived in social housing in contrast to the one-fifth who now do (The Economist, 2016).

The developer dominated market is paralleled by the growth of multinational consulting firms. A typical case is Savills which employs 30,000 people in 700 associated offices throughout the world and offers a range of services associated with all aspects of property design, development, and management. On opening the Savills website the most prominent part of the display is the company's current share price.

The introduction of systems of control, the smart city, is being driven by large corporations. For example, Siemens has built the Crystal in London's Dockland a building which is "a global hub for debate on sustainable living and development" (<https://www.thecrystal.org/about/>). The question is whether these initiatives will result in more local control or be an opportunity for a few large global firms to control the potentially very lucrative market in smart-city technologies. It must be noted that the internet was originally developed as a military control system. The struggle between national states and international corporations for control of the internet, and the new media is a continuing saga.

As an aside it should be noted that these firms produce visualizations of future cities that are often illustrated by aerial views which are eloquent in their portrayal of an urban environment under strict top-down control and which

demonstrate little concern for any qualities of place. An example is Cisco Corporation's Infographic, the city of the future.¹

The best-known architects ("starchitects") also operate on an international scale. In their case, they seem to be mainly concerned with purveying buildings that help brand their international clients rather than respond to the different contexts in which they are invited to build. This is true whether the client is an international corporation or an ancient university. An example of the latter is the Blavatnik School of Government of the University of Oxford, inserted into a nineteenth century context by the architects Herzog and de Meuron (Figure 1). It is a building without front or back which makes no acknowledgment of its neighbours on the street.

While starchitects are rarely involved in housing, an exception from Milan are *Residenza Hadid* and *Residenza Liebeskind*: two large gated communities inserted into a nineteenth-century tissue of blocks and streets which completely fail to respond to, or extend the logic of, the established street system (Figure 2). Of note is the manner in which the architects' names are used for branding and marketing purposes.

In addition to the prevalence of gated communities, presumably in a search for greater security (see above), the insertion of shopping malls on central and peripheral sites is a common form of development. These have the effect of moving retail development away from streets thus reducing the opportunities to retain their diversity and mix of uses. They also result in the presentation of blank walls and inactive edges to the surrounding streets, as in the *Galeria Kazimierz* in Krakow (Figure 3). In the UK a major example of the privatisation of public space was the sale of Milton Keynes New Town Center (a 700-metres long modernist structure) by the public development corporation who built it. The result is that the internal pedestrian routes crossing the center now close at 8.00pm, and even earlier on weekends, forcing residents to make long detours around the building.

Injustice is more accurately expressed by the widely noted growing inequalities in developed countries (GINI, 2011). One expression in the UK is the way younger people are being excluded from the housing market because house prices are rising much faster than incomes which, in real terms, have been falling over the last five years. In parts of the country, this problem is exacerbated by housing being regarded as an asset to be invested in rather than a home. In London, a reported 70% of the new homes are purchased by foreign investors. As a result, workers (who are necessary to support the city's economy) are being forced to live far and endure long daily commutes. The housing crisis is so acute in London that Local Authorities who, because of privatisation, had reduced their stock of social housing, are now offering bribes to tenants to relocate to other parts of the country (Komati 2015).

¹ The City of the Future: Smart and Connected. See <http://www.cisco.com/web/tomorrow-starts-here/connectedcities/preview.html>

Inequality is also represented by the reduction in the size of new homes. There is no reason to believe that space standards have improved since a Policy Exchange Study (Evans and Hartwich 2005) revealed that the average size of new homes in the UK was the smallest of fifteen European countries (700 as compared to 1,390 square feet of the average new Danish home). In the UK there are no minimum space requirements for new homes with the result that, today, within the same development, houses sold on the open market may be smaller and of a lower standard generally than those few units that are still built by housing associations for social renting. These are designed to the older, more generous standards used for public housing.

“Professional” problems

- Centrifugal fragmentation,
- Destruction of valued places ,
- Placelessness.

The remaining three problems identified by Jacobs and Appleyard while, to a great extent, being consequences of the same political and economic forces as the four discussed previously, have been and remain a central concern of urbanists who can contribute more effectively to their resolution. Certainly, policies to restrain the extent of urban sprawl have been a preoccupation of British urbanism for the last century. These have resulted in Greenbelts around many British cities. However, these barriers to urban expansion have resulted in a new set of problems.

An example of this phenomenon is Oxford where the Greenbelt is tight around the city’s built up area and local authority boundary. There is little room for further expansion without intruding on the territory of the adjoining District Councils who insist on retaining the integrity of the Greenbelt, forcing new development to locate in small towns some distance from Oxford. Since Oxford continues to grow as a major centre of employment, the resulting commuter traffic overloads existing rail and road capacity at peak travel times. People no longer live, work and play within the same built up areas, and unless the boundaries of planning authorities and the plans they make correspond more closely to where people live their everyday lives this type of problem will continue.

This more extensive scale of urban design which in the UK until 2011 was being developed by the Commission for Architecture and the Built Environment (CABE) as Strategic Urban Design (STRUD) not only engages with problems of development beyond the scale of the single settlement --which has usually been the broadest scale of urban design-- but also addresses problems of the wider ecosystems which cannot be completely resolved within urban boundaries. It thus links closely to the problems of conserving valued places, not only those built up but also natural places.²

² See the CABE archives at: <http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/strud/about>



Figure 1: The Blavatnik School of Government, University of Oxford, by Herzog and de Meuron.

Figure 2: Designed by Zaha Hadid, residential buildings in Milan, fails to respond to Milan’s 19th century fabric.



Figure 3: The lack of transparency and integration to city life of the Galeria Kazimierz, a shopping center in Krakow.



Planners have developed sophisticated instruments to protect historic buildings and groups of buildings. In the UK these include the listing of buildings according to their historical and architectural importance and the designation of 8,000 Conservation Areas, which ensures that changes to the physical fabric are only made after careful consideration and in a way which does not detract from the overall quality of the area. However, today there is also a well-established awareness that the conservation of biodiversity, natural habitats, and their sustainability, particularly within built up areas have also to be valued and conserved (Barton, 2000).

A concern for the qualities that make localities distinct from one another may be considered as a reaction to the Modern Movement's quest for universal qualities which resulted in placeless housing estates. In the UK the initial measures against these circumstances dates from the 1970s and was led by public agencies, starting with the pioneer Essex Design Guide (EPOA, 1973). The guide was an attempt to reintroduce the design qualities of urban settlements which were characteristic of a specific region of Southern England.

However, the guide was frequently misinterpreted, in that its models and solutions, appropriate for the County of Essex, ended up being adopted in other parts of the country with completely different building traditions. This movement has been reinforced in recent years through the renewed interest in traditional vernacular architecture, and in the UK through the adoption of concepts from New Urbanism and Form-Based Codes, which have been central to the realisation of developments such as Poundbury (Samuels, 2014).

Reasons for Poor Living Environments

To understand in more depth the characteristics of Poor Living Environments—referred to as the first problem in the Manifesto—we need to identify and discuss the most pressing of the current problems causing European towns and cities to be dangerous, polluted, noisy and anonymous wastelands. They are all inter-related, all have implications for urban policy, and their impacts must be considered to devise policies and plans for the future form of our towns and cities. These sub-problems are:

- Pollution,
- Extreme weather events,
- Demographic change,
- Obesity,
- Security,
- Pollution.

The principle source of the most dangerous form of air pollution is the burning of fossil fuels in vehicles, industry, and domestic heating. In "The Mortality Effects of Long-Term Exposure to Particulate Air Pollution (2010) the Committee on the Medical Effects of Air Pollutants in the United Kingdom of the Health Protection Agency reported that this type of pollution was responsible for 29,000 deaths in 2008. Other sources suggest

this figure may be higher. From a 2016 report on early deaths caused by air pollution, the BBC quoted European figures which indicated that the worst affected countries are the Benelux, North Italy, Poland, and Hungary. In Belgium, each person loses 13.6 months of life from pollution.

Another form of pollution is noise, in particular from traffic that it is claimed to bother over 40% of the population of the UK and impacts human health generally (Stansfeld and Matheson 2003). The UK's Department for the Environment publishes noise maps of urban areas that show the intolerable levels from road traffic and, in some exceptional locations by aircraft noise, such as the vicinity of Heathrow Airport.

That air pollution and noise are now a major policy concern are demonstrated by the fact that, over the last decade, it has proved impossible to decide on the siting of new runways for London's airports because of local opposition.

Extreme weather events

Lately, rich and well-organised countries not usually associated with extreme weather, such as Germany and France, have been afflicted with flooding that claimed lives. While it is arguable that these events are no more frequent than in the past (Kelly, 2016) and whether or not they are caused by climate change induced by human activity, there is no doubt that they impact urban areas, and precautions need to be taken to minimise their future impact. These can only be undertaken on a communal or governmental basis, which suggests that a degree of urban planning is needed to coordinate private developments. This runs counter to the current neoliberal ethos that regards planning as an impediment to the efficient operation of the market.

Demographic Change

Population ageing is a global challenge, but Europe is leading the world in facing this problem which will have profound economic, social and cultural implications for decades ahead. As an extreme case, the World Bank (2014) forecasts that the ratio of Poland's population over 65 will grow from 29% in 2010 to 70.7% in 2060—one of the fastest ageing populations in Europe which is coupled with a low birth rate.

In relation to the implications of these changes to living environments, some attention has been given to the internal layout of dwellings. For example, the UK Life Time Homes (2010) protocol was applied to all new dwellings so that they would accommodate residents with reduced mobility. However, there is little attention to the impact of urban form on these ageing populations and the consequences to their lives, another urgent task for urban designers.

Obesity

It is now widely recognized that now obesity has achieved the status of a major epidemic, it is a major problem confronting

urban designers. According to Ng et al. (2014), between 1980 and 2013 the worldwide proportion of overweight or obese men rose from 28.8% to 36.9%, and of women from 29.8% to 38%. In developed countries, 16.9% of boys and 16.2% of girls were overweight or obese in 1980. By 2013, those figures rose to 23.8% and 22.6% respectively.

As a response, some countries imposed taxes on sugar while large sums of money are spent on bariatric surgical interventions to reduce food intake. However, one of the generators of obesity is physical inactivity, and by making active transport (walking and cycling) easier, safer, and relevant to everyday activities, the urban form can also make a contribution to alleviating this problem. For instance, in spite of the dangers of accidents and pollution, the health benefits and increased life expectancy of active transport have been convincingly documented (de Hartog et al. 2010).

Clearly, making provisions for walking and cycling will not automatically make people use these modes of transport, but at least they will have the possibility of benefiting from a more active lifestyle. There is evidence that by increasing investment in providing for these modes of transport a greater proportion of the population will take advantage of them.

Table 1 shows the proportion of journeys made according to different travel modes in 16 developed countries. It includes public transport, but it is notable how increased bicycle use correlates with increased investment in infrastructure for that specific mode. For instance, in the UK which --with the exception of London-- spends £1.38 per person on cycling infrastructure, only 1.2% of all trips are made by bike, while in the Netherlands which spends £20 per person, 25 % of all trips are by bike. With half of London car journeys under 2km: i.e. just a 25 minutes' walk, there is clearly room for improvement if the investment were to be forthcoming.

Security

Safety in residential areas is of great public concern. A UK Government Home Office report noted that “two-thirds of people in England and Wales feel unsafe walking alone in their neighbourhood at night” (Ford, 2004). The popularity of gated

communities is one response to this insecurity and has been discussed above under the Manifesto heading of Large-scale privatisation and loss of public life. While the form of our towns is believed to impact security, there is a debate on the relative safety of different arrangements. For example, the argument between the advocates of cul-de-sacs and those of connected streets is still unresolved (Whittaker, 2015).

The UK Police have responded to public concerns about urban security by publishing their own design guide (Secured by Design, 2014). The guide sets out useful, common sense suggestions for housing designers such as inserting windows to overlook corners, avoiding routes without houses opening onto them, as well as measures connected with the security of the dwelling fabric and its components such as doors and windows.

Conclusion

This short examination of the relevance of the Jacobs and Appleyard perception of urban design problems suggests that they all are still central and are even more severe than when the Manifesto was first drafted. However, under the heading of poor living environments it has been considered appropriate to outline in more detail some issues which are becoming ever more acute.

One major concern not specifically identified in the Manifesto is the growing awareness of the importance of urban ecosystems and how our urban environments can be designed to respond to the range of issues which these pose. Whether the whole of the Manifesto is as resilient as the first part must await a detailed discussion of its goals for urban life and its proposals for an urban fabric which would meet these goals.

Finally, the publishing history of this Manifesto deserves attention. The authors report that the Journal of the American Planning Association refused at first to publish it on the grounds that the assertions it made were not supported by research. Its editors only relented six years later because, in the words of the authors, initially they had not acknowledged that “professional experience had the value of research” (Jacobs and Appleyard 1987: 112). Unfortunately, this divide between practice and research has become even wider as witnessed

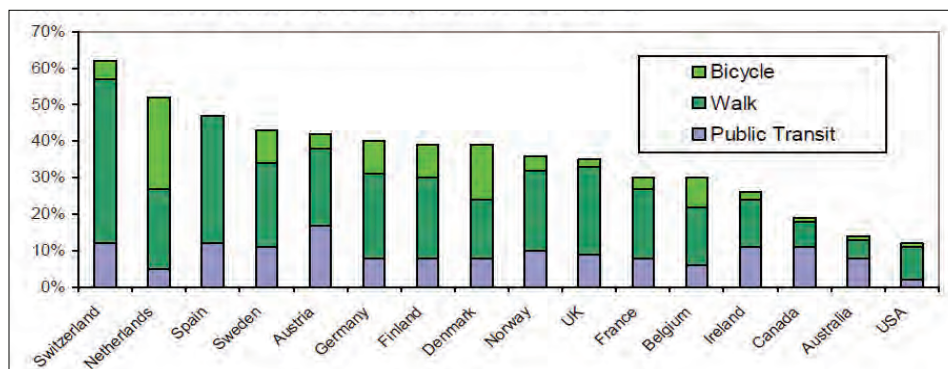


Table 1: Mode share by country (Litman, 2016)

with the introduction of research assessments that influence the allocation of funding according to the quantity of refereed published works (but curiously, not books...) which, in their quest for originality, are ever more divorced from the world of practice. Perhaps Schon's concept of the reflective practitioner is becoming extinct (Schon, 1983).

References

- Barton, H. (Ed.). (2000). *Sustainable communities: The potential for eco-neighbourhoods*. London: Earthscan Publications.
- Commission for Architecture and the Built Environment (2011). Large scale urban design. Retrieved from <http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/strud/about>
- de Hartog, J., Boogard, H., Niljand, H. & Hoek, G. (2010). Do The Health Benefits Of Cycling Outweigh The Risks? *Environmental Health Perspectives*, 118 (8), 1109-1116.
- Essex Planning Officers Association (1973). *Essex design guide for residential areas*. Essex County Council.
- Evans, A.W. & Hartwich, O.M. (2005). *Unaffordable housing: Fables and myths*. London: Policy Exchange.
- Ford, R. (2004, Dec. 31). Most fear to walk alone in the dark near home. *The Times*, p. 17.
- GINI - Growing Inequalities Impact (2011, April). *Inequalities impacts - State of the art review*. Retrieved from http://www.gini-research.org/system/uploads/253/original/GINI_State-of-the-Art_review_1.pdf?1308916502
- Jacobs, A. & Appleyard, D. (1987). Toward an urban design manifesto. *American Planning Association Journal*, 53 (1), 112-120.
- Khomami, N. (2015, May 6). London Council in social cleansing row over bid to move tenants to Birmingham. *The Guardian*.
- Hayward, R., Samuels, I. and Thomas, L. (2015). *House builders and urban design - Comparing house builders' approaches to urban design*. London: Urban Design Group. Retrieved from <http://www.udg.org.uk/content/house-builders-and-urban-design>
- Kelly, M. J. (2016). Trends in extreme weather events since 1900 – An enduring conundrum for wise policy advice. *Journal of Geography & Natural Disasters* 6 (1), 102-120.
- Lifetime Homes (2010, July 5). *The Lifetime Home standards*. Retrieved from <http://www.lifetimehomes.org.uk/pages/revised-design-criteria.html>
- Litman, T. (2016). *Evaluating active transport benefits and costs - Guide to valuing walking and cycling improvements and programmes*. Melbourne: Victoria Transport Policy institute.
- Ng, M. et al (2014). Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*, 384 (9945), 766–781.
- Samuels, I. (2014). Design codes in England – New Urbanist inspiration? *Focus* 11, 47-54
- Schon, D. (1983). *The reflective practitioner*. New York: Basic Books.
- Secured by Design (2014). *New homes 2014*. London: ACPO. Retrieved from <http://www.securedbydesign.com/wp-content/uploads/2014/02/SBD-NewHomes14-lowres.pdf>
- Stansfeld, A & Matheson, M. (2003). Noise pollution: non-auditory effects on health. *British Medical Bulletin* 68 (1): 243-257.
- The Economist (2016, Feb. 6). Retrieved from <http://www.economist.com/news/britain/21690059-who-lives-britains-social-housing-estate-flux>.
- ____ (2016, Jan 16). Can we fix it? Building more houses is only part of the remedy for high prices. Retrieved from <http://www.economist.com/news/britain/21688352-building-more-houses-only-part-remedy-high-prices-unlocking-britains-16m-empt>
- Whittaker, C. (2013, April 30). A safer alternative? cul-de-sacs and crime in Durham, NC. Retrieved from <http://sites.duke.edu/urbaneconomics/?p=985>
- World Bank (2014). *The economic impacts of aging in Europe and Central Asia*. Retrieved from <http://www.worldbank.org/en/news/feature/2014/04/25/economic-impacts-of-aging-in-europe-and-central-asia>

Streetplan: Hacking Streetmix for Community-Based Outreach on the Future of Streets

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Riggs, Boswell and Ross describe their pilot street design project deploying Streetplan, a version of the open-source tool Streetmix. As part of the City of San Luis Obispo downtown revisioning project, their efforts inform the process, currently underway, of revising the Downtown Vision Concept Plan. The project was presented at the 2016 Code for America Summit.

Streetplan is a tool created in 2016 building on the open-source, Code for America project, Streetmix. The goal of the tool is to provide dynamic, participatory planning of streets, supporting traditional community based methods with a digital infrastructure that allows for real-time information submission and dissemination. The tool allows for urban planners and decision-makers to capture and then aggregate public feedback on the future vision on how streets can be made more healthy and livable.

Introduction

Transportation behavior is becoming ever-more complex as digital information serves to moderate travel behavior and research has shown that community based digital tools can be effectively used to shape the built environment for walking and biking (Riggs & Gordon, 2015). This proliferation of geospatial information provides an additional tool for influencing behavior through mobile frameworks and through digital representation tools. For example, tools like SeeClickFix and Streetmix have been used to do conceptual design of sustainable streets. Likewise tools like Mindmixer and Brigade have been shown to increase public participation and be supportive of community-based and participatory planning (CBPP) methods (Evans-Cowley & Griffin, 2012; Riggs, 2016).

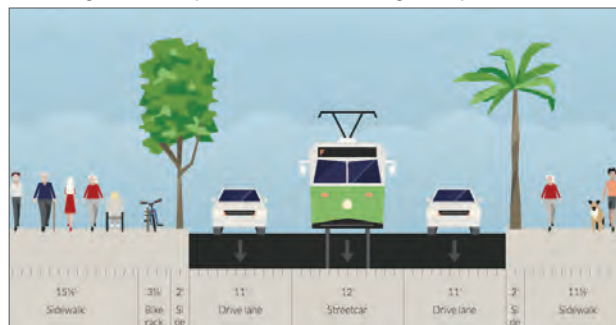
In academic circles this has given rise to the idea of urban informatics and quantified activities; or the ability for individuals to know and disseminate their location-based-information including built environment attributes, perceptions and observations, activities conducted, trip times and type, money spent, etc. (Carrel, Ekambaram, Gaker, Sengupta, & Walker, 2012). This geospatial information, which is already being used to influence behavior in other fields, can be applied to planning and environmental design, and therein lies the goal of this project – to combine digital tools with CBPP methods and facilitate collaborative design of the built environment for walking and biking.

Project Overview

In 2016 our team undertook a pilot street design project as a part of the Vision San Luis Obispo project in San Luis Obispo, CA. The project involved deploying a version of StreetMix (which we called StreetPlan) using a case study street in the City of San Luis Obispo, and then capturing data from citizens about what the future vision for that street, space or urban area—articulating how the public at large prefers and how they want to allocate active transportation resources in that location.

While we had appreciated the functionality of Streetmix the product did not allow us to capture public input and to aggregate this for decision-making and planning purposes in a way that was bounded by the reality of the existing right-of-way. Our modified version allowed for us to engage participants on street priorities in a constrained environment and then to combine those priorities to show community preferences. The goal of providing these community priorities and trade offs was to inform street section planning, design and traffic modeling / simulation. Ultimately it provided a community-based process for getting cities to get a data-driven pulse on community preferences and to articulate those results online and in plans.

Figure 1: Example of cross section using Streetplan.



Development

In terms of backend development, we forked the Streetmix Github repository so we could keep track of our changes to the code. We began with a default street layout and made this a fixed option, changing the default street width, the building height, the number of lanes and type of lanes to look like our case street.

We also identified which features we wanted to update, change or remove in the base Github package in order to make our tool easier to use and simpler to understand. We removed features such as: the Twitter sign in; My Streets feature; and the Sharing streets via Twitter which we felt would distract from our goals. After that, we added a Submit Street feature, which asked the user for some basic demographic information and if they would mind being contacted / providing contact information.

On the backend, we wanted to track which streets were submitted, so we changed the database schema to allow for a new 'submitted' boolean. We also added an API endpoint to handle the submissions, and send an email out, similar to how the feedback feature works currently. Once that was functional, we changed the welcome message to instruct the users on what we wanted them to do while using the tool.

Deployment

While the interface and development provided a tool, onsite data gathering was critical to the project's success. Data was gathered at a public event where our team was available to assist with any issues. We set up a bank of computers with wifi-enabled hotspots for the public to congregate and submit their "street plans" as pictured below. While we anticipated that the tool could be used to collect data in a virtual environment we cannot underscore enough the power of using it in an onsite, community-centric environment.

While our tool could be used to collect information beyond the event, based on our experience the process of having citizens work through design options alongside others was very useful. People engaged in important discussions on the trade-offs



Figures 2 & 3: The pilot street design project as a part of the Vision San Luis Obispo project in San Luis Obispo, CA.

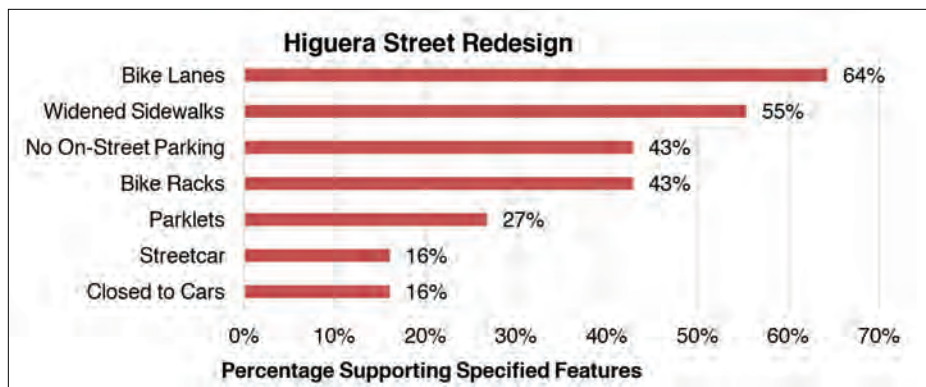


Figure 4: Survey results showing community preferences for Higuera Street redesign.

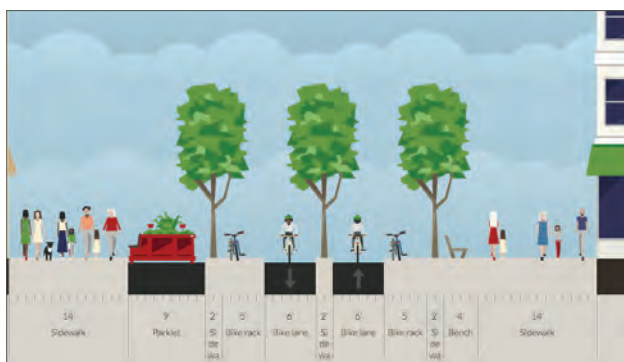


Figure 5: The community idea for a bike boulevard.

faced (e.g. if you have more space dedicated to bicycles then that leaves less space not only for cars but for pedestrians), and made decisions based on those discussions; grappling with these issues in parallel with others. This underscored an important distinction of our tool in that we bounded the street based on the reality of the existing right-of-way available—something very different than the Streetmix tool which can allow for portrayal of streets that extend beyond the realm of feasible alternatives in engineering most streets.

Reporting

The data collected was aggregated and analyzed the submissions that were received. To do this we wrote a number of MongoDB database queries on the entries that had been logged (over 200) to find out information including:

- How many streets were submitted
- How many lanes were used
- How many submitted streets had bike lines, parklets
- How many streets had no parking

We provided the City with a summary of the aggregate data in .csv format and also provide a memorandum that summarized the key points from the data. This included summaries of the data on the type of features that had been preferred (as shown in the graph below), along with example submissions, and a discussion of opportunities and constraints based on our experience in transportation engineering.

Future

There is ample room in the future to bring this type of technology to the community. Given appropriate marketing and extended development, we anticipate that are between 30 and 80 cities that could be interested in such a software-as-a-service over the next 1-2 years based on the number of cities in the US conducting streetscape plans.¹

Next steps in extending this work are to refine the tool and to begin work with other cities who want to engage the public

in reshaping streets. Furthermore, since we began our project, the base Streetmix code has been updated, and we intend pulling those changes into our repository and to contribute migrating the code to the React/Redux framework. Finally, we intend to migrate our tool to a new domain, Restreet.com.

Ultimately the goal for these and other creative initiatives continues to be to see more sustainable and safe streets for all.

REFERENCES

- Carrel, A., Ekambaran, V., Gaker, D., Sengupta, R., & Walker, J. L. (2012). The Quantified Traveler: Changing transport behavior with personalized travel data feedback. Retrieved from <http://www.uctc.net/research/papers/UCTC-FR-2012-12.pdf>
- Evans-Cowley, J., & Griffin, G. (2012). Microparticipation with Social Media for Community Engagement in Transportation Planning. *Transportation Research Record: Journal of the Transportation Research Board*, 2307, 90–98. <http://doi.org/10.3141/2307-10>
- Riggs, W. (2016). Mobile responsive websites and local planning departments in the US: Opportunities for the future. *Environment and Planning B: Planning and Design*, 0265813516656375. <http://doi.org/10.1177/0265813516656375>
- Riggs, W., & Gordon, K. (2015). How is mobile technology changing city planning? Developing a taxonomy for the future. *Environment and Planning B: Planning and Design*, 0265813515610337. <http://doi.org/10.1177/0265813515610337>

¹ We estimate that of the roughly 22,000 municipalities in the US, approximately 1 in 5 are doing some type of streetscape or circulation plan every year based on the normal 5-year time horizon for such documents that is usually established by local ordinance. Of these 4,400 cities if such software solutions could capture only 1% that would equate to 44 cities a year interested in using such a tool.

From Downtown to the Inner Harbor: Baltimore's Sustainable Revitalization

Part 1: The Charles Center Plan

Vicente del Rio

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The revitalization of Baltimore's Inner Harbor and waterfront is internationally recognized as a planning and urban design model. This successful story started in the late 1950s with the Charles Center redevelopment plan for the core of the Central Business District and its positive effects on the city's economy. In the first of a two-part article, Vicente del Rio writes about this early plan and its role in Baltimore's efforts towards a sustainable revitalization. Next FOCUS will feature his account of the plan for the Inner Harbor and beyond.

I have a long-standing fascination for Baltimore's efforts in revitalizing its downtown and, particularly, the waterfront. In 1984 I had the chance to spend some time there, dividing my attention between research and practice, and I was in awe from the moment I arrived.¹ As an urban design scholar and practitioner, Baltimore was, and still is, one of the most fascinating international examples of revitalization, place making, waterfront redevelopment, and re-imagining. From a run-down, decaying, and almost hopeless case of urban neglect, economic exhaustion, and suburbanization, the city raised from its ashes, rebuilt, and became a great place to live, shop, recreate, and visit. Baltimore's success in revitalizing its Inner Harbor is heralded as an international model of success, and is noted in all professional publications. Despite the social and economic problems and downturns hitting Baltimore over the years, it is one of the most attractive, dynamic, and fun metropolitan cities in the US.

Notwithstanding Baltimore's success with its downtown and Inner Harbor, our field has not seen any comprehensive publication on the planning process behind this success. That realization came as a surprise to me when, in 2008, I was invited to contribute to a book on the revitalization of port areas for the City of Rio de Janeiro. At that time Rio was immersed in strategic planning for the 2014 World Cup and the 2016 Olympic Games, and downtown projects were prioritized including the redevelopment of a long stretch of the city's historic port. Since leaving Baltimore in 1985 I visited a couple of times and remained an interested observer, so I

gladly plunged into the article by updating my old records and studies, reviewing the literature, and consulting with personal connections there. My efforts led to a book chapter providing a panoramic view of Baltimore's fifty years of planning and urban design efforts leading to the Inner Harbor success.² However, having a publication in Portuguese limits its reach and, encouraged by several colleagues, I decided to adapt it for FOCUS.

My essay tells the story of Baltimore's efforts towards reinventing its downtown and revitalizing its Inner Harbor and waterfront, and the several components of a vision that has been consistent and sustainable enough to successfully incorporate political interests, market forces, and community needs. But I must warn the readers that this is not data-driven academic work but a professional-oriented story from my personal perspective. And because my account of Baltimore's fifty-plus years of downtown revitalization efforts and successful projects is long, it will appear in FOCUS in two parts. In the current issue, the first part covers the initial steps in the late 1950s with the Charles Center Renewal Plan. The second part, to appear in FOCUS next year, will cover the revitalization of the Inner Harbor and beyond. Hopefully, I will be able to show how Baltimore managed to plan for a short and long-term strategy, reverse an escalating number of problems affecting the downtown, and keep afloat as a feasible city. There are some important lessons in this story for planners and urban designers.

¹ As a Senior Visiting Scholar with the Johns Hopkins Center for Metropolitan Research, and as a Visiting Urban Designer with the City of Baltimore's Housing and Urban Renewal Department, from August to December 1984.

² Organized for the City of Rio de Janeiro's Mayor office. See "Baltimore, Inner Harbor" in V. Andreatta (ed.) *Porto Maravilha - Rio de Janeiro + Seis Casos de Sucesso de Revitalização Portuária*. Rio de Janeiro: Prefeitura do Rio de Janeiro / Casa da Palavra, 2010, pp. 22-61

Sustainable Revitalization

In revitalizing cities and urban districts, planning and urban design should be guided by a sustainable development paradigm that is best represented, as suggested by Godschalk (2004), by a pyramid with ecology, economy, and equity at the base and livability at the top (Figure 1). On the one hand, this paradigm recognizes that high-quality design interventions are fundamental for sustainability. On the other hand, because of declining public investment capabilities and the increasingly globalized market space, cities are looking for flexible strategic planning models that include public-private partnerships and participatory practices as competitive advantages.

Strategic sustainable planning must be a way to think and conceive urbanism, reflecting in the city as a whole and in its various parts. As a decision-making process, it must constantly be assessed by stakeholders, particularly the communities directly impacted by the decisions (Marshall, 2001). Each positive result contributes to the whole, feeding a sustainable process and attracting new investments, residents, and consumers that, in turn, generate additional projects and so on. Sustainable revitalization of urban cores, specifically of ports and waterfronts, has become archetypical of the post-industrial city, enabling cities to participate in a competitive global market where national and local identities, and quality of life are essential elements (del Rio, 1991; Shaw, 2001; Stevens, 2009). An important component of this complex sustainable planning process is place making, place marketing, and the constant monitoring of place quality (Kotler et al., 1993).

Baltimore's Charles Center and Inner Harbor plans had the National League of Cities Baltimore appoint Baltimore as the most successful city in economic development (in Kotler, Haider & Rein, 1993: 62). As with any competitive product at the global level, the process of revitalizing central areas and obsolete ports adopted a model that is, at the same time, adaptable for both tourist and local consumption (Breen & Rigby, 1993, 1996; Marshall, 2001; Stevens, 2009). Among experiences of waterfront intervention and revitalization in post-industrial cities, Baltimore's Inner Harbor is a model difficult to avoid (Busquets, 1995). According to the American Institute of Architects (AIA), Baltimore's Inner Harbor is "one of the supreme achievements of large-scale urban design and development in U.S. history" (Millspaugh, 2003). By 2000, the Charles Center-Inner Harbor redevelopment plans had received 45 national or international awards and the renowned Frommer's guide consistently picks Baltimore as one of the top ten cities to visit in the United States.

The success of the Inner Harbor's initiative, its positive effects on the larger city, and its sustainability over time has made it an international point of reference: a flexible initial plan, open to community and private sector participation, a determined city government and willing business partners, a smart management structure, and quality urban planning led to the place's redevelopment and appreciation.

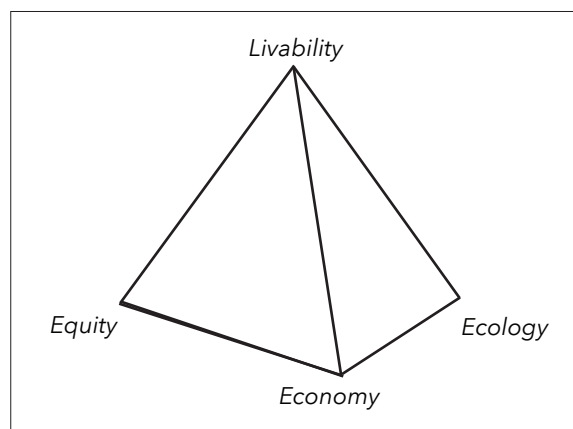


Figure 1: The sustainability pyramid (based on Godschalk, 2004).

The Historical Context

Following World War II, not unlike most US cities, Baltimore started feeling the impacts of suburban development. Firstly, the federal government was incentivizing new housing for veterans returning from the war through cheap mortgages. Secondly, the Interstate Highway Act of 1956 destined large resources to highway construction to support the growth of the automobile industry. In the case of Baltimore, estimates indicate that most of the 30,000 returning veterans settled in new suburban tract housing Olson (1997). However, although Baltimore's industrial base had expanded significantly during the war efforts, it retracted in the post-war period and, by the late 1940s, Baltimore's industry had shrunk by 45,000 jobs (Olson, 1997). Labour cuts, plant closings, and technological reorganizations continued to hit Baltimore through the 1980s (Merrifield, 2002). Between 1950 and 1960 the city lost 18,000 manufacturing jobs, and of the 1,738 manufacturing firms that existed in the 1950s only 696 were left in 1984 (Levine, 1987; Merrifield, 2002).

The pursuit of the American Dream of owning a home in suburbia, the ease of moving around on the new highways, and the deterioration of Baltimore's industrial and economic base, pushed the middle and upper class families out of the city. With them went the shops, businesses, schools, hospitals, and public institutions. Between 1950 and 1960 Baltimore's suburban population jumped from 270,000 to 492,000 (Warren & McCarthy, 2002). Meanwhile, poorer populations with lower mobility—mostly African-Americans that had unsteady or lower paid jobs—stayed behind in the inner city with little or no economic opportunities. While white families moved out, real estate prices dropped significantly, and buildings became rapidly susceptible to deterioration, facilitating poorer families to move into older neighborhoods. The flight of families and businesses to the suburbs together with the changing economy led to a precipitous drop in Baltimore's real estate prices and tax base, leading to a spiralling effect of depression.

While in the 1960s an average Baltimore resident was paying twice the property tax than a suburbanite, the latter paid twice as much income tax (Olson, 1997). This phenomenon, known as “white flight”, had profound negative impacts on all large cities in the US.

Although unsuccessful, Baltimore’s late 1940s attempt to deal with its inner-city slums through zoning and code enforcement became a model to many US cities (Hoffman, 2008). By the 1950s the effects of the “white-flight” on Baltimore’s city core were huge: hundreds of lots had been vacant for over fifteen years, 5,000 thousand buildings were either vacant or deteriorated, 25,000 substandard residential units had to be demolished, and poverty driven racial problems were escalating since nine out of ten evicted residents were African-American (Olson, 1997). In Baltimore alone, between 1951 and 1964, highway construction, urban renewal and other public programs resulted in the displacement of 10,000 families of which 90 percent were black (Frieden & Sagalyn, 1989). By the 1960s Baltimore was the leading US city in tearing down old and poorly maintained buildings, causing violent traumas to the evicted families and contributing significantly to the escalating racial problems that culminated in the huge riots and burning that shook the city in 1968.

By the 1950s the Inner Harbor, Baltimore’s main port area, was also facing untenable conditions. Firstly, the old harbor’s morphology, the encroaching city, and the obsolescence of its facilities were severe obstacles to proper cargo handling and storage, new terminals, and modern port operations that increasingly relied on containerization. Secondly, the antiquated street grid limited accessibility to the port seriously impacting circulation and the movement of large trucks. Finally, because of the Inner Harbor’s size and shallow waters – both pluses for vessels in the past– Baltimore’s port was unable to attract modern and large ships.

Depopulation, deindustrialization, and the inability to solve the physical limitations of its port were lethal blows to Baltimore’s harbor (Wrenn, 1983). By the late 1950s, thousands of jobs had ceased to exist, and the maritime industry and most commercial activities had abandoned the Inner Harbor. Hundreds of warehouses and buildings were vacant, and the desert streets were taken by filth and wrecked cars. Baltimore became known as a city with a great past, but no future and the deterioration of its downtown became the major cause of the inferiority complex shared by Baltimoreans (Millsbaugh, 2003; Pike, 2009).

The Seed for Revitalization: The Charles Center Plan

In 1954, Baltimore’s business community formed two important groups that would be immensely instrumental in the long downtown revitalization process that was about to start: the Greater Baltimore Committee (GBC) and the Committee for Downtown. Sharing the same economic goals, both organizations were preoccupied with the decaying down-

town and agreed on the need for a plan to reverse it. Among these city champions was James Rouse, a local visionary developer whose company was about to become a major player in Boston’s and then Baltimore’s revitalization efforts.³ Although at that time Baltimore was facing strong competition from the suburbs and commercial sales in the city had dropped dramatically, the high office occupancy rate of 97% suggested a strong potential for downtown redevelopment (Lang, 2005).

GBC’s planning council hired architect and planner David Wallace, former chief of planning for Philadelphia’s redevelopment authority, to develop a plan for the Central Business District.⁴ Wallace would develop a strategic vision and quickly realized that planning for downtown’s 125 hectares would take so long that “the patient could die on the operating table while the diagnosis was being determined” and decided to focus on a short-term plan for a smaller area with the potential for immediate impact (Millsbaugh 2003: 37; Wallace, 2004). Presented in 1957 and adopted by the City, the Charles Center Plan was the first focusing on the renewal of an American city core and one of the most influential in the US (Whyte, 1988; Lang, 2005) (Figure 2). It was the first plan to propose public-private partnerships, estimating a total of \$140 million (in 1957 dollars) in public investments (Bonnel, 1979; Millsbaugh, 2003). A more comprehensive, policy-oriented vision plan for the whole CBD was only finished and approved in 1959, and included, for instance, the expansion of the University of Maryland downtown campus and a new Central Retail Area, and the Inner Harbor as a future redevelopment phase (Wallace, 2004). Regarding place making, Kotler, Haider & Rein (1993: 333-334) point to the importance of Baltimore having a “comprehensive plan as well as a one or two key ideas that captured the public’s imagination”.

Implementation of the Charles Center Plan started with the approval of the plan and its 40-year urban development controls. Rezoning the area and establishing it as an urban renewal district followed shortly, opening the way for the city to use eminent domain and to seek federal redevelopment grants. Plan

³ James Rouse’s biography is an interesting chapter on its own. An incredibly active entrepreneur and a major player in Baltimore’s renaissance, Rouse believed that the market economy should have a social conscience, a value that marked all his work life (Bloom, 2004; Olsen, 2004). He was a constant adviser to the US government on urban and housing policy, and his company was responsible for pioneering projects such as Columbia New Town in Maryland, planned with racially integrated neighborhoods. Planning shopping malls as gathering centers for the community in a context that welcomed social and ethnic minorities, the Rouse Company invented the festival mall concept that mixes retail, food and recreation, such in Boston and Baltimore (Frieden & Sagalyn, 1991). James Rouse was awarded the Presidential Medal of Freedom in 1995.

⁴ David Wallace was one of the most prolific and influential urban designers and planners in the US, having received the AICP 2009 National Planning Pioneer Award. In the early 1960s he formed a successful partnership with Ian McHarg, William Roberts, and Thomas Todd (WMRT). In his professional memoir he discusses his long involvement with Baltimore, including the Charles Center and Inner Harbor plans (Wallace, 2004).

implementation was handed over to a specially formed quasi-public non-profit entity, the Charles Center Management Office. The CCMO was the first of its kind in the US and, acted outside the city's bureaucracy it made implementation easier, more agile and flexible, proving fundamental for Charles Center's success. Later, the City would expand the CCMO's responsibility to include the Inner Harbor area, transforming it into the Charles Center / Inner Harbor Incorporated (CC-IH).

At its start, the CCMO had to deal with hundreds of parcel acquisitions and assemblages, the relocation of 850 businesses (who were moved back after the project was over), and the continuous negotiations with dozens of city, state, and federal agencies during planning, design, construction, and maintenance phases (del Rio, 1985; Lang, 2005). Together with the work of the CCMO, former president Martin Millspaugh (2003) highlights the importance of GBC and the Committee for Downtown's work in organizing an enormous network of contacts and efforts focused on carrying out the plan.

The Charles Center Plan covered a 22-acre (8.8 hectares) area which redevelopment would leverage the revitalization of the entire downtown (Millspaugh, 1964; Wallace, 2004). Departing from the urban renewal model of the time, the plan resulted from a wider comprehensive planning effort and it was more careful with pre-existences, not imposing a clean slate, fitting into the street grid and preserving four historic buildings (Brambilla & Longo, 1979; Wallace, 2004; Lang, 2005). The plan was praised by the general and professional media, even by

Figure 2: Charles Center original model superimposed on an aerial photo. The Inner Harbor can be seen on the top of the photo. (original photos by M. Warren; from a 1958 booklet from the Greater Baltimore Committee, 1958)



critics such as Jane Jacobs who called it “a new heart for the downtown” in a 1958 article (Wallace, 2004: 18). In a letter to James Rouse and the city, Jacobs noted that she liked the plazas and the attention given to pedestrians, congratulating the city for the plan being “less of a ‘project’ than an integral, continuous part of the downtown” (Warren & McCarthy, 2002: 36).

The plan included three superblocks with eight office towers and two through-streets running East-West (Figure 3). The north superblock included Center Plaza —Charles Center major open space— several office buildings, ground-level retail and eateries, and the Baltimore Gas & Electric Company and Fidelity historic buildings and a small corner plaza at the tip of the block. In this superblock's southeast corner site, One Charles

Figure 3: Major elements of the Charles Center Plan.

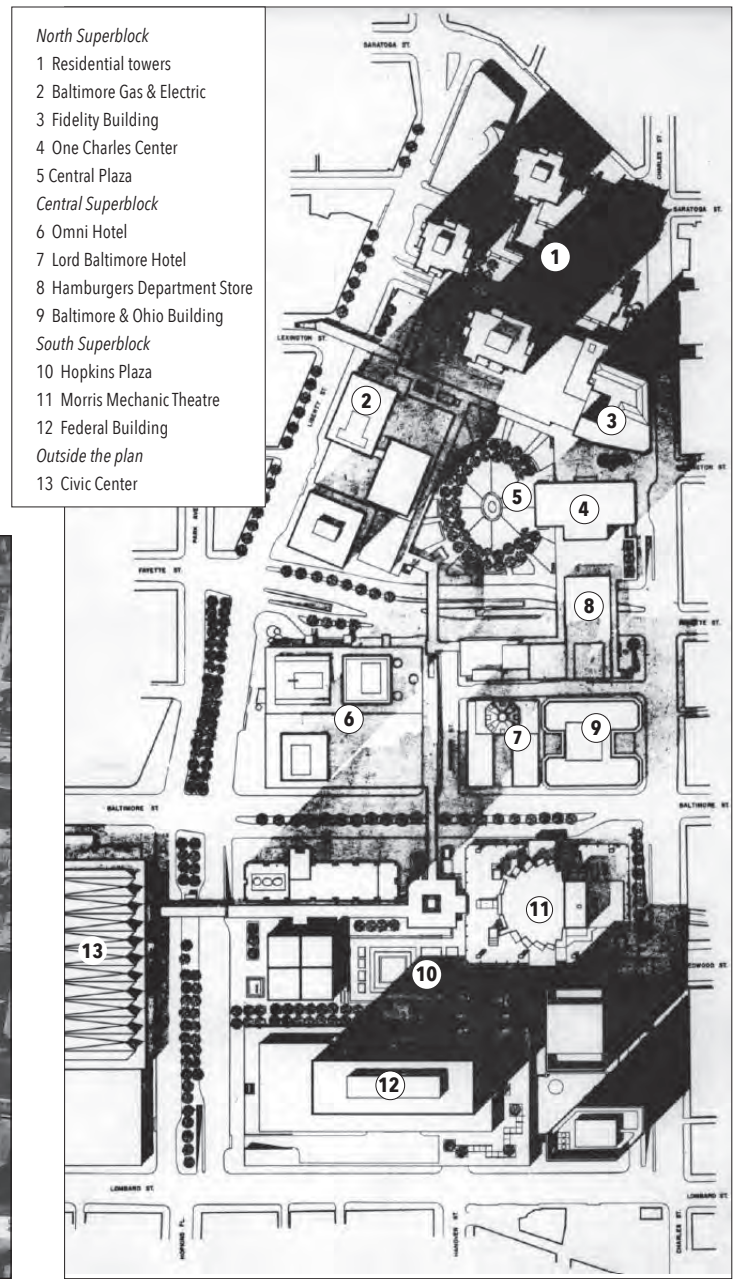




Figure 4: The Center Plaza in the north superblock from the pilotis area under One Charles Center. The "skywalk" system starts here and can be seen in this photo. In the background, the old Bromo-Seltzer Tower. (photo by the author, 1985)

Center, the plan's first new office building, would be inaugurated in 1962. Facing one of the east-west streets, the Center Plaza featured an oval-shaped space defined by landscaping, seating, and a double line of small ornamental trees (Figure 4). The plaza would become popular for public events such as the flea market, and its location and size "made it appropriate for big events such as the Baltimore City Fair, a popular event that drew thousands in celebration of Baltimore's neighborhoods" (Warren & McCarthy, 2002: 38). When inaugurated in 1970, the city fair attracted more than 200,000 people to Central Park and continued doing so until moved to the Inner Harbor.

The smaller, central block included an Omni hotel (today a Sheraton), two small commercial buildings, and the Lord Baltimore Hotel (today a Radisson) and the Baltimore & Ohio Railroad historical buildings. Bridging over the other east-west street, a three-stories department store connected north and central blocks at their eastern-most corners. The south superblock, designed around Hopkins Plaza and its fountain, included three private office buildings and was anchored by a theatre—the plan's only cultural facility—and the 460,000 square-foot Federal Building. Keeping the federal administration services—including the court house and immigration services—from building their new consolidated facilities in the suburbs was a major victory for local planners and politicians, and fundamental for the Charles Center Plan (Wallace, 2004: 36-37). According to Warren & McCarthy (2002) note that, for many years, Hopkins Plaza's amphitheatre ambience surrounded by the theatre, the raised platform of surrounding buildings, and the pedestrian bridges made it popular for outdoor concerts. In the original plan, under the south superblock, an underground transportation terminal would allow passengers to transfer to city buses.

Although most of the success of both Charles Center's plazas was certainly due to the lack of parks and open spaces in the downtown, the spaces and the connections between them and the buildings in the three superblocks were comfortable and attractive for pedestrians and revealed nice vistas. Finally, Charles Center's original plan included two major modernistic features to help link the three superblocks that reflected the planners' modernistic inspiration: a consolidated underground parking structure for 4,000 cars and a series of pedestrian bridges, as the planners wanted to take advantage of the site's 68-foot drop. The idea for a single underground garage across all Charles Center properties was dropped early because of the numerous ownership and management problems to be dealt with. Instead, each site would pursue its underground parking solution.

A system of pedestrian bridges, nicknamed "skyway", integrated with open spaces and promenades, was to make the pedestrian experience comfortable and separate from vehicular traffic (see Figures 3 & 4). This system was like a spine linking the middle of superblocks north to south and also meant to help animate the second floors of buildings, particularly when dedicated to retail. Starting at the Center Plaza, the pedestrian bridge linked to the second floors of the Omni and Lord Baltimore hotels in the mid-superblock, and then to the Morris Mechanic Theatre and the Hopkins Plaza in the south superblock. The south superblock was also bridged to the Civic Center on the west and, in the following phase, to the block to the south and beyond, eventually, the Inner Harbor.

Implementation and Changes to the Original Plan

In 1999, forty years after adoption and when its special redevelopment controls expired, we can consider that the Charles Center Plan was successful in reaching its goals. David Wallace, Charles Center's chief urban planner, notes that "from an economic and fiscal point of view... it has been an outstanding success... turning the CBD from an urban disaster into a national model" (Wallace, 2004: 32). Above all, Charles Center was as a fundamental catalyst for the wider CBD plan and helped direct revitalization towards the Inner Harbor.

The early formation of the CCMO (and its later expansion to incorporate the Inner Harbor) with its effective pro-active work was, without a doubt, fundamental for plan implementation and respect for its vision, while pursuing public-private partnerships and responding to market fluctuations. A 1989 study included Baltimore as one of the ten most entrepreneurial and best manages cities in the US (Kotler, Haider & Rein, 1993: 328). For instance, feasibility and market studies led to three early changes to the original plan. Firstly, the concept for a single consolidated underground garage across the three superblocks was dropped out for each site having its own solution. Secondly, the idea of an underground transportation terminal in the south superblock was given up but the Baltimore's 1965 Area Mass Transportation Plan

replaced it with a subway station. The subway line and station serving Charles Center became operational in the early 1980s.

The third early major change to the plan affected the top portion of the north superblock that had its land-use converted from office to residential and a proposed mid-rise parking structure stricken out. According to Wallace (2004), the expansion of office uses in the CBD suggested the need for upper-income apartments. The resulting two residential towers with 400 apartments were offered, instead, to lower-middle income families, the most evident demand at the time. However, the towers did not do well and, by the 1990s, were refurbished into upscale apartments plus a small shopping center at the ground floor, responding to the growing demands of downtown's residential market (see number 3 in Figure 3).

All architectural projects in Charles Center had to comply with the plan's specifics and be submitted to an architectural review board created by the City and the CCMO (Wallace, 2004). The board created site-specific design guidelines that were included in requests for proposals as conditions of sale to guarantee "how each separate buildings was to fit into the place as a whole and connect to its surroundings" (Wallace, 2004: 37). The same author notes that Baltimore's practice became a model for urban renewal projects funded by the federal government. In 1959, Charles Center's architectural review board developed the guidelines for and supervised one of the most important strategic decisions: a national competition to choose a development proposal for the plan's first office building at a prominent corner site in the north superblock.

The competition for One Charles center was an effective marketing strategy in attracting the attention of the national media towards Baltimore's redevelopment efforts and its commitment to modernity through design. Presented by a developer from Chicago, the winning project proposal was designed by famous modernist architect Mies Van der Rohe. Inaugurated in 1962, One Charles Center was Mies's last project before his death and it was typical of his well-known International Style: a 23-story steel and dark glass tower on columns, with great transparency on the ground floor and dedicating most of it for a public plaza (Figure 5). The strategy helped to raise the private investors' confidence in the success of the city's redevelopment efforts. So much so that the developer who came second in the competition with a project by Marcel Breuer (another top modernist architect) assembled a site across the street from One Charles Center and had an office tower built first (Frieden & Sagalyn, 1989; Wallace, 2004). Fortunately, local demand for office use was strong enough, and both were leased quickly, generating an important demonstration effect.

By 1962, based on the recently approved master plan for the CBD --also developed by Wallace and his group-- the City built a Civic Center --now named 1st. Mariner Arena-- and an attached parking structure with the hopes of attracting the public to downtown events (see map in Figure 3). This was an important

addition to the momentum created by Charles Center and the revitalization of the CBD. Covering an entire 6-acre block west of Charles Center's south superblock and linked to it by a pedestrian bridge, the Civic Center was designed by Pietro Belluschi, another famous modernist architect at the time, for 14,000 sitting spectators. Over the years it hosted numerous events such as basketball games, circus, monster trucks shows, and concerts by bands such as the Beatles, Cream Led Zeppelin, Grateful Dead, Jethro Tull, Bruce Springsteen, and Beyonce. Although over the years the building went through two major renovations, it has been a continuous success and a money-maker. However, by 2014 the City was entertaining proposals from private developers to redevelop the block into a new, modern facility topped by a residential tower with retail at street level. Located at walking distance from plenty of parking, subway stations, and the Inner Harbor, this is a strategic location and its redevelopment potential further, demonstrates Baltimore's CBD positive dynamics.

Figure 5: One Charles Center designed by Mies Van der Rohe, and the Hamburgers department store spanning over Fayette Street (demolished in the late 1980s). (photo by the author, 1985)





Figure 6: Getting to the south superblock from the "skywalk": the Morris Mechanic Theatre on the left, Hopkins Plaza, and the Federal Building in the background. (photo by the author, 1986)



Figure 7: The new design for Center Plaza includes four big lawns and smaller planters, plenty of trees and seating, and a water feature on its west edge. (photo from www.mahanrykiel.com)

Figure 8: The Hopkins Plaza in the south superblock in 2002 receiving minor maintenance work, showing the Federal Building and an access to underground parking. (photo by the author, 2002)



By 1963, in addition to Mies's office building, Charles Center featured two new office buildings while six were in the pipeline. By 1967, the south superblock had received two major projects: the Federal Office Building and the 1,600-seat Morris Mechanic Theater, the plan's only cultural facility. Anchoring the Hopkins Plaza and directly connected to the skywalk system, the theater was built and named after a local entrepreneur who had other such venues in Baltimore. According to Wallace (2004: 35), originally Morris Mechanic wanted Frank Lloyd Wright, Le Corbusier, or Philip Johnson to design his building, but settled for brutalist architect John Johansen whose "multi-use complex's layer-cake of public parking underground, retail on the first and theatre on the second level, with different ownerships on each, was an innovative legal as well as architectural creation" (Figure 6).

Unfortunately, the building's architecture was never popular, and the ground level retail was never strong enough, perhaps due to the lack of residential use in the immediate vicinity besides the pull factor from the Inner Harbor. The Morris Mechanic Theater remained Baltimore's main venue for major plays and Broadway acts until the early 1990s when its physical limitations started preventing larger contemporary acts. The theatre closed in 2004, but its underground parking garage continued to operate until the building was torn down in 2015 after local preservationists failed in their attempt to have it granted landmark status. In 2016 the city approved a project for the site that included two towers of 33 and 19 stories with 450 apartments, restaurants and retail over five stories of underground parking—taking advantage of the subway station in that location and responding to the increasing demand for downtown living.

After their initial success, neither of Charles Center's two main plazas were able to retain the dynamism originally envisioned by the planned, no doubt because of being surrounded mostly by offices and of the stronger pull of the revitalized Inner Harbor and its parks. Center Plaza in the north superblock, never recovered from losing its several seasonal public events to the Inner Harbor, and its arid modernistic design became disfavored by the community. It was renovated in 2007 and it now features extensive green-scaping, a water feature with a pool, movable seating, and night-lighting effects (Figure 7). In the south-superblock, Hopkins Plaza had a similar fate due to the always weak retail around it and the closing of the Mechanic Theatre (Figure 8). The Cultural Landscape Foundation (n.d.) notes that "the introverted nature of the plan was a built-in handicap and prevented the lively, populous atmosphere envisioned by planners." As major flaws, they point to the placement of the two major plazas inside the superblocks, the excessive hardscaping, the fixed seating, the separate building ownership, and the fact that several of the office buildings had their own subsidized cafeterias discouraging workers to lunch in the plazas.

The skywalk—the extensive system of pedestrian bridges connecting the superblocks to the Inner Harbor—started to

be dismantled in the late 1980s and none remains (Figure 8). Time showed that people prefer to walk at street level, and the prospect for a strong retail component on second floors never happened (Whyte, 1988; Lang, 2005). Planner David Wallace recognized this problem and noted that some of the skywalks blocked views from the street into the plazas and they were “circuitous and hard to find” (Wallace, 2004: 33).

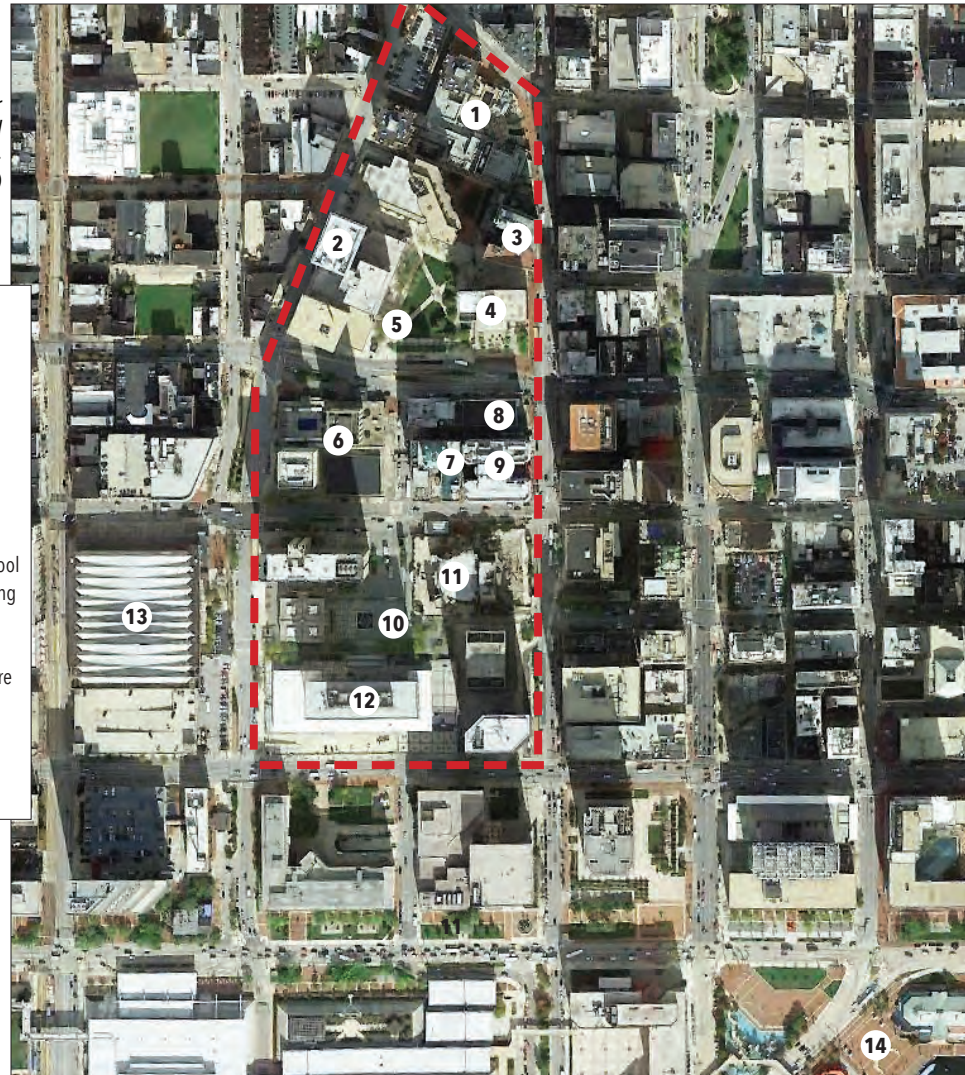
By 1998, the plan’s retail building that spanned over a street connecting the mid and north superblocks was torn down after the original department store occupying it closed and its “tunnel like” effect was recognized as too unpopular (Powell, 2011). Currently, the resulting north corner parcel has a one-story retail building with a roof-top plaza connected to One Charles Center --the designed by Mies Van der Rohe building. In the south corner parcel, a new three-story building holds the Johns Hopkins University’s business school, whose MBAs, part-time, and weekend courses generate significant activity.



Figure 8: Traversing the center superblock, the skywalk (now demolished) along the Lord Baltimore (left) and Omni (right) hotels, before getting to the south superblock by the theatre (left) and the Federal Building (background). (photo by the author, 1986)

Figure 9: The Charles Center area now; compare map and legend to those in Figure 3. (Aerial photo from Google Earth)

- | | |
|---------------------------|---------------------------|
| <i>North Superblock</i> | |
| 1 | Residential towers |
| 2 | Baltimore Gas & Electric |
| 3 | Fidelity Building |
| 4 | One Charles Center |
| 5 | Central Plaza |
| <i>Central Superblock</i> | |
| 6 | Omni Hotel |
| 7 | Lord Baltimore Hotel |
| 8 | Johns Hopkins Bus. School |
| 9 | Baltimore & Ohio Building |
| <i>South Superblock</i> | |
| 10 | Hopkins Plaza |
| 11 | Morris Mechanic Theatre |
| 12 | Federal Building |
| <i>Outside the plan</i> | |
| 13 | Civic Center |
| 14 | Inner Harbor |



Final Remarks - Towards the Inner Harbor

As noted by Lang (2005), although Charles Center adapted to specific demands from clients, to the evolving property market, and got considerably denser than the original plan, it retained most of its qualities over the years. However, although the Charles Center Plan had the right ingredients for what, at the time, was thought to lead to a successful place, its implementation revealed many of the shortcomings of modernism that, in this case, can be grouped into three types: land use, management, and design.

Firstly and above all, the lack of a live-in population impacted the plan by not making its spaces lived in and dynamic enough. The weight towards office and commercial uses in the original plan not only reflected the trend of the time towards implementing strick-line CBDs in central cities, but also the only market demand that still existed in downtown Baltimore in the mid-1950s as noted above. The plan even innovated, if compared to others of that era, by including two residential towers in the north superblock. However, all the other buildings in Charles Center and its surroundings remained exclusively non-residential until the late 1980s when the revitalization of the Inner Harbor started to ripple back to the downtown. The mixed-use project replacing the Mechanic Theatre and the proposed to redevelopment the old Civic Center block should generate almost 1,000 new apartments and increase the round-the-clock usage of Charles Center. Another land-use problem derived from the number of single-company office buildings with their own cafeterias that discouraged employees to eat outside and help in the dynamics of the plazas.

Regarding management, problems seem to have happened at two levels. The first, higher level of problems was caused by the lack of a tighter and more comprehensive planning process that could consider the negativities that the success of each new plan or initiative could cause on the previous. Although it was Charles Center's success that leveraged the Baltimore's efforts throughout the CBD and the redevelopment of the Inner Harbor, once the waterfront was recuperated it became too much of a "seductive competitor" (Wallace, 2004: 32). The second level of management problems occurred, as pointed out by The Cultural Landscape Foundation (n.d.), because the city government did not retain ownership of the system of open spaces and exterior infrastructure but for the three plazas, so their treatment, management, and maintenance were up to individual building owners and tenants.

The third and last type of problems are related to design. As Wallace (2004) and other observers recognized, the Charles Center Plan suffers from the introverted lay-out, the lack of design coherence, the failure of the skywalk system, and the poor architectural solutions of many of the buildings. On this last problem, based on his professional experience, Wallace (2004) notes that no matter how good the urban design guidelines, you still need good architects to produce good

design and a memorable place. Frieden & Sagalyn (1989: 42) were more negative noting that Charles Center's superblocks structure was more appropriate to the suburbs, fitting poorly with the surrounding context and adding little to the attractiveness of the downtown.

However, the future and integrity of the Charles Center Plan may be at risk. As David Wallace (2004) pointed out in his memoirs, since Charles Center's 40-year design and redevelopment controls expired in 1999 and the current downtown zoning ordinance allows a 14 FAR (floor area ratio), market pressures and developers' proposals to intensify development may lead the city to drastic changes to the original concepts.

The early success and repercussions of Charles Center encouraged the City to follow the planners and the GBC's recommendation and expand revitalization efforts to another phase, focusing on the much larger area to the south known as Inner Harbor. Covering a 240-acre one-block deep area around the harbor's edge, the Inner Harbor Project I Urban Renewal Plan was presented in 1964 and adopted by the city and the federal government as in 1967. The Inner Harbor plan was an almost instant success and, by creating a new, strong connection between Baltimore and its waterfront, it revealed untapped potentials that generated economic, recreational impacts and ripple effects much larger than expected.

Together, Charles Center and the Inner Harbor plans prove the importance of sustainable revitalization for Baltimore's livability efforts. But the story of Baltimore's Inner Harbor, and the conclusion for this two-part article, will have to wait until next year's FOCUS.

Note

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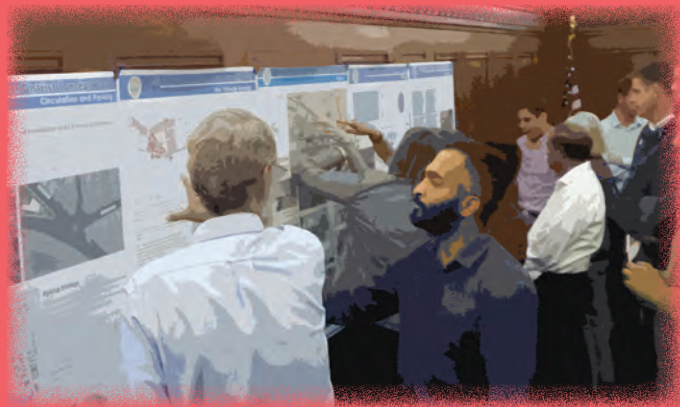
References

- Bernstein, R. (2011). Families increasing in downtown Baltimore. *The Daily Record*, available at www.thedailyrecord.com; posted May 17, 2011.
- Bonnell, B. (1979). Charles Center and the Inner Harbor. In Guide Book Committee of the Maryland Chapter (ed) *A Guide to Planning In and Around Baltimore*. Baltimore, MD: American Planning Association – Maryland Chapter.
- Bloom, N. (2004). *Merchant of Illusion: James Rouse, America's Salesman of the Businessman's Utopia*. Columbus: Ohio University Press.

- Brambilla, R. & Longo, G. (1979). *Learning from Baltimore: What makes Cities Livable*. New York: Institute for Environmental Action.
- Breen, A. & Rigby, D. (1993). *Waterfronts: Cities Reclaim their Edge*. New York: Mc-Graw Hill.
- _____. (1996). *The New Waterfront: A Worldwide Urban Success Story*. London: Thames & Hudson.
- Busquets, J. (1997). Los Waterfront - De nuevo una prioridad urbanística. *Mediterráneo* # 10/11, Universidade de Lisboa.
- del Rio, V. (2010). Baltimore, Inner Harbor. In V. Andreatta (Ed.) *Porto Maravilha - Rio de Janeiro + Seis Casos de Sucesso de Revitalização Portuária*. Rio de Janeiro: Prefeitura do Rio de Janeiro / Casa da Palavra; pp. 22-61
- _____. (1991). *Desenho Urbano e Revitalização na Area Portuária do Rio de Janeiro: A Contribuição do Estudo da Percepção Ambiental*. Doctoral dissertation. Faculdade de Arquitetura e Urbanismo, Universidade de São Paulo. Available at <http://works.bepress.com/vdelrion/doctype.html>
- _____. (1985). *Um Caso de Revitalização Urbana: Baltimore, EUA*. Research report, PhD program. Faculdade de Arquitetura e Urbanismo, Universidade de São Paulo.
- Frieden, B. & Sagalyn, L. (1989). *Downtown, Inc.: How America Rebuilds Cities*. Cambridge, MA: MIT Press.
- Greater Baltimore Committee – Inner Harbor Management Task Force. (2003). *Managing Baltimore's Inner Harbor Operations*. Report available at www.gbc.org/reports; retrieved November 19, 2009.
- Godschalk, D. (2004). Land Use Planning Challenges: Coping with Conflicts in Sustainable Development and Livability. *Journal of the American Planning Association* 70(1).
- Gordon, D. (1996). Planning, Design and Managing Change in Urban Waterfront Redevelopment. *Town Planning Review* 67.
- Hall, Peter. (1988). *Cities of Tomorrow*. Oxford: Basil Blackwell.
- Hofman, Alexander von. 2008. The Lost History of Urban Renewal. *Journal of Urbanism* 1(3).
- Jacobs, J. (1958). Cities are for People. *Architectural Forum* June 1958.
- Kotler, P., Haider, D. & Rein, I. (1993). *Marketing Places: Attracting Investment, Industry, and Tourism to Cities, States, and Nations*. New York: The Free Press.
- Lang, J. (2005). *Urban design – A Typology of Procedures and Products*. Oxford: Elsevier / Architectural Press.
- Levine, M. (1987). Downtown Redevelopment as an Urban Growth Strategy: A Critical Appraisal of Baltimore Renaissance. *Journal of Urban Affairs* 9(2).
- Marshall, R. (Ed.). (2001). *Waterfronts in Post-Industrial Cities*. London: Taylor & Francis / Spon.
- Merrifield, A. (2002). *Dialectical Urbanism: Social Struggles in the Capitalist City*. New York: Monthly Review Press.
- Millspaugh, M. (2003). The Inner Harbor History. In *Urban Land*, Abril.
- _____. (2001). Waterfronts as Catalysts for City Renewal. In R. Marshall (ed.) *Waterfronts in Post-Industrial Cities*. London: Taylor & Francis / Spon.
- _____. (1980). Critical Mass. *The Evening Sun* 1/7/1980.
- _____. (1964). *Baltimore's Charles Center: A Case Study of Downtown Renewal*. Technical Bulletin 45. Urban Land Institute: Washington D.C.
- Olsen, J. (2004). *Better Places, Better Lives: A Biography of James Rouse*. Urban Land Institute: Washington D.C.
- Olson, S. (1997). *Baltimore, the Building of an American City*. Baltimore: Johns Hopkins University Press.
- Power, G. (2011). Wallace-McHarg's Plans for Greater Baltimore. University of Maryland Legal Studies Research Paper No. 2011-23. Available at <http://dx.doi.org/10.2139/ssrn.1836621>; retrieved on July 16, 2012.
- Shaw, B. (2001). History at the Water's Edge. In R. Marshall (org.) *Waterfronts in Post-Industrial Cities*. London: Taylor & Francis / Spon.
- The Cultural Landscape Foundation (n.d.). Available at <http://tclf.org/landslide/urban-renewal-renewed-makeover-baltimore-s-center-plaza>; retrieved December 15, 2016.
- Stevens, Q. (2009). Artificial Waterfronts. *Urban Design International* 14 (1).
- Wallace, D. (2004). *Urban Planning My Way*. Chicago, IL: American Planning Association.
- Warren, M. & McCarthy, M. (2002). *The Living City – Baltimore's Charles Center and Inner Harbor Development*. Baltimore: Maryland Historical Society.
- White, W. (1988). *The City – Rediscovering the Center*. New York: Doubleday.

FOCUS 13

Faculty and Student Work



Global Changes, Local Impacts: California's Adaptation Tools Help its Cities Address Climate Change

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The State of California has been changing state-level policies and legislation to prepare for and minimize the impacts of climate change. But how can local governments integrate climate adaptation planning into local policy and practice? Through three-case studies, Boswell and Read discuss how state agencies and the robust set of tools and guidance in the California Adaptation Planning Guide have been helping California communities in climate action planning.

When the city of Laguna Woods — a small southern California community with no history of climate change planning — decided to prepare a climate adaptation plan, it was overwhelmed with questions and uncertainty. Where could it find information about anticipated climate change impacts? How should it conduct a vulnerability assessment and policy development process? And how could it integrate climate adaptation planning into local planning and policy? Help was needed to address the challenges ahead.

State agencies recognized that local governments like Laguna Woods faced a twofold problem. First, information about the local impacts of climate change was difficult to find and of uncertain quality. Although there have been many efforts to downscale global climate models for regional and local use, local officials were presented with myriad options. Second, the information available was often in a form not useful to local planners. The information generally came from scientific sources that made little mention of policy — guidance that would help planners to develop a climate adaptation plan.

California communities now have a robust set of tools and guidance to help them plan for climate change impacts. The California Adaptation Planning Guide, issued in July 2012, provides local and regional governments with a process and tools for assessing vulnerability to climate change and developing strategies for adaptation and resilience. Associated with the guide is the web-based Cal-Adapt tool that allows users to define spatial areas and view climate change exposures such as wildfire, sea-level rise, and extreme heat. For local planners, Cal-Adapt is a single source of downscaled climate data that has been vetted by scientists working with the state.

In 2010 the California Climate Action Team, a state interagency committee, produced official guidance for incorporating sea-level rise into planning. The guidance includes projections along the California coast for three future time periods. It is based on the most recent science and is intended to reduce the confusion arising from different sea-level rise projections and scenarios coming from scientific, national, and international organizations.

Now many state agencies are providing climate change guidance for the planning processes they oversee. For example, the California Coastal Commission is in the process of finalizing guidance for integrating sea-level rise into local coastal planning. Similarly, the California Department of Water Resources, in cooperation with the U.S. Environmental Protection Agency, provides the Climate Change Handbook for Regional Water Planning.

On a more local level, several regional data programs supplement or build on the state data. In the San Francisco Bay Area, the Our Coast Our Future collaboration provides users with detailed sea-level rise data that can be combined with coastal storm data to assess the impact of extreme events. In Los Angeles, the C-CHANGE.LA collaboration shows projections for extreme temperature changes down to the neighborhood level.

Many California communities are at the forefront of putting these tools and data to use. Laguna Woods is assessing how its vulnerable population can adapt to extreme heat. The Western Riverside Council of Governments is helping the communities in its subregion to be resilient despite heat, drought, wildfire, and flooding risks. And the coastal city of Benicia is preparing for sea-level rise and the impacts of coastal flooding. All of them offer lessons in the value and shortcomings of tools and guidance provided by the state and other entities.

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Laguna Woods

Laguna Woods (pop. 16,415) is an incorporated city in Orange County with a predominantly older population. The median age in the city is 77; the 2010 Census reported that half of Laguna Woods residents are 75 or older and roughly one-quarter are 85-plus. Cognitive impairment, dependence on medications and medical apparatuses, limited access to lifelines, the likelihood of social isolation, and fixed incomes are among the major concerns in a community of older adults. These factors are predictors of vulnerability to climate change exposures such as extreme heat and severe weather.

The city used leftover funding from a Community Development Block Grant Component Award for the 2008 Disaster Recovery Initiative Program to develop a resilience plan. Its main tools were the California Adaptation Planning Guide and the Cal-Adapt web portal, which helped the city develop a thorough adaptation plan despite slim resources.

In particular, the city used the guide to define technical climate change terms in common language used by its consultant, the community, and its elected leaders. It also followed the suggested planning process and referred to the document for guidance when it encountered the need for third-party data.

The city downloaded extreme heat and wildfire data from Cal-Adapt, as well as regional climate change profiles from the guide to develop its vulnerability assessment. In 2014, the Laguna Woods city council unanimously adopted the plan. Through the adaptation planning process, the city identified increases in extreme heat as the most certain and severe impact to its older residents. As a result, the city developed policies focused on extreme heat emergency preparation and response to increase public safety, and energy efficiency and renewable energy to reduce the ever-increasing cost burden of cooling residents' older homes.

Western Riverside Council of Governments

The WRCOG subregion — the western part of Riverside County, located about 50 miles east of Los Angeles — consists of 18 jurisdictions and is home to nearly two million people. Western Riverside County is a diverse area, with a variety of socioeconomic conditions, infrastructure types, neighborhoods, geographies, and character. It is an arid region with cool winters and hot summers.

In 2014, WRCOG adopted the Subregional Climate Action Plan, with strategies for achieving 1990 emissions levels by 2020. WRCOG believes that for the subregion to flourish amid unprecedented growth, local decision makers must explore how the climate could change and begin to implement strategies that could help communities thrive in a variety of conditions. With that aim, WRCOG this year conducted a climate change adaptation study that became a stand-alone report for local government use and an integrated chapter of the Subregional Climate Action Plan.

WRCOG obtained grant funding from the Southern California Association of Governments to complete the adaptation report, but did not have the money or personnel to develop climate change projections from scratch. WRCOG used a combination of the California Adaptation Planning Guide, Cal-Adapt for extreme heat projections, and reports and hazards mapping data released by the California Energy Commission for wildfire projections.

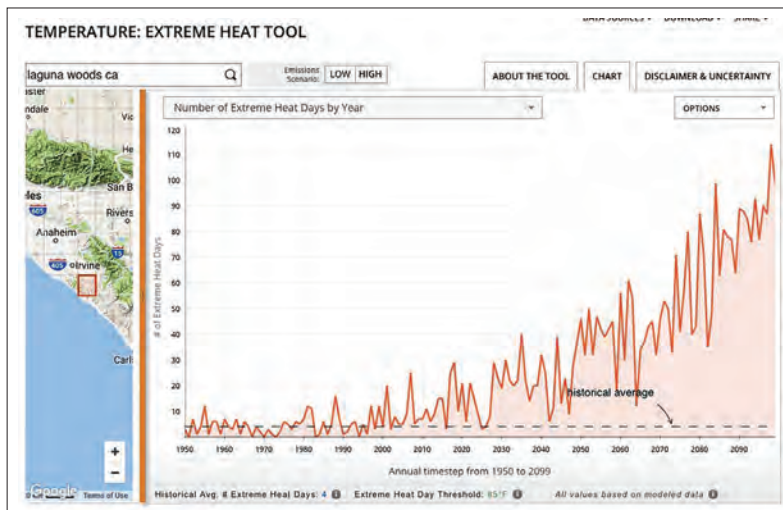
The WRCOG example illustrates a shortcoming of statewide data. The hydrology of the subregion is complicated, and the plan would have benefited from projections on flooding as a result of precipitation change. However, the data was not available, so WRCOG settled on using 100-year and 500-year Federal Emergency Management Agency floodplain maps as a proxy.

What does this mean?

This chart displays a count of the number of days (along the "y" axis) that the selected area on the map is projected to exceed the area's calculated "extreme heat threshold" for each year 1950–2099. This threshold can be found labeled in green at the bottom of the chart.

For most areas around the state, the models project a significant rise in the number of days exceeding what is now considered extremely hot for the given area. In combination with extreme daytime heat, extremely warm nights are an important factor to consider.

Source: Cal-Adapt.org/temperature/heat/#



Although not perfect, the tools empower the subregion to begin planning for the long-term effects of climate change using available resources. While WRCOG may not know exactly how flooding could change as a result of climate change, it can now share with local policy makers and transportation agencies the importance of considering these changes when making long-term infrastructure investments.

Benicia

Benicia (pop. 28,000) is a waterfront community east of San Francisco. The city is home to an arts community, scenic vistas, a vibrant downtown, a port, and an industrial park with more than 400 businesses. However, much of this is threatened by the impacts of future climate change. Sea-level rise, storm surge, and extreme temperatures are projected to increase significantly over the coming decades.

To maintain its high quality of life, Benicia is proactively planning for the challenges that a changing climate may bring. The city is conducting a Climate Change Vulnerability Assessment and creating an Adaptation Plan that identifies adaptation measures emphasizing sustainability, social equity, economic vitality, and cost effectiveness; where feasible, these will be integrated into existing or future city plans.

With funding from the California State Coastal Conservancy Climate Ready grant program, the city is in the process of testing the application of the San Francisco Bay Conservation and Development Commission's Adapting to Rising Tides vulnerability and adaptation model, which relies heavily on strong stakeholder engagement.

The city has a number of tools at its disposal to project sea-level rise impacts. Most importantly, the California Ocean Protection Council released updated sea-level rise planning guidance in 2013, which includes the scientific findings of the National Research Council study Sea-Level Rise for the Coasts of California, Oregon, and Washington. The OPC guidance recommends preparing for five to 24 inches of sea-level rise by mid-century and 17 to 66 inches by the end of the century for most of coastal California.

In order to use publicly available sea-level rise mapping tools to determine the effect of storms on coastal flooding, a FEMA study of average water level depths during storm events of various return intervals was used in conjunction with three other tools: the National Oceanic and Atmospheric Administration's DigitalCoast Sea Level Rise Viewer, Climate Central's Surging Seas maps, and the Future San Francisco Bay Tidal Marshes tool (from Point Blue Conservation Science). With these tools, the city could develop the best available understanding of how sea-level rise could affect the shoreline.

The tools helped the city identify and determine which local areas will be most vulnerable to changing water levels and what risks need to be addressed now and in the future. This

information and a broad list of adaptation strategies was supplied to city department heads, who selected priority measures by evaluating the time frame for implementation, available internal and external funding, consistency with existing city priorities, and other factors. These priority strategies and a comprehensive matrix of all adaptation measures, searchable by vulnerability, risk, time frame, location, and cost, will be presented to the city council by next spring.

Although each of these communities made a significant leap forward in creating resilience to climate change, some challenges remain. The tools and guides are user friendly, but all of the communities needed consultant expertise to complete their planning efforts. That could be a potential problem in communities lacking the funds to hire consultants.

What was learned

Projections have existed for as long as planners have been planning. Most planners are comfortable thinking about how populations and economies might change through a planning period, yet no one expects planners to be technically trained demographers or economists. Rather, most agencies depend on experts to develop projections based on the most likely outcomes given what is presently known. As the climate changes, planners will also need to get comfortable using climate projections. But, just as we don't expect all planners to be economists or demographers, we shouldn't expect planners to be climatologists.

The tools discussed in this article represent the first generation of attempts to provide local planners with the projections they need to make informed long-term planning decisions. Although not perfect, the tools empower local governments and agencies to begin incorporating climate change into their planning tools.

Several challenges remain. First, although the tools in question simplify the complicated world of climate projections, the embedded assumptions and scenarios can still present an overwhelming set of choices to communities venturing into adaptation planning. These tools need to include more "expert system" features that assist with confusing decisions.

Second, downscaling global climate change impacts to the local level continues to have a high degree of spatial and temporal uncertainty. State guidance generally does a good job explaining this uncertainty, but local governments could benefit from additional guidance on how to communicate the uncertainty and additional explanation of how the uncertainty should factor into local planning decisions.

Finally, many communities continue to struggle to map community assets, hazards, and climate change impacts. In particular, small, resource-constrained communities may not be able to maintain their own GIS. Additional evolution of web-based mapping tools such as Cal-Adapt and the NOAA DigitalCoast

suite will be of great benefit to these communities and have the added benefit of being accessible by the general public.¹

As communities begin to see and feel the significant effects of climate change, it is clear that in most cases inaction is no longer a prudent long-term option. Although the uncertainty inherent in climate change projections will continue to be a challenge, accessible data tools make local actions more feasible and effective. With these tools in hand, local governments and agencies can continue their good, long-term planning work in the face of a changing climate.

Resources

California Climate Adaptation Planning Guide: http://resources.ca.gov/climate/safeguarding/adaptation_policy_guide

Cal-Adapt: <http://cal-adapt.org/tools>

California Climate Action Team: http://climatechange.ca.gov/climate_action_team

Our Coast Our Future: <http://data.prbo.org/apps/ocof>

C-CHANGE.LA: <http://climateresolve.org/c-change.la>

NOAA DigitalCoast: <http://coast.noaa.gov/digitalcoast>

¹ For more information on DigitalCoast resources, see “Coastal Data, Visualized” in the October 2012 issue of *Planning*.

Form-Based Codes: An Overview of the Literature

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Urban form, sustainability, community vision, place specificity, code document clarity, and efficiency of the development process are identified as the essential themes behind form-based codes by Evan Evangelopoulos and Cornelius Nurworsoo. The authors note the need to develop measurable parameters to better study these themes and understand the impact of form-based codes in their effort to reform US cities and move them away from Euclidian zoning.

Form-based codes represent an attempt to reform zoning regulations in the US and respond to inefficiencies of traditional Euclidean zoning. This paper presents form-based codes as a set of archetypal themes which create a framework within which to address prevalent criticism, delineate better code assessment criteria, and evolve the form-based code zoning paradigm. Towards this goal, the paper summarizes the reasons behind form-based codes by reviewing foundational form-based code authors and topics. We identified six themes as essential to form-based codes: urban form, sustainability, community vision, place specificity, code document clarity, and efficiency of the development process. This paper concludes that topics of form-based code criticism can fit within the six themes, but evaluating criteria do not address place specificity. It is argued that each theme needs to be separately researched and equipped with measurable parameters to better address and advance form-based code intentions and the overall effort to reform cities in the US.

Introduction

Polyzoides (2008, p. xv) describes form-based codes as a regulating and coding method that supports place-based urbanism in contrast to use-based Euclidean codes that create an urbanism of “congestion, ugliness, impermanence and petroleum dependence”. Similarly, other form-based code practitioners such as Opticos, Inc. strongly promote the form-based code paradigm as an important method to address urban issues in the US such as pollution, lack of housing choices, lack of transportation choices, inefficient lifestyles with long commutes, and limitations of Euclidean-based zoning.

Note: This article is based on Evan Evangelopoulos MCRP thesis [Neighborhoods, Proximity to Daily Needs and Walkability in Form-Based Codes](http://digitalcommons.calpoly.edu/do/search/?q=Evangelopoulos&start=0&context=565962), supervised by Dr. Cornelius Nuworsoo. It can be found at: <http://digitalcommons.calpoly.edu/do/search/?q=Evangelopoulos&start=0&context=565962>

Indeed, form-based codes reflect a general trend during the past decades to reform zoning regulations in US cities and respond to new community realities that request walkability, sustainability, commute time reduction, and infrastructure efficiency to apparent inefficiencies of traditional Euclidean Zoning.

Despite such assertions, and while form-based codes are gaining in popularity, pervasive criticism has probably impacted the rate of adoption and many jurisdictions probably hesitate adopting a form-based code. The rate of adoption is relatively slow compared to the rate of Euclidean code adoption in the early 20th century. In the US there are 39,044 general purpose governments that include 19,492 municipal governments, 16,519 township governments and 3,033 county governments.

As of March 2016, after more than three decades of history, the number of adopted form-based codes is 362 or about 0.9% of the total number of cities, townships, and counties in the US (Placemakers, 2016). This rate is extremely slow when compared to the rate of zoning adoption by US cities after the 1916 New York City zoning law when thirteen years later, by 1929, “nearly eight hundred cities in the United States had zoning ordinances” and “more than half the US urban population lived in zoned cities” (Talen, 2012 p.29).

Criticism

Persistent form-based code criticism arises from beliefs that the codes are architecturally restrictive constraining the creative process of architects, disregard community, create indistinguishable towns with a uniform aesthetic forcing cities to accept the transect as a universal city theme, are of little help in towns lacking character, delay the entitlement process with strict regulations and unreasonable variances, incorporate incomprehensible jargon, and promote density and population increases to the detriment of locals (Perez, 2014; Rangwala, 2013; Inniss, 2007).

Although often incorrect, addressing and exploring such criticism can be a complicated issue since circumstances and conditions change. Since form-based codes, for example, are created through extensive citizen participation, criticism about disregarding community seems unreasonable, yet community perspectives can change with long project delays and the arrival of new citizen participants unfamiliar with the form-based code jargon. In the City of Ventura for example, the Great Recession had delayed most projects in the form-based code districts and without proof of results of the adopted codes, the community eventually developed negative attitudes adversely reacting to the words density and infill in the codes and the General Plan. The four form-based codes in the City of Ventura had been adopted after extensive citizen participation in the late 2000's and even now (2016), after the Great Recession, no project has been completed yet, leaving form-based codes without proof of effectiveness and thus vulnerable to criticism.

Aim and Method of Study

With both critics and advocates, form-based codes could benefit from the identification of archetypal themes that create a framework from which to organize, assess, clarify, address, and evolve the form-based code paradigm. Also, every theme could be explored further with the development of theme-specific parameters to evaluate the codes during adoption, application, and after project completion. Thus both assessment criteria and criticism could nest into a specific theme inviting more systematic research of apparent issues.

The aim of this paper is not to address criticism of form-based codes but instead identify major archetypal themes that could represent the full range of form-based code intentions. To identify the themes, this paper reviewed the definition of form-based codes and the writings of foundational initiators, advocates, and authors of form-based codes such as the Form-Based Code Institute (FBCI), Polyzoïdes, Duany, Parolek, and Talen who not only initiated but also helped shape the form-based code paradigm. A few other authors and publications cover some of the legal perspectives of form-based codes and municipal approaches written by government agencies such as the Chicago Metropolitan Agency for Planning. Exploration of the themes in form-based codes starts with the official Form-Based Code Institute evaluation criteria and definition.

Exploring Themes in Form-Based Codes

Form-Based Code Themes in the Official Definition of Form-Based Codes

In the official definition of form-based codes by the Form-Based Code Institute two themes become apparent, one reflecting urban form, and another reflecting the application of the code (Form-Based Codes Institute, 2016a). The definition states that:

A form-based code is a land development regulation that fosters predictable built results and a high-quality urban

form by using physical form (rather than separation of uses) as the organizing principle for the code (*this part of the definition is associated with the theme of urban form*). A form-based code is a regulation, not a mere guideline, adopted into city, town, or county law. A form-based code offers a powerful alternative to conventional zoning regulation (*this part of the definition is associated with the theme of Code Application*).

Form-Based Code Institute, Placemakers, Inc. and Code Evaluation

The Form-Based Code Institute (2016) "is a non-profit professional organization dedicated to advancing the understanding and use of form-based codes. It is the official voice of form-based codes in the US with a yearly award program. Placemakers, Inc. (2016) is a planning and design firm that promotes placemaking and form-based codes and has developed criteria to evaluate form-based codes. FBCI and Placemakers have worked together, and many of their evaluation criteria overlap. Both groups have several examples of evaluated and approved codes on their websites.

The effort to identify form-based code themes continued by reorganizing the evaluation criteria by FBCI and PlaceMakers into broader themes based on apparent similarities which revealed an overall form-based codes focus on Urban Form, Community Vision, Document Clarity, and Code Application. The official definition of form-based codes discussed earlier reflected only two of these themes, Urban Form and Code Application. Out of nineteen evaluation criteria, seven reflected urban form, two community vision, seven code document clarity, and three code application.

Form-Based Code Themes in FBCI and PlaceMakers Evaluation Criteria

Urban form-related evaluation criteria

1. Is the code's focus primarily on regulating the urban form and less on land use?
2. Does the code emphasize standards and parameters for form with predictable physical outcomes (build-to lines, frontage type requirements, etc.) rather than relying on numerical parameters (FAR, density, etc.) whose outcomes are impossible to predict?
3. Does the code require private buildings to shape public space through the use of building form standards with specific requirements for building placement?
4. Does the code promote and/or conserve an interconnected street network and pedestrian-scaled blocks?
5. Will the code shape the urban form to invite pedestrian use and social interaction?
6. Will the code produce walkable, identifiable neighborhoods that provide for daily needs?

- 7. Are parking requirements compatible with pedestrian-scaled urbanism?

Community vision-related evaluation criteria

- 8. Is the code based on a sufficiently detailed physical plan and/or other clear community vision that directs development and aids implementation?
- 9. Does the code implement a plan that reflects specific community themes?

Code document clarity-related evaluation criteria

- 10. Are regulations and standards keyed to specific locations on a regulating plan?
- 11. Are the diagrams in the code unambiguous, clearly labelled, and accurate in their presentation of spatial configurations?
- 12. Is the overall format and structure of the code readily discernable so that users can easily find what is pertinent to their interest?
- 13. Are the technical terms used in the code defined in a clear and understandable manner?
- 14. Does the code format lend itself to convenient public distribution and use?
- 15. Are the themes of each regulation clearly described and apparent even to planning staff and citizens who did not participate in its preparation?
- 16. Can users readily understand and execute the physical form intended by the code?

Code application-related evaluation criteria

- 17. Is the code regulatory rather than advisory?
- 18. Are the procedures for code administration clearly described?
- 19. Is the form-based code effectively coordinated with other applicable policies and regulations that control development on the same property?

Additional Sources of Form-Based Code Theme Identification

To further explore form-based code themes we selected seven other sources some of which are well-known form-based code reference books such as Form-Based Codes by Parolek, D., Parolek, K., & Crawford, P. (2008). References in some of the publications and online search identified the rest of the sources. Although the literature on form-based codes was not as rich as expected the additional sources provided a good range of approaches, from the historical perspective of Emily Talen (2009) to the legal aspects of FBCs by Emmerson (2006).

These additional sources verified the themes identified in the form-based code definition and evaluation criteria, but they added two more: specificity to locality (tailoring the code to

local characteristics) and sustainability. The theme of urban form closely relates to quality of life signalling the obvious that form-based codes attempt to create an urban environment that positively affects quality of life.

Table 1 presents a summary list of form-based code themes and shows that the themes can be divided into two types: four themes that focus on community and urban form; and two themes that focus on the structure and application of the coding document. Table 2 presents the form-based code themes present in the literature reviewed.

While there is a preponderance of overlap on the coverage of themes among various sources, no single source covers all identified themes. Table 3 presents criticism topics as presented by Perez (2014), Rangwala (2013), and Inniss (2007) easily nested within the six form-based code themes revealing that form-based codes should be already addressing these issues. The fact that these criticism topics contradict form-based code intentions may reveal real problems and the need to address such criticism more effectively in adopted form-based codes.

Discussion of Themes

This section discusses the form-based code themes as presented under the two theme types in Table 1.

Type 1: Community and Urban Structure Form-Based Code Themes

Urban form and quality of life Form-Based Code Theme

The urban form and quality of life form-based code theme relates to the application of standards that aim at a specific urban form ideal which avoids an urbanism of “congestion, ugliness, impermanence and petroleum dependence” (Polyzoides, 2008, p. xv), lack of housing choices, lack of transportation choices, and inefficient lifestyles with long commutes. An ideal urban form promotes walkability, sustainability, commute time reduction, and infrastructure efficiency.

Towards such goals, form-based codes apply urban form principles such as the quarter-mile pedestrian shed and the concept of a neighbourhood with a centre and edge (Duany, Sorlein, & Wright, 2008; Parolek, Parolek & Crawford, 2008).

Table 1: Types of Form-Based Code Themes.

Type 1: Community and Urban Structure Themes:	Type 2: Code Document and Code Application Themes:
1. Quality of life and quality of urban form	5. Clarity of zoning documents
2. Specificity to locality	6. Easy application process
3. Community vision	
4. Sustainability	

Table 2: Types of form-based code themes in reviewed documents.

Documents	Themes						
	Community and Urban Structure Themes				Code Document and Code Application Themes		Other
	Urban Form and Quality of Life	Sustainability	Community vision	Specificity to locality	Code application	Code document structure and clarity	Other
Evaluation Criteria (Placemakers, 2015, FBCI, 2015)	X		X		X	X	
FBCI, 2015	X		X	X	X	X	
Chicago Manual, 2014	X		X	X	X	X	
Talen, 2009	X		X	X		X	
Duany et al., 2008	X	X				X	Neighborhood-Urbanism ¹ Walkability ¹ Community-Strengthening ² Transit ¹
Plater-Zyberk, 2008	X	X	X	X		X	
Polyzoides, 2005 & 2008	X	X	X	X		X	Community-Strengthening ²
Parolek et al., 2008	X	X	X	X		X	Application of Urban Principles ¹
Emerson, 2006	X	X		X	X	X	
	NOTES: 1 Relates to 'quality of life and public realm' 2 Relates to 'specificity to locality'						

Table 3: Form-based code criticism nested within the six themes. Some criticism topics may reflect more than one theme and therefore appear multiple times on this table.

Type 1: Community and Urban Structure Themes	Type 2: Code Document and Code Application Themes
1. Quality of urban form and quality of life CRITICISM: <ul style="list-style-type: none"> FBCs promote density and population increases to the detriment of locals FBCs are architecturally restrictive constraining the creative process of architects FBCs create indistinguishable towns with a uniform aesthetic 	5. Clarity of zoning documents CRITICISM: <ul style="list-style-type: none"> FBCs incorporate incomprehensible jargon
2. Specificity to locality CRITICISM: <ul style="list-style-type: none"> FBCs create indistinguishable towns with a uniform aesthetic FBCs force cities to accept the transect as a universal city theme, FBCs are of little help in towns lacking character 	6. Easy application process CRITICISM: <ul style="list-style-type: none"> FBCs delay of the entitlement process with strict regulations and unreasonable variances, FBCs are architecturally restrictive constraining the creative process of architects
3. Community vision CRITICISM: <ul style="list-style-type: none"> FBCs disregard of community, FBCs promote density and population increases to the detriment of locals FBCs are architecturally restrictive constraining the creative process of architects 	
4. Sustainability CRITICISM: <ul style="list-style-type: none"> FBCs promote density and population increases to the detriment of locals 	

Neighbourhoods are described as quarter-mile pedestrian sheds with a commercial, retail, or civic centre providing a walkable environment close to daily destinations. A prime example of the application of this theme is the award-winning Cincinnati form-based code which specifically focuses on creating walkable neighbourhoods at selected locations. It is important to recognize that walkability, proximity to daily destinations and quarter-mile pedestrian sheds are integral aspects of many old towns.

Towards urban form goals form-based codes also use transects, streets, or building frontages to organize the code within identified pedestrian sheds and include regulations and standards which control the features, configurations, and functions of buildings that define the urban form. An example is the attempt to control the form and mass of buildings in relation to one another with standards such as number of stories, building placement, setbacks, reduced parking requirements, and short-block requirements in large developments.

Although seven of the official form-based code evaluation criteria are currently nested in this theme, the quarter-mile pedestrian circle is not represented there. Further exploring the adequacy of evaluation criteria within this theme could help clarify the intent of form-based codes in regards to urban form and better assess implementation.

The criticism that form-based codes are architecturally restrictive constraining the creative process of architects is nested in this theme. Further exploration and identification of parameters necessary to achieve an urban form that contributes to the quality of life could clarify which aspects of this criticism are valid and to what extent and formulate effective responses or corrections.

Sustainability Form-Based Code Theme

Use-based codes such as Euclidean Codes separate workplaces and daily destinations from residential areas and require extensive travel between different uses while single-family housing consumes large tracts of land increasing commuting distances.

Form-based codes focus on walkable neighbourhoods, pedestrian sheds, and interconnected development patterns and thus create neighbourhoods that require less travel to daily destinations. Fewer vehicle miles travelled, and preservation of land otherwise consumed by subdivision sprawl are two of the potential contributions of form-based codes to sustainability. Since sustainability pursuits seem attainable through urban form modifications the codes advocate, sustainability as a theme could be merged with the first theme of urban form and quality of life.

Specificity to locality Form-Based Code Theme

Specificity to locality addresses the tailoring of form-based codes to local conditions. Community input and site analysis are

extremely useful tools to identify unique local natural features, cultural norms, traditions, local history, and architecture to integrate into the code standards.

The Benicia, CA form-based code, for example, was tailored to protect the character of the historic downtown with standards that coordinated new development with local architecture.

No official FBCI and Placemakers, Inc. form-based code evaluation criteria are currently nested in this theme, and such absence is probably hurting clarification of form-based code intentions and implementation assessment.

Criticism that form-based codes create indistinguishable towns with a uniform aesthetic and are not helpful in towns lacking character is nested in this theme. Further exploration and identification of parameters necessary to create a code that reflects specific attributes of a locality could clarify which aspects of such criticisms are valid, to what extent, and formulate effective responses or corrections.

Community Vision Form-Based Code Theme

In form-based code planning, numerous community meetings and charrettes at-tempt to identify not only significant natural and architectural features but also important community issues and bring a form of a consensual vision for the city's future.

Community vision determines the desired architectural style and right locations for application of the quarter-mile walkable neighbourhood. Stricter or more flexible architectural zoning standards may be used depending on community input. In neighbourhoods where the community wants to preserve a specific architectural style form-based codes might be architecturally strict but only as a result of community's input. In many instances, form-based codes are flexible, allowing a variety of architectural expressions as long as there are zoning standards ensuring a pedestrian-friendly environment in central neighbourhood areas. The Cincinnati form-based code, for example, allows several building types per transect.

Only two official FBCI and Placemakers, Inc. form-based code evaluation criteria are currently nested in this theme, which raises the question of how well form-based codes address community vision and community changes as in the example form Ventura mentioned earlier. Further exploring the adequacy of evaluation criteria within this theme could help clarify the intent of form-based codes in regards to utilizing community vision and better assess implementation.

Criticism that form-based codes disregard community, force cities to accept the transect as a universal city theme, and promote density and population increases to the detriment of locals is nested in this theme. Further exploration and identification of the necessary parameters to create a code that reflects community intentions could clarify which aspects of such criticisms are valid, to what extent, and formulate effective responses or corrections.

Type 2: Code Document and Code Application Form-Based Code Themes

Clarity and Improved Structure of Zoning Documents Form-Based Code Theme

Polyzoides (2005 & 2008) says, in the attempt to be brief, form-based codes are comprehensible, integrated, focused, clearly spelling out changes and adjustments, and precise with specific dimensions for urban standards. One of the Cincinnati neighbourhood transects shows an example of this attempt for a simple and succinct presentation of code standards with many illustrations as shown in Figure 1.

Indeed at least in theory FBCs represent a comprehensive approach to codes, combining many documents into one reducing cross-reference. The intention is to integrate planning at different scales from the region to the block and building. As a result, form-based codes attempt to create what is referred to as a unified development ordinance integrating subdivision and public works standards in addition to integrating architectural, landscape, signage and other development standards. Furthermore, form-based codes use both words and diagrams becoming highly illustrated documents. Although the legality of using diagrams was initially challenged, such a format is currently widely accepted. FBCs also attempt to craft codes that are shorter, easier to read, more concise and emphasize illustrations. The creation of common sets of regulations for both new and existing communities makes the code more efficient and easier to access (Chicago Metropolitan Agency for Planning, 2014).

Although seven official FBCI and Placemakers, Inc. form-based code evaluation criteria are currently nested in this theme, they seem to neglect the persistent stakeholder confusion by the use of the transect terminology. Further exploring the adequacy of evaluation criteria within this theme could help clarify the intent of form-based codes and better assess implementation.

Criticism that form-based codes incorporate incomprehensible jargon is nested in this theme. Further exploration and identification of parameters necessary to achieve a working form-based code document easy to understand could clarify and enumerate aspects of this criticism which are valid and formulate effective responses or corrections.

Efficiency of the application process Form-Based Code Theme

FBCs intend to be easy to understand and administer, facilitate a clearly defined and streamlined project review and approval process and provide transparency and predictability in regulations (Parolek, Parolek & Crawford, 2008). FBCs also encourage administrative approvals rather than approvals by public hearing, thus shortening the development review process (Duany, Sorlein, & Wright, 2008).

Form-based codes intend to address a range of inefficiencies in Euclidean Codes such as lack of predictability, multiple cross-

referencing documents with numerous waivers and rezonings. Form-based codes intend to minimize the need for variances and increase the range of options compared to Euclidean codes.

FBCs also encourage specific outcomes through both incentives and prohibitions and the code becomes predictable for both the community and the developers. (Duany, Sorlein, & Wright, 2008; FBCI, 2014).

Predictability also results from the need to ensure a walkable environment. Since one of the form-based code, themes is to improve quality of life by creating walkable environments, predictability of built results is desired. A pedestrian-oriented environment depends on the location of the buildings or

residences in relation to the sidewalk and on sidewalk and street standards and parameters. Euclidean zoning standards cannot predict a pedestrian-friendly environment since floor-area ratios (FAR), typically used in Euclidean codes, do not ensure building placements that reinforce walkability. Form-based standards, however, aim at walkable environments.

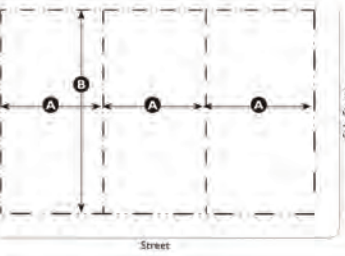
Although three official FBCI and Placemakers, Inc. form-based code evaluation criteria are currently nested in this theme, some seem absent such as reference to code variances and how efficiently application of variances in form-based codes facilitate the approval process. Further exploring the adequacy of evaluation criteria within this theme could help clarify the intent of form-based codes and better assess implementation.

Criticism that form-based codes delay the entitlement process with strict regulations and unreasonable variances is nested in this theme. Further exploration and identification of parameters necessary to create a code that facilitates fast and streamlined entitlement process could clarify which aspects of such criticism are valid, to what extent, what types of form-based codes, and formulate effective responses or corrections.

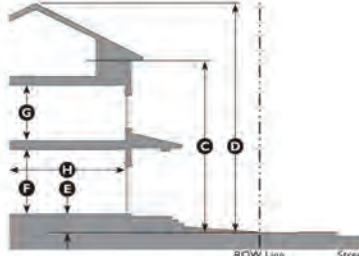
Figure 1: Cincinnati form-based code zoning standards. This is the second of five and a half pages of standards, all similarly arranged, showing simple, brief and succinct code standard format and a diversity of building types. (from City of Cincinnati, 2014)

1703-2.60 Specific to Transect Zones

T4 Neighborhood Medium Footprint (T4N.MF)



Key
--- ROW / Lot Line



Key
--- ROW Line

C. Allowed Building Types			
Building Type	Lot		Standards
	Width A	Depth B	
Carriage House	n/a	n/a	1703-3.40
Detached House: Medium	50' min.; 75' max.	80' min.	1703-3.50
Detached House: Compact	40' min.; 60' max.	80' min.	1703-3.60
Duplex	50' min.; 75' max.	100' min.	1703-3.80
Rowhouse	18' min.; 35' max.	80' min.	1703-3.90
Multi-Plex: Small	50' min.; 100' max.	100' min.	1703-3.100
Multi-Plex: Large	75' min.; 100' max.	100' min.	1703-3.110

D. Building Form	
Height	
Main Building	
Stories	2 1/2 stories max.
To Eave/Parapet	24' max. C
Overall	35' max. D
Accessory Structure(s)	
Accessory Dwellings	2 stories max.
Other	1 story max.
Ground Floor Finish Level above Sidewalk	18" min. E
Ground Floor Ceiling	
Service or Retail	12' min. F
Upper Floor(s) Ceiling	8' min. G
Ground floor lobbies and common areas in multi-unit buildings may have a 0" to 6" ground floor finish level.	
Footprint	
Depth, Ground-Floor Space	24' min. H
Accessory Structure(s)	
Width	24' max.
Depth	32' max.
Miscellaneous	
Loading docks, overhead doors, and other service entries shall be screened and not be located on primary street facades.	

Discussion

The six identified form-based code themes summarize the opinions of foundational authors and publications. The six themes identified reveal that it is important to promote a form-based code that aspires toward cities with an urban structure that improves quality of life, reflects and promotes community vision, is specific to the locality, promotes sustainable cities, includes documents that are comprehensible and easy to read, and supports an efficient and timely entitlement process. Such goals may not simply apply to the form-based code but more generally to the whole city document pack including the general plan.

It is arguable that sustainability as a theme may be redundant since it is attained through urban form modifications under the Urban Form theme. However, since it is mentioned by so many authors sustainability has remained a distinct theme on the list.

The conceptual format of the six themes under two theme types makes it possibly easier to clarify form-based codes to stakeholders and avoid misconceptions which may be critical towards speeding up the rate of form-based code adoption. In addition, when form-based code intentions are presented in the clear format of the six themes, criticism topics could easily nest within each theme and allow addressing criticism more methodically.

Form-based codes that reflect all six themes are probably the most adequate codes to represent the form-based code movement, but it is not easy to determine how adequately a form-based code incorporates them and the development of measurable parameters for each theme would pave the way for a better assessment of form-based code effectiveness. For

example, both the quarter-mile pedestrian circle and walkability are important for the Urban Form theme, and an adequate form-based code should incorporate these concepts at least on paper. However, the effectiveness of transects, building types, or zoning standards used to apply the quarter-mile circle or walkability can only be assessed after implementation, when valuable lessons can be extracted to improve the code. Identifying parameters in the Community Vision theme could include the assessment of public participation efforts during drafting and after implementation of the code, and how the code communicates intentions to stakeholders or address political and citizenry changes over time, as is the case in the City of Ventura discussed in the introduction.

Conclusion

Form-based codes closely relate to New Urbanism and are a label for codes that promote a place-based urbanism of walkability, sustainability, commute time reduction, infrastructure efficiency and responds to inefficiencies of traditional Euclidean Zoning. Although heavily promoted by the Form-Based Code Institute and practitioners such as Opticos, Inc. Duany Plater-Zyberk & Co and Moule & Polyzoides, the rate of adoption has been relatively slow and criticism rampant.

Form-based codes are evaluated by criteria set by the Form-Based Code Institute and Placemakers, Inc. which seem to cover a vast area of topics and lack measurable parameters for evaluation. The goal of the article was to propose a structure that addresses both criticism and evaluation of form-based codes in a more systematic way. Towards this goal, this article identified archetypal themes in both the official definition and the form-based code evaluation criteria and expanded to explore archetypal themes in foundational publications, authors, and topics.

The article identified two major areas that form-based codes attempt to address: a) urban structure and community, and b) code document and entitlement process.

The six major themes under these two areas are urban form and quality of life, specificity to locality, community vision, sustainability, clarity and improved structure of the coding document, and efficiency in the application process.

One of the practical implications of the six themes is that they provide a structure that nests topics of criticism, and set the stage for the development of measurable parameters unique to every theme that may help evaluate codes before and after implementation but also identify specific areas for future research (see Appendix 1). Creating a structure that identifies future research is important since defendants of form-based codes wish to move away from Euclidean zoning and move towards an advanced and more efficient code. Yet, criticism is prevalent and the rate of adoption of form-based codes and legislation is relatively low.

The six themes appear to represent the full range of intentions behind form-based codes, reflecting the ambitious vision set forth the form-based codes movement. This vision attempts to adjust urban form, borrow from local character, incorporate the community, and simplify zoning documents and the entitlement process in order to create a place-based urbanism of walkability, sustainability, commute time reduction, infrastructure efficiency, and an alternative to inefficiencies of traditional Euclidean Zoning.

As a final thought, and since Form-Based Codes ultimately may represent just a “label” for some, it may make sense to suggest that this label may not be necessary for a code that incorporates the six themes. By adopting the six major themes in their codes, municipalities would be able to disengage from using the expression “Form-Based Code”, currently written in much criticism and nay-saying, and instead opt to promote the intentions behind the themes with the creativity and engagement necessary for a place-based urbanism, as envisioned by the founders and innovators of the New Urbanism and form-based code movements.

References

- Borys, H., & Talen, E. (2015). Form-Based Codes? You're not alone. Retrieved from the Place Makers website: <http://www.placemakers.com/how-we-teach/codes-study/>
- Boyer, M. (2010). *Form or Fluff? Assessing the Proposed Advantages of Form-Based Codes for Municipalities*. Chapel Hill, NC: UNC School of Government, Capstone Project.
- Chicago Metropolitan Agency for Planning. (2014). Form-Based Codes. Retrieved from the Chicago Metropolitan Agency website: <http://www.cmap.illinois.gov/livability/land-use-zoning/form-based-codes>
- City of Cincinnati. (2014). *Final Draft of Cincinnati Form-Based Code - City Planning & Buildings*. Retrieved from the City of Cincinnati website: <http://www.cincinnati-oh.gov/planning/news/final-draft-of-cincinnati-form-based-code/>
- Duany, A., Sorlein, S. & Wright, W. (2008). Smartcode version 9.2. *New Urban News Publications*.
- Emerson, C. D. (2006). Making Main Street Legal Again: The Smart-Code Solution to Sprawl. *Missouri Law Review* 71, pp. 637-645.
- Form-Based Codes Institute. (2016a). Form-Based Codes Defined. Retrieved from the Form-Based Codes Institute website: <http://formbasedcodes.org/definition>.
- Form-Based Codes Institute. (2016b). Identifying & Evaluating Form-Based Codes. Retrieved from the Form-Based Codes Institute website: <http://formbasedcodes.org/identifying-evaluating>.
- Garnett, N. (2013). Redeeming Transect Zoning? *Brooklyn Law Review* 78 (2), 571-588.

- Inniss, B. (2007). Back to the Future: Is Form-Based Code an Efficacious Tool for Shaping Modern Civic Life? *University of Pennsylvania Journal of Law and Social Change* 11(1), retrieved from <http://scholarship.law.upenn.edu/jlasc/vol11/iss1/4>
- Madden, M., & Russell, J. (2014). An Introduction to Form-Based Codes, Parts 1-4. Retrieved from the PlannersWeb: <http://plannersweb.com/2014/12/fbc1/>
- Menard, J. (2009). The SmartCode. Retrieved from the Congress for the New Urbanism website: <http://www.cnu.org/resources/projects/smartcode-2009>.
- National League of Cities. (2015). Number of Municipal Governments & Population Distribution. Retrieved from the National League of Cities website: <http://www.nlc.org/build-skills-and-networks/resources/cities-101/city-structures/number-of-municipal-governments-and-population-distribution>
- Parolek, D., Parolek, K., & Crawford, P. (2008). *Form-Based Codes: A Guide to Planners, Urban Designers, Municipalities, and Developers*. Hoboken, NJ: John Wiley & Sons.
- Polyzoides, S., & Moule, E. (2005). Streets, Blocks & Buildings. Retrieved from Moule & Polyzoides Architects website: <http://www.mparchitects.com/site/thoughts/streets-blocks-buildings>
- Polyzoides, Stefanos (2008). Foreword. In Parolek, D., Parolek, K., & Crawford, P. (2008, p. ix).
- Perez, T. (2014). Misconceptions about Form-Based Codes. Retrieved from the Form-Based Codes website: <http://formbasedcodes.org/articles/misconceptions-form-based-codes>
- PlaceMakers. (2016). Form-Based Codes? You're not alone. Retrieved from the PlaceMakers website: <http://www.placemakers.com/how-we-teach/codes-study/>
- Plater-Zyberk E. (2008). Foreword. In Parolek, D., Parolek, K., & Crawford, P. (2008, p. ix).
- Rangwala, K. (2013). Assessing criticisms of form-based codes. Retrieved from the Better Cities website: <http://bettercities.net/article/assessing-criticisms-form-based-codes-19967>
- Real Estate Research Corporation. (1974). The Costs of Sprawl - Executive Summary. (Stock Number 041-011-00023-8 Catalog Number PREX 14.2:SP/2/summ). Retrieved from the U.S. Superintendent of Documents website: http://www.smartgrowth.org/pdf/costs_of_sprawl.pdf
- Talen, E. (2009). Design By The Rules: The Historical Underpinnings of Form-Based Codes. *Journal of the American Planning Association* 75(2), 144-160.

Appendix 1: Potential Research Questions

One way to develop specific parameters for each theme is to ask questions specific to each theme. The following are examples of questions emanating from these themes that a planning department, a consultant, or researcher could ask to create parameters that evaluate the effectiveness of an adopted form-based code:

Questions regarding the Urban Form Theme

- Did urban form changes (as a result of the form-based code) contribute to walkability and reduction of daily travel time to destinations (or else Vehicle Miles Travelled)? What are these helpful changes that form-based codes introduced?
- Are the sidewalks and urban spaces more active as a result of form-based codes? In what way? How has the code helped increase urban activity?
- What specific form-based code standards contribute to walkability?

Questions regarding the Specificity to Locality Theme

- Is there a manifestation of local character in neighbourhoods as a result of adopted FBCs?
- How has the new code promoted local character?
- What aspects of local character is the code enhancing and promoting?

Questions regarding the Community Vision Theme

- Is the community satisfied with the application of the code?
- What aspects of the code are especially satisfactory to the community?
- What are the most contentious subjects?
- Are the adopted form-based codes sufficiently explained to new members of the City Council and new participants in the local Community?

Questions regarding Code Clarity and Document Structure

- Are the city planners, developers and other stakeholders satisfied with the clarity of the code document?
- Is the code document easier to understand than the code it replaced? What is satisfactory and easier to understand and what is not?
- Do stakeholders find the new code easier than the old Euclidean code it replaced?
- What parts of the code are harder to communicate?

Questions regarding the Application of the Codes

- Is the code document easier to administer and does the code facilitate the entitlement process? In what ways?
- What are the required adjustments to improve the entitlement process?
- How are variances obstructing or facilitating the entitlement process?
- Does the form-based code require more variances than the Euclidean code it replaced?

A Wellness District for the City of Ventura

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This article describes the work by a graduate urban design studio from Cal Poly San Luis Obispo's CRP Department during the Spring Quarter, 2016. Under a contract with the City of Ventura's, the students explored the notion of a wellness district anchored by two major hospitals, and developed an urban design concept plan that is consistent with the General Plan and the city's economic strategy.

Communities across the nation are recognizing the critical link between the built environment and public health. Consciously improving the physical design of communities has the potential to reverse downward trends in people's overall health and life span. Designing and planning healthy communities is a process that involves bringing together a wide range of stakeholders who can incorporate community values and implement best practices to actualize them.

The City of Ventura's Planning Department was motivated to hire our studio to explore the notion of a wellness district following the results of the 2005 Midtown Charrette and the 2013 technical assistance workshop by the Urban Land Institute. They suggested the potential for a special district anchored by the expansion of two important hospital campuses located in proximity to each other: the Community Memorial Hospital and the Ventura County Medical Center. Totalling over \$600 million dollars of investment in facilities and infrastructure, the redevelopment of both sites together with the concentration of medical-related uses around them is generating an important community and economic hub in Ventura's Midtown.

The Midtown Ventura Wellness District Concept Plan focuses on the area bounded by Loma Vista Road, Telegraph Avenue, Thompson Boulevard, North Seaward Avenue and South Katherine Drive (Figure 1). The plan explores innovative urban design concepts to direct future development in a manner that preserves the existing physical characteristics that make the community unique while encouraging positive redevelopment.¹ The existing street network will be adapted to increase walkability and safety while encouraging alternative transportation. Zoning changes and housing strategies are suggested to attract mixed-uses, better serve the community, and respond to the needs of the workforce, leveraging

the economic and employment base of the hospitals. And because medical facilities have a distinct physical form and the area needs a character and an identity, the plan proposes distinct design ideas. Bringing together all of these important features, the plan seeks to promote the development of an active Wellness District through improvements to the built environment which reflect a sense of community vitality.

The process

Our work started by reviewing existing plans, documents, and data on Ventura and the project site, followed by meetings with the City of Ventura planning manager and other professionals, including representatives from both the Community Memorial Hospital and Ventura County Medical Center.

Figure 1: The project site showing the Community Memorial Hospital (1), the Ventura County Medical Center (2), and the proposed Core anchor area (3).



¹ The complete Midtown Ventura Wellness District Concept Plan can be downloaded from www.vicentedelrio.net



Figure 2: Word cloud depicting the community responses to a survey question: *What comes to mind when you think of a Wellness District?*

While in the field, the class conducted several tasks to fully understand physical and spatial conditions, but also the community’s needs and expectations. These included an awareness walk when students annotated and photographed the project area and general uses and behaviors, a thorough parcel-by-parcel survey of development conditions, as well as interviews with area users and community members. The awareness walk informed a Walkability Score², and the parcel surveys helped to determine developable lands. This method helped the students assess the quality of the walking environment through variables such as complexity, transparency, legibility, enclosure, and human scale.

The students performed a total of 86 on-street survey interviews in the project site and the downtown to understand the community needs and expectations for the area. The same survey was used for an on-line platform that was widely announced, allowing the class to collect 52 responses from a wide range of stakeholders.

All this material allowed the class to conduct a thorough and comprehensive SWOT analysis (strengths, weaknesses, opportunities and threats) for development.

Broad targets which quickly coalesced in the project’s early stages included housing for all segments of the population (particularly to the workforce employed by the hospitals),

² The Walkability Score was based on Ewing, R. & Clemente, O. (2013). *Measuring Urban Design - Metrics for Livable Places*. Washington DC: Island Press.

support for existing businesses, strategies to help community members remain successful, access to parks and open space, and increasing safety, appeal, and aesthetics. It became clear that developing a vision statement and goals around the concept of wellness could provide a platform to improvements for both existing residents and newcomers - in an effort to preserve the area’s best features and characteristics, as well as foster positive change.

The Proposal

Following the Site Assessment, a vision statement for the Wellness District was identified, as well as eight goals, several corresponding objectives, and a series of strategic design concepts and policy recommendations. These policies set forth broad strategies to guide urban planning and design within the Wellness District, as well as more specific proposals for the District’s core area.

The Midtown Wellness District Urban Design Concept Plan is guided by the following eight goals associated with wellness as identified by the Cal Poly team. The first letter of each goal, put together, help us remember the overall guiding principle of the future quality of life in the area.

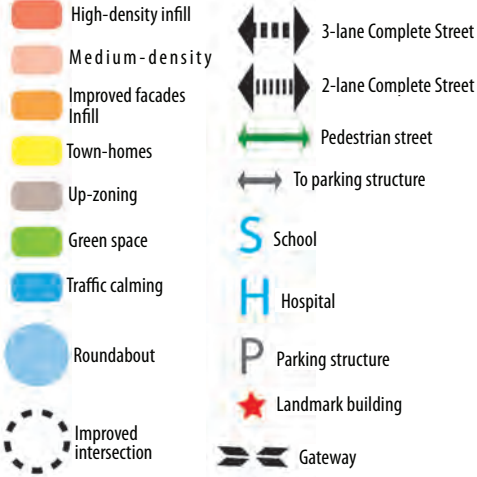
- W**alkability,
- E**ngagement,
- L**ocal Identity,
- L**inkages,
- N**atural Environment,
- E**conomic Vitality,
- S**afety,
- S**trategic Housing

The class was sub-divided into three groups of students so that each could concentrate and develop their studies and proposals for the Public Domain, the Private Domain, and the District’s Core. As there were many significant issues relative to the public right-of-way, they required extensive technical analysis, planning, and design care particularly concerning accessibility and safety. Alternative land use strategies were identified as opportunities for private sector development.

The efforts and strategies of the three groups combined work to implement the interrelated objectives contained in W.E.L.L.N.E.S.S. goals. Key proposals include:

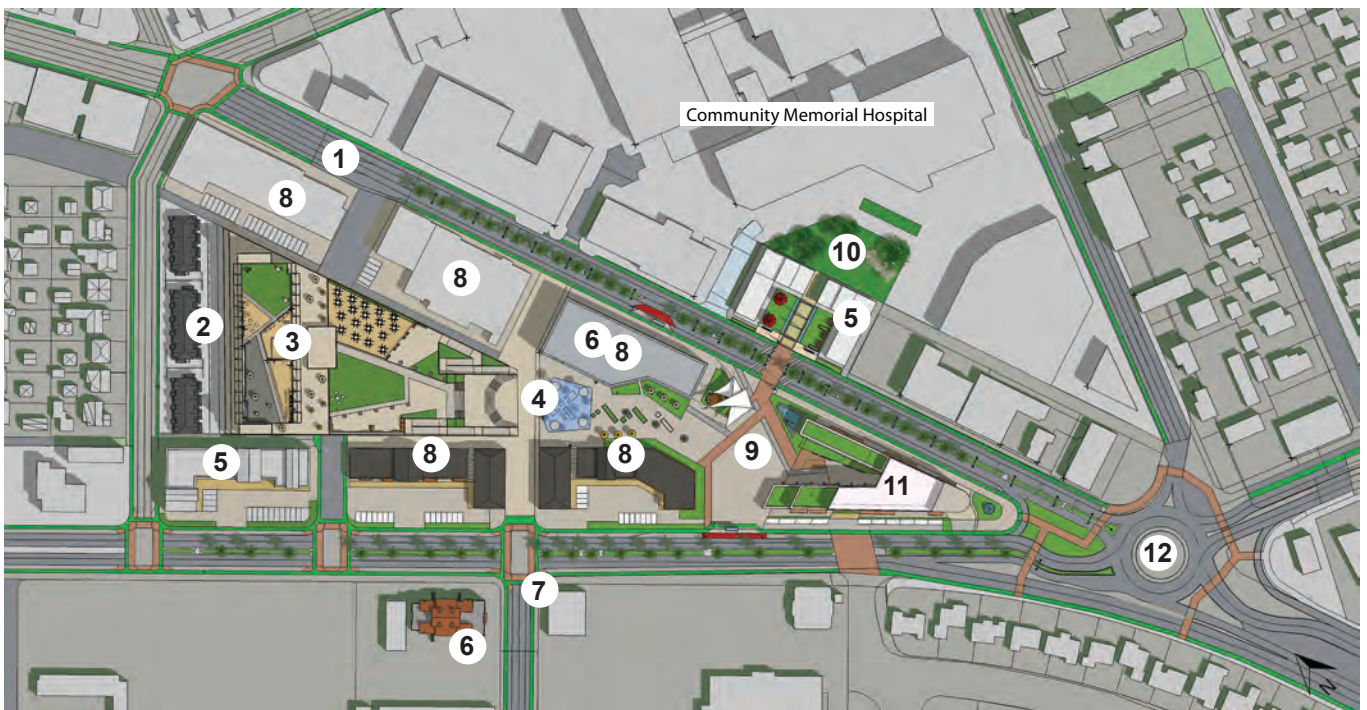
- Major circulation and pedestrian safety improvements including a roundabout at the “5-Points” intersection of Main Street, Thompson Boulevard, and Telegraph Road.
- Redesign of several intersections to improve safety for pedestrians and bicyclists.

Figure 3. Concept Diagram.



1. Redesigned main Street with planted median.
2. Market-rate townhouses.
3. Hotel with roof deck, YMCA, restaurant and plaza over two-story parking structure.
4. Park with steps up to the hotel plaza.
5. Commercial.
6. Senior housing.
7. Safer connection to existing school.
8. Residential over commercial.
9. Plaza with connection to Hospital.
10. Hospital plaza.
11. Landmark building.
12. Roundabout.

Figure 4: The Core's illustrative site plan.





Figures 5 A & B: The Core Area. Existing conditions at Main and Thompson (top) and proposed streetscaping and Landmark Building.



Figures 6 A & B: The Core Area. The existing city parking lot (top) replaced by hotel over YMCA, restaurant and plaza over a two-story parking structure . View from the mid-block plaza.



- A redesigned Loma Vista Road including a planted median, bike lanes, specially designed bus stops, new street lights, safe parallel parking, comfortable and landscaped sidewalks with pedestrian facilities, and added crosswalks.
- A redesigned Main Street with appropriate sidewalks, bike lanes and pedestrian crossings.
- General quality streetscaping including landscaping, tree planting, planted medians, special street furniture, signage, public art and branding for a distinct and memorable district. The branding includes a new logo to be applied to signage and marketing materials.
- Increasing safe and alternative transportation options, particularly the use of bicycles.
- Specific ideas for augmenting park space and access to open space in and beyond the area.
- Expansion of the General Urban Zone and Urban Center Zone to serve the needs of existing and future residents, visitors, and property owners.
- Incentives to mixed-uses and a housing strategy that meets the needs of Ventura’s diverse population and the district’s workforce.
- Improvement to walkability throughout the area through encouraging more building transparency on the ground floor, redesigned sidewalks, new crosswalks, signalization, and public light.
- Protection of distant views and their valorization through the use of rooftops.
- Implementation of catalytic developments that could help meet the needs of the surrounding communities while serving the district itself.

The Core

The most important catalytic development proposed is the Core, corresponding to a triangular-shaped area defined by Main, Thompson, and South Katherine (Figure 4). This area’s existing development conditions, property ownership including two existing city-owned parking lots, and strategic location will facilitate the implementation of a special design concept that would help catapult the redevelopment of the entire district and the establishment of a strong identity.

The Core’s design is structured around a central public plaza and pedestrian connections. On the north side it is anchored by a three-story hotel with a roof bar and observation deck, and restaurant, an YMCA, and a public plaza, all on top of a two-story parking structure. The hotel serves the existing demand from both hospitals, and the central plaza will feature a small amphitheatre built into the steps to the hotel and plaza on top of the parking structure. The plaza offers opportunities for informal seating, a playground, and space for community events such as a Farmers Market. Along the Core’s perimeter

mixed-use buildings with ground-floor commercial use offer opportunities for live-work, affordable and senior housing.

The Core will be directly linked to the Community Memorial Hospital complex (east) and an elementary school (west) by pedestrian crossings enhanced by trafficking calming. With its proposed distinct landmark building, the Core's south edge will serve as the Wellness District's south gateway edged by the so-called 5-corners and the proposed roundabout.

Final remarks

The ideas in the Midtown Ventura Wellness District Concept Plan were put to the test by the class, by applying the same Walkability Score and measuring the same variables used in the initial assessment of the existing development. Overall, the indicators point towards an improved pedestrian environment, indicative of a more attractive, lively and active streetscape with a diverse range of uses. The report concludes with a discussion on implementation, including matrixes relating goals, objectives and specific actions to help prioritize them.

Limitations to this work and report include the relatively short time span available for the project (ten-week quarter), the team's limited exposure to the project area, and the limited public engagement. Our work is meant as a contribution to the City's long-term planning efforts and as a platform for community participation. The team was encouraged by the city's planners to think "outside of the box" and develop ideas and concepts of what a Wellness District could be. The proposed actions are intended to prompt innovative planning decisions by the City of Ventura and relevant stakeholders.

The Midtown Ventura Wellness District Concept Plan provides a long-range guide for the development of strategic urban design concepts intended to promote vitality and well-being within the community. The class is grateful to the City of Ventura and its planning staff for the opportunity, and hopes that the ideas, concepts, and vision for a Wellness District may be useful in the development of a more vibrant, connected, and sustainable urban environment.



Figure 10: The logo proposed for the class helps build the Wellness District identity.



Figure 7: Aerial View of the Core from the Five-Corners intersection.



Figure 8: Pedestrian connection between the Core and the Memorial Community Hospital across Main Street.

Figure 9: Final public presentation to the City of Ventura and community members. In the foreground, City of Ventura's planning manager Dave Ward.



Transportation Policy for Campus Climate Action Planning: Process and Policy Implications

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This article discusses the innovative methods used to complete the transportation components of Cal Poly's Climate Action Plan (CAP). The campus's CAP was completed by a BSCR studio during the fall and winter quarters (2015-2016AY) in collaboration with Facilities Planning and Capital Projects. Professors William Riggs and Adrienne Greve (instructors for the studio along with Chris Clark) developed the methods discussed here, and C. Kai Lord-Farmer was the graduate assistant who assisted in completing the technical analysis.

In 2015, California Polytechnic State University, San Luis Obispo (Cal Poly) initiated the process of developing a university climate action plan (CAP) as a collaborative effort between Campus Facilities and the City and Department. This paper focuses specifically on the transportation policies included in the Cal Poly Climate Action Plan, highlighting the steps involved in the plan's creation including the transportation survey, greenhouse gas (GHG) inventory, transportation policy development and policy quantification and implementation timeline.

The specific methodology utilized in this planning process reveals several important characteristics and policy implications for future transportation planning and climate action planning on university campuses. Key findings include; 1) the key role of data on the commute behavior characteristics of the campus community for accurately quantifying the effects of transportation policies to reduce GHG emissions, 2) the essential connection between land use and transportation policies in meet-

ing GHG reduction targets, 3) the necessity of comprehensive, context specific and implementable GHG reduction strategies in CAP's to permanently reduce transportation emissions on university campuses and to reach California state mandated GHG reduction targets by 2030 and 2050.

Introduction

Climate change is defined by the Intergovernmental Panel on Climate Change (IPCC) as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods." (ITE, 2012) Through a variety of human activities, the increased emission of greenhouse gases (GHG) into the atmosphere ultimately contributes to a larger percentage of the energy received from the sun remaining within the atmosphere. This increased presence of solar radiation within the atmosphere warms the earth's surface,



Figure 1: Poly Canyon Village. The newest student residences in the construction phase. (photo: Kevin Waldron)

Note: This article was presented as a peer-reviewed paper at the Transportation Research Board 96th Annual Meeting, January 2017.

causing a wide variety of changes to the earth’s climate. Through direct measurements and remote sensing from satellites, scientists have observed a warming atmosphere, with the last three decades being successively warmer than any previous decade since records began in the 1850’s, with 2015 being the warmest on record (Bassett et al, 2010).

These unprecedented changes caused by human activity require a large and aggressive transformation in the use of energy and large-scale shifts in all sectors of society that contribute GHG emissions to the atmosphere and perpetuate climate change. Universities, as semi-autonomous institutions, hold a unique role in their ability to take early action to mitigate climate change and reduce GHG emissions. Furthermore, climate action at universities and similar institutions can serve as a model for best practices for other entities such as cities and counties. Through this paper, the climate action planning process and methodology took by California Polytechnic State University, San Luis Obispo can serve as a model for other universities as they move toward climate action.

Background

Cal Poly’s process to develop a climate action plan (CAP) involved a collaborative effort between the campus facilities department and the City and Regional Planning Department. Climate action plans, as an emerging field within urban planning, are intended to: 1) create policies to reduce greenhouse gas emissions (GHG) associated with an institution or jurisdiction, and 2) create a strategy to adapt to the current and anticipated impacts of climate change.

The creation of the university’s climate action plan was motivated by state and institutional mandates to reduce California’s overall GHG emissions. The California State University (CSU) system has adopted a sustainability policy to reduce the systems GHG emissions to 1990 levels by 2020 and 80% below 1990 levels by 2040. This policy is roughly in line with California state legislative targets of reducing GHG emissions to 1990 levels by 2020 (SB 32), 40% reductions by 2030, and 80% reductions by 2050 (EO S-3-05 & B-30-15).

Alongside these mandates, California Polytechnic State University has committed to becoming a net-zero campus by 2050 through the Second Nature Climate Commitment. This paper will focus specifically on the transportation policies

included in the Cal Poly Climate Action Plan, highlighting the steps involved in the plan’s creation including the transportation survey, GHG inventory, transportation policy development and policy quantification and implementation timeline.

Methodology

Travel Survey

In the spring of the 2016 academic year, City & Regional Planning faculty, with assistance from Facilities Services and the Vice President for Administration and Finance at Cal Poly conducted a campus-wide transportation and parking survey to sample commute behavior of full and part-time university faculty, staff, students, and auxiliaries. The survey served primarily as a means of calculating GHG emissions associated with the Cal Poly campus and secondarily as transportation data to be utilized by the university for campus planning.

The survey collected data on the basic commute behavior characteristics of the Cal Poly community such as mode choice, commute length, departure time of commute trip, vehicle type, and demographic characteristics. The survey received a total of 3,961 responses, 17% of the entire campus population of roughly 23,000. Unsurprisingly, the majority of respondents were students, totaling 68.6%, while the rest were made up of faculty, staff, and visitors. Results are significant at the 99% Confidence Interval with a margin of error of ± 1.68% (Boswell, Greve & Seal, 2010).

As seen in Table 1, the travel survey results revealed that as a campus community 15% biked to campus, 38% drove alone, 8% carpooled, 8% took public transit, 29% walked and 2% used other modes including skateboard and motorcycles. When asked about the frequency that these modes were used, the survey revealed that those who bike to campus, 14% do so at least five days per week. Results also showed that those who bicycle, drive alone, and walk, used this as their primary mode to commute to campus. When Respondents who chose public transit, and carpooling as their primary mode, had a wider variability between modes during weekly commute trips.

The travel survey results reveal a number of significant findings regarding commute behavior for the Cal Poly campus community, not only related to transportation but land use and housing issues in the City of San Luis Obispo and San Luis

Table 1:
Mode Split in Cal Poly campus.

	Student	Faculty	Staff / Other	Total
Bicycle	18%	16%	5%	15%
Drive Alone	24%	68%	68%	38%
Carpool / Vanpool	5%	8%	19%	8%
Public Transit (Bus)	10%	5%	4%	8%
Walk	41%	3%	1%	29%
Other	1%	1%	2%	2%

Obispo County. While further investigation into these issues may reveal important observations, this analysis will focus on the GHG emissions associated with commute behavior at Cal Poly and issues related to the Climate Action Plan.

GHG Inventory

The transportation section of the Cal Poly GHG inventory was divided into three main sections: Commute Travel, Campus Vehicle Fleet, and Air Travel. These emissions sources were included in the GHG inventory based on discussions within the Climate Action Team and Facilities Services, working to encompass the entirety of Cal Poly's emissions impact. GHG emissions from private vehicles being operated off-campus are considered Scope 3.

Despite these emissions not being directly controlled by campus, they have been included for two reasons. First, it is among the GHG emissions sources included in the Campus Carbon Calculator recommended by the CSU for GHG inventory efforts (University of New Hampshire Campus Carbon Calculator, 2015). Second, commute behavior is influenced by campus actions such as parking management, incentives to encourage non-auto-related travel and the provision of on-campus housing for students or affordable housing options for faculty and staff. Despite a lack of direct control, campus actions do strongly influence commute emissions that not only affect the GHG emissions of campus, but also those of the surrounding communities. The following includes a brief description of the process of calculating GHG emissions from each transportation sector.

Private Vehicle Commuters

The Cal Poly Travel Survey asked respondents to provide the nearest intersection to their residence. For all respondents who chose drive-alone as their primary commute mode, standard geo-spatial software (ArcGIS) was utilized to calculate the commute length of all drive-alone respondents. These data were then used to calculate an average commute length of 17.4 vehicle miles traveled. A standard Institute of Transportation Engineers (ITE) factor was also used to account for any 'linked' trips beyond the standard commute. (4) This average commute length was then applied to the percentage of each cohort (Faculty, Staff, and Students) who chose drive-alone as their primary commute mode to estimate the average daily VMT associated with Cal Poly commuters.

To more accurately estimate the daily VMT associated with Cal Poly, an additional 10% of the average daily VMT was included to account for Pass-By daily trips. In addition to the daily commute, it was assumed, based on survey results, that 50% of Faculty and 10% of Staff make a trip of at least 200 miles via light duty automobile at least once per year. Finally, a 2-person vehicle occupancy rate was assumed for respondents that chose carpool as their primary mode. The inclusion of the original daily VMT along with the stated assumptions resulted

in an average daily VMT of 260,421. To calculate the annual emissions produced from automobile commute behavior, a 260-day academic year was assumed based on Cal Poly's academic calendar. Adopting the San Luis Obispo Council of Governments (SLOCOG) methodology for calculating vehicle emissions, the California Air Resource Boards (CARB) "EMFAC" vehicle emissions database was utilized, using an average light-duty automobile (LDA) emissions factor of 305.9 gCO₂e/mile based on the CARB "EMFAC2011" emissions model.

Transit Commuters

In the City of San Luis Obispo, transit commute trips to Cal Poly are served by the SLO Transit Authority bus system. To calculate emissions from commute trips by bus, the inventory included the number of weekly bus trips onto the Cal Poly campus but only accounted for the emissions produced from the buses while on university property. The number of weekly trips based on 2015 estimates was 840 with a trip length while on university property of 1.41 miles, resulting in a daily VMT of 169.2. Similar to personal automobile estimates, transit vehicle emissions were calculated using the 2014 SLOCOG standard emission factor for urban bus diesel of 2,497 gCO₂e/mile. Considering that the SLO Transit buses routes continue to operate on campus throughout the summer, emissions were calculated for the entire year, amounting to an annual emission of 154.2 MTCO₂e.

Air Travel

The Cal Poly GHG inventory accounted for emissions from air travel for faculty and staff trip related to university using data from the 2015 travel survey. The survey included several questions about air travel for faculty and staff including frequency of trips and length. The survey results found that faculty and staff took 3,632 work related trips of varying lengths for the year 2015. These data were then organized into short, medium and long-haul trips with assumed average flight distances and emissions factors based the EPA's TERC Intermodal Emissions Calculator tool. The resulting emissions from annual faculty and staff air travel amounted to 682 MTCO₂e.

Campus Vehicle Fleet

The Cal Poly campus fleet included all licensed university owned vehicles and all unlicensed vehicles such as golf carts, tractors, ATVs, and motorcycles. Emissions from all campus vehicles were calculated using unleaded gasoline, diesel and propane fuel receipt data acquired through the universities accounting department. Using U.S. Energy Information Administration emissions factors for the different fuel types (U.S. EIA), the annual emissions attributed to Cal Poly Vehicle fleet operations was 790 MTCO₂e.

Results

Based on the emissions calculations for various transportation sectors associated with the Cal Poly campus (Commuter and

Transit Vehicles, Air Travel and Cal Poly Fleet Vehicles), the final cumulative emissions totaled 24,610 MTCO₂e. In addition to the baseline GHG inventory calculations for the year 2014, a 1990 back cast emissions estimation was calculated to compare transportation emissions between 2014 and 1990.

The Cal Poly transportation emissions from all relevant sectors in 1990 totaled 21,670 MTCO₂e, a decrease from the 2014 baseline by 2,940 MTCO₂e. Considering the universities population growth from 20,195 (Students, Faculty and Staff) in 1990 to 22,997 in 2014, it was assumed that emissions in the 2014 baseline year would be greater than observed. An increase in on-campus housing since 1990 helped to keep commuter vehicle emissions relatively stable over this period, allowing the university to achieve the California State University (CSU) goals of reducing emissions to 1990 levels by 2020.

Compared with the other emissions sectors included in the GHG inventory, transportation emissions were the largest emissions sector accounting for 51% of all campus emission. Other sectors included in the GHG inventory included Buildings (45%), Agriculture (3%), Water Use (0.6%), Solid Waste (0.3%) and Landscaping (0.01%). Upon completion in the Fall of 2015, the Cal Poly GHG Inventory served as the basis for the creation of the Cal Poly Climate Action Plan, working to inform goals, policies and objectives laid out in the CAP for each emissions sector. Given the large percentage of emissions associated with transportation, a great deal of focus was given to various transportation policies with the CAP, ensuring that the combination of policies achieves the CSU goals of reducing emissions to 80% below 1990 levels by 2050.

From Inventory to Action Planning

After this preliminary work, an in-depth process of planning was done with Cal Poly undergraduate students. The students conducted outreach, collaborative policy making and eventually created a draft of the Cal Poly Climate Action Plan. This process follows Cal Poly’s Learn by Doing philosophy, based on involving students in real world projects and working with working professionals in their field of study. Additionally, considering that many of the transportation policies created in the CAP are aimed at behavior change among students as well as faculty and staff, because the policies included in the document are largely written by students they align with the motivations and incentives to effectively change commute behavior.

Based on the findings in the Cal Poly GHG Inventory as well as feedback from the campus community, the transportation policies included in the CAP are centered around the three main emissions sectors associated with transportation, namely commuter vehicle emissions, Cal Poly vehicle fleet emissions and air travel. Considering that the commute vehicle emissions accounted for 95.4% of all transportation related emissions, a large number of the policies included in the CAP focus on commuter mode shifts to low-carbon transportation

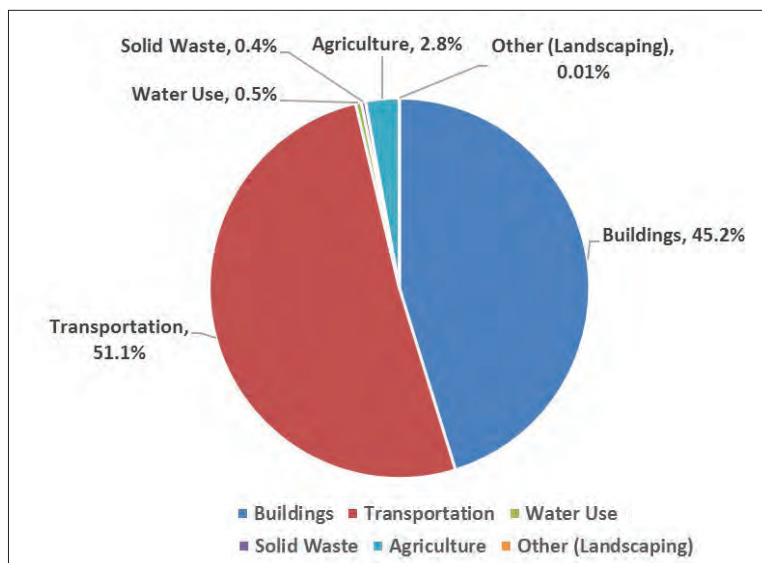
alternatives. All policies included in the transportation portion of the CAP are guided by outreach feedback from the Cal Poly community and the California Air Pollution Control Officers Association’s 2010 publication “Quantifying Greenhouse Gas Mitigation Measures”, ensuring that all policies included could be quantified to reach the CSU’s 2050 GHG reduction goals.

Through extensive outreach with the Cal Poly campus community, the Facilities Services Department and Parking Services and key stakeholders, a number of key themes were highlighted in terms of general commute behavior preferences as well as unmet needs in the current transportation system. While conducting outreach about CAP transportation policies, students found that 73% of respondents desired extended hours of operation for the SLO Transit bus system, allowing students to stay later on campus while still being able to rely on public transit as their primary commute mode. Additionally, 54% of respondents supported the implementation of a campus bike share program for students, faculty, and staff. Many respondents (16%) also supported the expansion of the universities Zipcar car-sharing program. Based on this community outreach feedback, key stakeholder input and results from the Cal Poly Travel Survey, the CAP transportation policies section includes three main goals focused on the various emissions sectors (commuter travel, the Cal Poly vehicle fleet and air travel) including corresponding objectives and strategies and goals to ensure implementation and success of the established goals.

Policy Quantification Process

While each goal, objective, and strategy serve to GHG emissions reduction from the various transportation sectors, to ensure that these policies will meet the mandated CSU and

Table 2: Cal Poly Greenhouse Gas (GHG) Inventory by Sector.



state emissions goals, each policy was quantified for potential GHG reductions if fully implemented. This process helps verify the quantifiable results of each proposed strategy while also helping those involved in implementing the plan to prioritize strategies with the largest potential GHG reductions. To ensure effective implementation and monitoring of all strategies included in the Cal Poly CAP, in the spring of 2016 a “CAP Policy Implementation Dashboard” was created using basic data analysis software. The dashboard serves as a tool to quantify all strategies included in the CAP and establish a basic timeline for implementation of policies. The dashboard also serves to track basic campus characteristics as policies are implemented such as on-campus housing units, mode share, annual commuter VMT and student, faculty and staff population growth.

Along with the tools for monitoring the implementation of the Cal Poly CAP, the dashboard also includes all equations, constants, and resources used for the quantification all strategies included in the document. Aside from adding transparency to the planning process, this process allows for those involved in implementing the CAP to alter the strength and scope certain policies, resulting in larger or smaller GHG emissions reductions based on certain characteristics of the strategy. For instance, one of the strongest measures include transportation section, “TRNS Strategy 1.1.3 Establish a climate

impact charge for each parking permit issued”, serves as a revenue source for CAP-related projects while increasing parking prices for faculty, staff and students. As research has shown (Litman 2010, CAPCOA 2010), parking price increases of 10% yield a 1-3% reduction in vehicle trips in controlled pricing scenarios. By including dynamic policy characteristics within the emissions quantification equation and dashboard, this allows the university to create differing scenarios with various price increase, resulting in smaller or larger trip reduction results. While this serves as one example, the CAP dashboard includes this capability for all transportation strategies, allowing strategies to dynamically shift based on financial and political feasibility or other implementing characteristics. While the Cal Poly Climate Action Plan provides a high-level roadmap to meet the university’s 2050 net-zero goal, specific details about the various transportation strategies will be developed during the implementation phase to increase the feasibility and success of individual strategies.

As the practice of university climate action planning continues to grow and evolve, the planning process to develop the Cal Poly Climate Action Plan has provided key insights into the climate action planning process and sustainable transportation policy development. The following is a set of key findings and best practices for practitioners working specifically on

Table 3: Cal Poly Climate Action Plan Transportation Policies for Net-Zero Campus (2016).

Goal	Policy Objectives and Strategies	GHG Reduction 2050 (MTCO _{2e})	
Goal 1	Low GHG Emission Commute		
	<i>TRN Objective 1.1</i>	<i>Adjust parking permit and housing policy to reduce number of cars on campus</i>	
	<i>TRN Strategy 1.1.1</i>	Increase the number of housing units for students on campus (Campus Life Objective 1.3) and eliminate residential parking permits for freshman and sophomores living in campus housing	12,651
	<i>TRN Strategy 1.1.2</i>	Create a 1.5 mile radius from the campus core in which students cannot purchase general parking permits	48
	<i>TRN Strategy 1.1.3</i>	Establish a climate impact fee for each permit issued	2,104
	<i>TRN Strategy 1.1.4</i>	Create comprehensive carpool program for students, faculty and staff	1,158
	<i>TRN Objective 1.2</i>	<i>Increase public transportation options to campus</i>	
	<i>TRN Strategy 1.2.1</i>	Increase frequency and reliability of bus service	1,441
	<i>TRN Objective 1.3</i>	<i>Create a comprehensive marketing, education and incentives program that promotes and incentivizes biking, walking and transit options</i>	
	<i>TRN Strategy 1.3.1</i>	Educate students, faculty and staff about sustainable transportation options	2,043
	<i>TRN Strategy 1.3.2</i>	Offer bike vouchers/discounts for students, faculty and staff living off-campus who opt to commute to campus by bicycle	765
<i>TRN Strategy 1.3.3</i>	Establish a Faculty and Staff Employee Incentives Program	1,160	
Goal 2	Low emissions on Campus		
	<i>TRN Objective 2.1</i>	Decrease the use of campus owned vehicles	
	<i>TRN Objective 2.1.1</i>	Phase out existing vehicle fleet as departments begin to rely on hybrid and zero emission vehicles	421
Goal 3	Low emission long distance travel		
	<i>TRN Objective 3.1</i>	<i>Eliminating unnecessary long distance trips</i>	
	<i>TRN Objective 3.1.1</i>	Offer carbon offsets for long distance trips	682
Total		22,471	

sustainable transportation policy development and climate action planning.

Key Findings

- Detailed and routinely updated campus commute behavior data can greatly increase the focus and success of sustainable transportation policies. This data can also serve as a metric.
- Strategies should be designed to focus on specific sectors of the campus population (students, faculty, and staff), recognizing the different commute behavior characteristics of each cohort.
- The transportation-land use policies in the document play a key role in reducing campus emission, eliminating commute trips through increased on-campus housing and parking policies.

Conclusions

The case study of the Cal Poly climate action plan provides a needed tool in the transportation planning field, particularly for campuses. Little work and limited literature have been published to provide direction to campuses and organizations about how to document, organize and address their GHG emissions or climate adaptation strategies. The Cal Poly CAP case study provides an example of a comprehensive climate action planning process. The methodology used in this planning process provides a roadmap for campuses looking to engage in their own processes and lessons in how to develop policy to effectively reduce transportation-related greenhouse gas emissions on university campuses.

References

- ITP - Institute of Transportation Engineers. (2012). *Trip Generation Manual*. Washington, DC: ITP.
- Bassett, E. & Shandas, V. (2010). Innovation and Climate Action Planning: Perspectives from municipal plans. *Journal of the American Planning Association* 76(4), 435-450.
- Boswell, M., Greve, A., & Seale, T. (2010). "An assessment of the link between greenhouse gas emissions inventories and climate action plans." *Journal of the American Planning Association* 76 (4) (2010): pp. 451-462.
- Boswell, M., Greve, A., & Seale, T. (2012). *Local Climate Action Planning*. Washington: Island Press.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.
- U.S. Energy Information Administration. (2015). Carbon Dioxide Emissions Coefficients. Retrieved from http://www.eia.gov/environment/emissions/co2_vol_mass.cfm.
- IPCC Climate Change. (2007). Working Group II: Impacts, Adaptation and Vulnerability - Glossary.
- Litman, T. (2010). *Parking Pricing Implementation Guidelines*. Victoria, Canada: Victoria Transport Policy Institute.
- NASA. (2015). NASA, NOAA Analyses Reveal Record-Shattering Global Warm Temperatures in 2015. Retrieved from <https://www.nasa.gov/press-release/nasa-noaa-analyses-reveal-record-shattering-global-warm-temperatures-in-2015>.
- Riggs, W. (2016). *Cal Poly 2015 Transportation Survey Report*. San Luis Obispo, CA: Cal poly.
- Simpson, W. (2009). *Cool Campus! A How-To Guide for College and University Climate Action Planning*. Lexington, KY: Association for the Advancement of Sustainability in Higher Education.
- Vaca, E. & J. Kuzmyak, R. (2005). *Parking Pricing and Fees-Traveler Response to Transportation System Changes*. TCRP Report 95, Chapter 14. Washington, DC: Transportation Research Board.

FOCUS 13

International



Highlights of the CRP Summer 2016 Field Trip to San Miguel de Allende, Mexico

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From August 15 to 27, 2016, CRP professors Hemalata Dandekar and Vicente del Rio led a group of five CRP undergraduate students in a field trip to Mexico. Based in Los Arcos, an educational facility in San Miguel de Allende, the group studied the city's planning and urban design, visited other cities and places of interest, and interviewed with local planners and architects.

In August 2016 five BSCRIP students joined professors Vicente del Rio and Hemalata Dandekar for a two-week long field trip to San Miguel de Allende, Mexico. The trip was made possible by a generous gift to CAED from Architect Rafael Franco (Cal Poly Architecture alumni) that, together with the use of his facilities at Los Arcos, have enabled several groups of Cal Poly students to visit this iconic and historic city.

Mr. Franco's goal is to support education in the design disciplines by stimulating creativity and interaction among students from Mexico, the US, and other countries. He believes that the rich culture and social history of San Miguel de Allende and Mexico provide the perfect context to support this goal. He developed Los Arcos by remodelling an abandoned supermarket in San Miguel de Allende into a large open-plan space that serves as an airy and inspiring teaching/training facility. Space can easily be adapted for studios, seminars, lectures, art exhibits, and even performances. More recently, he added a three-story facility creatively built from reused shipping containers providing 30 single occupancy rooms for students, a large kitchen and a dining room.

Located in the State of Guanajuato, a four-hour drive from Mexico City, San Miguel de Allende was founded by the Spanish in the early 1500s beside an older indigenous Chichimeca settlement. The city has an incredibly rich social history that, together with its natural features, makes it a very special place. Declared a historical monument in 1926, by the 1930s the city's preserved colonial streets and architecture started attracting artists and writers. One of them, Stirling Dickinson, moved there from the US in 1928 and established the Allende arts institute. Soon after, the Escuela de Bellas Artes was created, and several

famous Mexican artists moved there, helping to establish the city's rich arts and cultural circuit, and its bohemian life. In 2008 the UNESCO declared San Miguel's 64 central city blocks as a World Heritage Site due to the well-preserved Baroque colonial architecture and layout. All these factors contributed to the city being a tourist attraction, the chosen residence for many American retirees, and vacation-residence for richer Mexican families. The impacts of gentrification and globalization can be seen everywhere, but the city's high-quality urban spaces, architectural legacy, and social life are alive and well rendering it a living lesson for planners.

Figure 1: The student group in San Miguel de Allende with the cathedral in the background.





Figures 2 & 3: The Los Arcos facility provides an quality flexible space for work, lectures, art exhibits, and events.



Figure 4: Los Arcos includes comfortable accommodations for students built from repurposed containers.



The no-credit, experiential/observational CRP field trip was put together by the two instructors in a very short time period as institutional clearance was obtained late in the Spring Quarter of 2016. We stayed at Los Arcos for the whole duration of the trip but also went on day long visits to places near San Miguel de Allende and to the larger cities of Guanajuato (twice) and Queretaro that have more complex and pressing planning issues. We visited the colonial village of Bernal, where the third highest rock monolith on Earth is located and where there is beautiful textile production, the small Santa Rosa de Lima to admire their pottery production, and the town of Dolores Hidalgo and its elegant plaza where the Mexican Revolution was declared and where we could taste some of the 50 plus varieties of hand-crafted ice cream that vendors sell there.

In San Miguel de Allende the group went on long walks to observe planning and urban design issues –such as historical architecture, housing, the impacts of tourism and globalization, city life, and the quality of public spaces– and stopped for sketching breaks as a method for more intense observation. Around San Miguel de Allende we visited the mineral baths, the Botanical Gardens and its beautiful canyon El Charco del Ingenio, the pyramids of Cañada de la Virgen, a small private astronomy museum that also served authentic home-cooked local food, a small village with 500-year-old tree, the studio of an environmental activist who has distilled Coca-Cola to illustrate to the general public the residual they ingest, and a developer that constructed a building in the shape of goose that provides an unusual disco/party space. During these two weeks, we were as much immersed in the local culture as possible, sampling the offerings of numerous restaurants, bars, food stands, and bakeries. The group is indebted to Architect Rafael Franco for pointing us to various sites, facilitating, and generously supporting some of these trips. His guidance enriched, in immeasurable ways, the group's engagement with the city.

In addition to visits and study walks, the group had the opportunity to hear presentations from Architect Rafael Franco on San Miguel's historical development, from architecture students from the Universidad de Queretaro, from the director of San Miguel's historical preservation agency, and from three Director Generals of IMPLANs (San Miguel Allende, Guanajuato and Queretaro). IMPLAN stands for Instituto Municipal de Planeacion, or Municipal Planning Institute: the local agencies in charge of long-range planning which several cities started to organize based on Mexico's national planning system. The first IMPLAN was created in Leon, in the early 1990s, based on the experience of Curitiba, Brazil, and now there are dozens of them throughout Mexico.

By all accounts, the trip was a success providing rather varied highlight experiences for each participant. The students came back with a wider understanding of planning in the international context, and at least one of them secured internships in Guanajuato and San Miguel for the Christmas and Spring breaks! This reflective essay offers individual

assessments of what was the highlight of the trip for each participant as a way to illustrate what both instructors strongly believe – that international exposure to city planning efforts around the world is a unique way to teach young planners in the USA about how to exercise creative planning practice. Melina Smith, one of the students in the group, wrote on our return:

“Thank you for arranging this trip. I got so much out of it. It has really impacted me, and I have learned so much. This trip has also made me so excited about planning and given me a better sense of direction of where I want to take it in the future.”

Each participant selected one highlight of the trip to present in this essay. These are presented alphabetically as individual opinions, not a collective voice.

Tara Ash-Reynolds – *Strategic local city and regional planning in Mexico and interventions by the national government.*

In meetings with local municipal city and regional planners common issues were brought up by staffers from the cities of San Miguel Allende and Querétaro on the difficulty of implementing long-range plans because of the changing political climate and resulting government department re-organization or potential for it. Long-range plans are hard to implement if the political party in power does nothing or if departments do not have a defined role in implementing a plan.

In the late 1990's Mexican political ideology toward technocracy in municipal governance was globally debated by academics, professionals, and others. Peter Ward contends that trends towards technocratic governance in Mexico affects the municipal governance ability to respond to “socio-economic changes and the growing complexity of urban management and planning issues.”¹

San Miguel Allende is a UNESCO world heritage site. Funding to protect historic buildings, and improve circulation and tourism is supported by grants from UNESCO and the national government. Angel Gastelum Cadena, Director de Patrimonio Cultural y Planeación, heads the effort to create a historical plan for San Miguel. During our meeting with him, he commented on the fact that one challenge to sustained implementation of the plan is that opposing political party if elected can undo or cease funding plan implementation.

The City of Queretaro, one of eight metropolitan cities around Mexico City, is currently experiencing exponential population growth and leap frog development. Planners are balancing the use of state resources to create quality development plans at the municipal level. But these are not easily integrated into other departments making implementation difficult.



Figure 5: San Miguel's main plaza Jardín Principal and the cathedral.



Figure 6: On of San Miguel's picturesque streets.

Figure 7: The group with architect Rafael Franco in front of the 500-year old tree in La Canada.



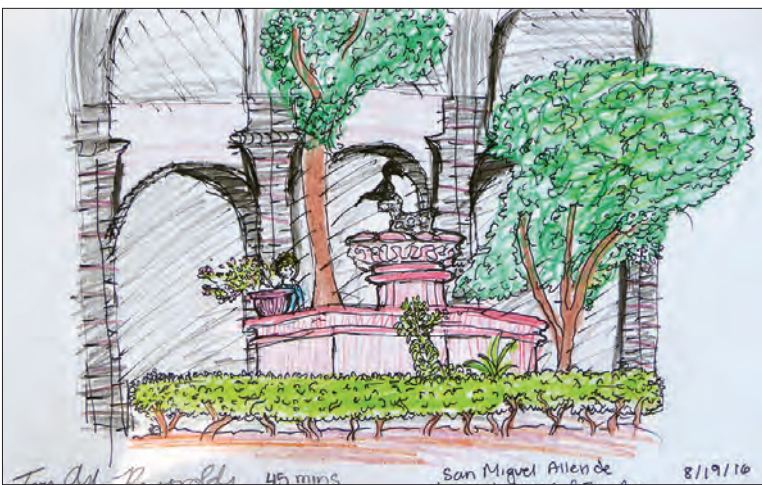
¹ Ward, Peter. 1998. From Machine Politics to the Politics of Technocracy: Charting Changes in Governance in the Mexican Municipality. *Society for Latin American Studies*, 17(3), 341-365.



Figure 7: The rock monolith in Bernal.



Figures 7 & 8: Sketches of San Miguel's Cathedral (above) and Fine Arts School (below) by Audrey Ogden and Tara Ash-Reynolds, respectively.



The political shift in styles of government influences how municipalities respond to the needs of the people. There is a need for current and long-range planning at the municipal level to be supported by state and federal government, to have legal protection, and for integration between governmental agencies and departments.

Alex Chapman – UNESCO designations

I was fortunate to join the summer trip to Mexico as it provided special experiences that have greatly benefitted my academic and professional career and which I will never forget. I am very grateful that I was able to spend time with professionals, professors, and friends in Mexico. Every person, meeting, city, and space we visited provided unique information that has inspired in me an interest in international planning.

One theme in the many beautiful places and cities we visited caught my attention. While visiting San Miguel de Allende, Querétaro, and Guanajuato, I discovered the strong impact that the United Nations Educational, Scientific, and Cultural Organization (UNESCO) has in these areas. It assists local and state planning globally to protect and preserve world heritage sites that are considered to be of significance to humanity. The designation can bring grants from Unesco's preservation fund to countries that are still considered to be developing. These heritage sites receive extra media attention and attract tourists but the higher profile that this designation brings can draw an influx of visitors that poorer countries find difficult to handle.

UNESCO's cultural policies around the world have created a unique dynamic between local governments and UNESCO. The relationship can be a mixed blessing. I am interested in exploring this topic further in Mexico and hope to return to San Miguel Allende for this. UNESCO's involvement can save places from destruction by natural or human forces but it is worth exploring is if and how such efforts can also undermine a country's right to make decisions about its heritage. I would like to examine the costs and the benefits for San Miguel.

Hemalata Dandekar – A visit to the pyramids

The Otomi people built Cañada de la Virgen around 530 A.D in the Laja River Valley as a burial site. The Otomi were avid sky watchers and used astronomical criteria, religious beliefs and agricultural cycles in designing and constructing these structures. The site, which was abandoned by 1050 A.D., was discovered in 1998, excavation began in 2002, and public access was allowed starting in 2011. Access to the pyramids is strictly controlled as the site is on private property. Visits of small groups of 10 to 15 people are supervised as a knowledgeable government guide must accompany a group.

The quiet low-impact excursion made for a very moving visit. The edifices could clearly be experienced as charged and spiritual spaces set in the context of a rural, timeless, seemingly untouched landscape.

Audrey Ogden – Guanajuato

The city of Guanajuato moulds to the natural topography of valleys formed by mountain ranges in the central valley of Mexico. The city and its buildings nestle in and compliment the surrounding environment. The mountaintop view of the city reveals public plazas, a pleasing array of vernacular architecture in which the buildings flow together at a scale that makes it easy to recognize the places of importance. The domes of the churches, the fortress, and the tree canopies outlining the plazas clearly distinguish these locations of prominence.

The overall layout of the city and its relationship to topography is astonishing. The use of retired mining and flood tunnels as a refurbished road system that is underground and allows for easy movement renders the city itself very walkable. The streets are interesting and lead to, and are punctuated by plazas, market areas, significant buildings like the university, and churches. The liveliness of streets is apparent throughout the city, with lots of people engaging in socializing, shopping, sitting and working on crafts. Carefully trimmed tree canopies demarcate

open spaces and plazas. These canopies are multifunctional, being used as a point of beauty and also providing cover from rain or sun. The individual buildings are painted various bright colors that flow together in a spectrum of blues, pinks, light greens, reds and everything in between. They provide spaces that are conducive for all to enjoy the pleasures of the city.

Melina Smith – International student connections

The field trip to San Miguel de Allende provided an extremely well rounded and wonderful experience for me. I learned so much from every person we met, every meeting, city visit, and all the places we observed. We visited so many beautiful places and cities it is difficult to choose one as the highlight.

I would say that meeting with the architecture students from Queretaro was a special moment of the trip. We received the chance to sit in on the student's presentations for the preliminary stages of one of their projects. This project is unique to them because it is more of a planning project. Each group provided us with background information about their

Figure 9: Canada de la Virgen pyramid, a recent archeological site near San Miguel de Allende. One-minute sketches by Hemalata Dandekar.

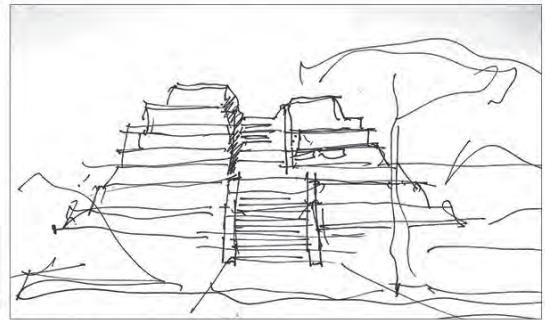
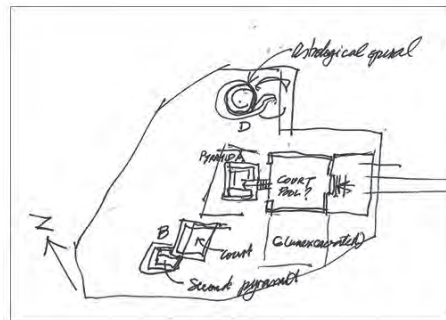
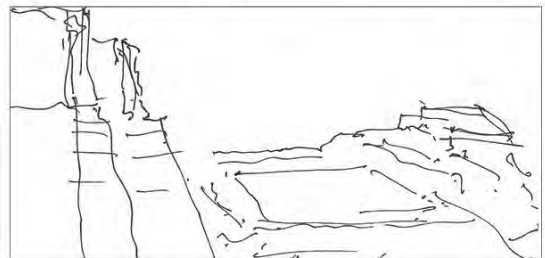
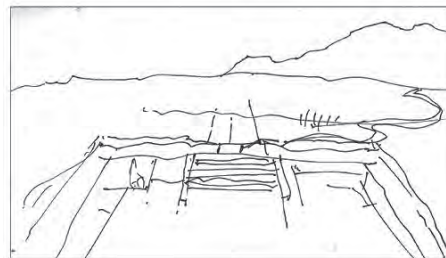


Figure 10: Guanajuato's topography and historic development generated a uniquely attractive city that poses great challenges for planning and urban design.



site, and it was really interesting to see what they came up with. Not only did I learn a lot about San Miguel de Allende from their presentations, but I learned about what was required from them in their projects, and what factors they deal with versus what is required of our CRP students. We also were able to see their teacher's critiques and comments, and provide our own. It was a very interesting comparison to see the dynamics of their class and ours. We were able to talk with the other students, share contact information, and discuss a possible future collaboration. I believe this was an incredibly unique learning opportunity, and I found it to be a stand out moment in the trip.

Kara Tobin – *A personal evolution*

Initially, I didn't think much of the two-week opportunity to travel to San Miguel de Allende with the CRP department. I figured it would be a small piece of my college experience, perhaps offering a way to strengthen my relationship with the professors or to simply get away for a little time. I returned with a lot more than I had anticipated. I learned so much about planning, travelling, and culture whether I was exploring the diverse history of San Miguel de Allende's development or examining the challenges posed by gentrification. Vicente del Rio and Hema Dandekar, the professors who guided us through the gratifying experience, showed us how to see much more than what appeared to be there. They taught us how to relate the context of the city to overarching planning topics that occur in societies across the world such as historic preservation, political influence, and gentrification. They introduced us to experienced city planners from across the area by setting us up with meetings in San Miguel, Guanajuato, and Guadalajara, giving us various perspectives on how each city approaches planning and social issues.

Throughout the field trip, we had the privilege of staying and learning at the beautiful Los Arcos, built and operated by Rafael Franco—a Cal Poly architecture graduate with boundless knowledge about the history of San Miguel. Rafa, as we call him, is easily one of the most impressive and accomplished people I have had the pleasure of meeting. He presented insightful reflections on society, politics, and contemporary issues within

Mexico. Rafa provided us with a solid mental framework that exposed a truer sense of the city throughout our travels. The people we met offered an interesting juxtaposition between the Mexican experience and our American societal background. I am incredibly grateful for everything this trip offered me in just two weeks of exploring San Miguel and Guadalajara, balancing hands-on learning with memorable periods of free time. Aside from the experience and knowledge I gained from the trip, I also developed and strengthened my relationships with my CRP peers and my professors. Coming from someone who was initially hesitant about whether to go, I cannot stress enough how beneficial this trip was.

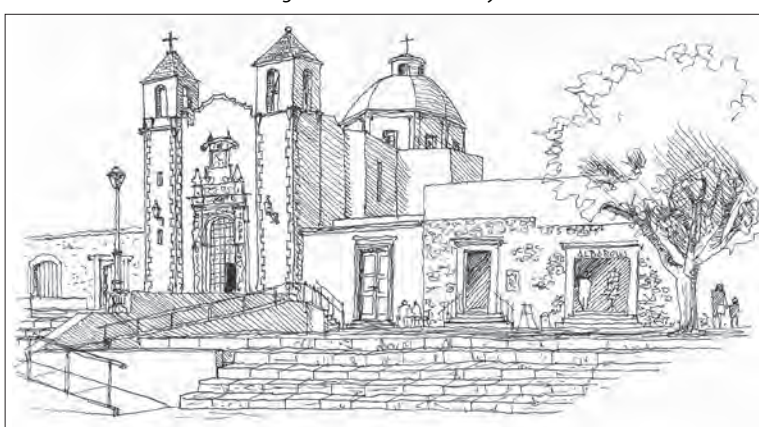
Vicente del Rio – *Learning from Mexico*

I have been to Mexico several times, but this trip was special. Thanks to CAED alumni Rafael Franco's generosity and educational vision, I was able to experience a country from a different perspective. To start with, this was my longest stay in Mexico, and being in a smaller and walkable city with a strong sense of history made all the difference. Also, Rafael, Dr. Dandekar, and the students provided me with the opportunity to see the city through their eyes.

A rich mixture of land uses, architectural types, styles and colors, and incomes mark San Miguel de Allende, particularly its historic downtown and traditional neighborhoods. Its cobblestone streets are full of life, its sidewalks and plazas alive with people and vendors practically 24/7. The old narrow Spanish colonial street-grid makes vehicular traffic always a difficult adventure, but the 64-block historic core and its immediate neighborhoods are quite walkable, particularly to tourists with open mind. Somewhat adapted to the hilly topography, the colonial grid and public spaces also generate interesting and surprising vistas for the pedestrian.

One of our students' most important discoveries was observing how the city's mixture of land uses, building types, incomes, and historical dimensions work perfectly—something so different from the prevalent planning model in the US. Within two blocks along the street where Los Arcos is located there are: several types of residences and small shops, three small grocery stores, two restaurants, a day-care center, a private school, a small commercial center, a car wash, a car shop, an artist's workshop and gallery, a wood shop, and two fantastic small bakery-coffee shops run by families who actually make their own breads (the group's objects of desire every morning!). So, as the reader can imagine, walking in San Miguel is an engaging pleasure and a daily discovery. We encouraged our students to look and observe certain planning-related themes—particularly the impacts of globalization and tourism, gentrification, housing, and the quality of urban design—and we intermixed our walks and visits with moments of peace and relaxation, where we simply sat down to sketch a place or a building, making the act of drawing part of our immersion in San Miguel de Allende. I think all of us were hoping that our photos and sketches could capture at least part of the city's magic.

Figure 11: San Antonio church and plaza, San Miguel de Allende. Sketch by Vicente del Rio.



Earning A Livelihood from One's Home: The Castillo Ladies of San Miguel de Allende

Hemalata Dandekar

PhD.; professor CRP, Cal Poly.

The CRP Field Trip to San Miguel Allende in August 2016 revealed several facets of Mexican urbanism, including social histories that helped to reveal the city's development. In this article, Professor Hemalata Dandekar describes one such enriching experiences, noting its implications for planning.

Walking downhill on Calle Canal in West San Miguel Allende, we cross Calle Quebrada and are out of the UNESCO-delineated World Heritage Zone. The trappings of the tourist economy that dominate the streets radiating away from city center and Plaza Principal, with tiny ground floor stores selling local crafts and souvenirs give way to stores catering to the daily needs of working families. They offer everyday groceries, cheap “knock off” branded T-shirts, flimsy affordable clothing, glittery cosmetic jewelry, cell phone repair and SIM cards and pirated CD's (Figure 1).

The area we have entered, noted on the tourist-office map as offering “places of interest to tourists” is not stringently regulated, as is the World Heritage area we just left. Working families who provide services and labor to the city live in this neighborhood. Children in uniforms returning from school come for treats and women with purses and shopping bags in hand stop off after work for practical items they need for the evening meals or for the home. Signs of gentrification, the taking over of properties by outsiders, are apparent in clusters on the side roads branching off of Canal, but they are not yet the dominant element shaping the streetscape of this area.

From Canal, we navigate back streets aiming for Los Arcos on Stirling Dickinson Street, our temporary home in San Miguel. On Calle 20 de Enero North, hobbling over the picturesque but uncomfortable walking surfaces of cobblestone streets, we pass the gate of the Gorilla Garage (Figure 2) its sign underscoring the counter-culture artistic character of the neighborhood we are in.

Dominated at night by the lighted dome of the San Antonio de Padua church, the San Antonio neighborhood offers relatively

Notes:

- 1) The author thanks Professor Vicente del Rio, Ph.D. and Architect Rafael Franco for translating the on-site conversations between the author and Maria and Reina Castillo. This story could not have been written without their help and sensitivity to context and culture.
- 2) All photos by the author except where otherwise noted.



Figure 1: Houses and house/stores on Canal Street.

Figure 2: Gorilla Garage.

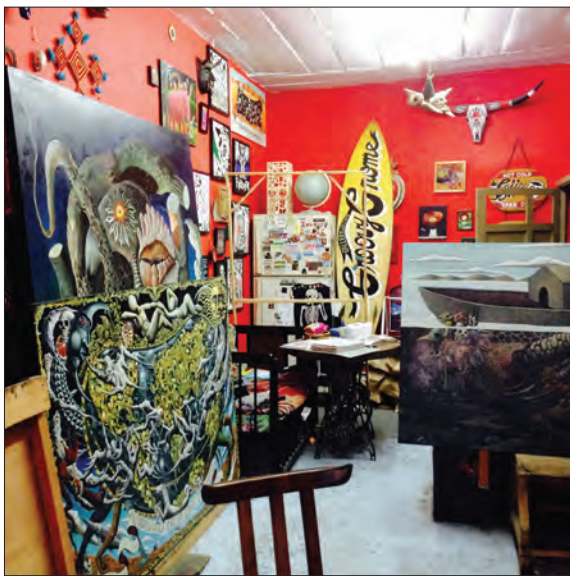




Figure 3: An artist's mural on Canal Street.



Figures 4 A & B: An artist's billboard and customized transportation (top), and his inside the garage-studio of a surrealist artist, both at Canal Street.



lower rents and has attracted, by some estimates, fifty or more working artists (Figure 3). Taking over the street fronting rooms or garages of homes in the neighborhood, these artists sustain the creative expression that make this city attractive to outsiders (Figures 4 a & b).

Attracted by colorful masks peeping out of a doorway, above which a tile plaque proudly announces that this is the home of the Family Montiel Castillo, we step into a small store (Figure 5). Inside, on the walls to our left and behind, is a dazzling array of colorful paper mache masks (Figure 6). Facing us, a counter displays a large array of traditional Mexican sweets (Figure 7). Clearly, this store is different from the ubiquitous stores throughout the city, which sell basic necessities and are run by women from the front rooms of their homes. The one we have entered offers specialized products, attractive to local consumers but also to regional and international buyers. Theirs is a "globalized" product mix.

At the back of the store, Reina Montiel Castillo and her mother Maria Dolores Castillo, aged 83 years, sit companionably side by side on a small love seat. It is early afternoon and they are ready for walk-by customers like us. Reina tells us that Maria Dolores has been making cookies to sell in the downtown for most of her life. She points to a small basket at Maria's feet in which there are cookies that have been shaped for baking. Reina tells us that, although she tells her mother to rest and not work so hard, Maria insists that she likes to make and sell her cookies. Reina shows us an old newspaper article written about her mother when she was 63 years old which notes that at that time she had been in this business for 51 years: Maria clearly started to work as a very young girl (Figure 8).

When we comment on this Reina tells us that she too started selling sweets downtown when she was just 11 years old. The family fortunes have now clearly improved. They now sell candies from this home-store and also the masks, which are made by her brother Juan Jose in a workshop just a few blocks away. Her father was the entrepreneur who started this business.

How did he get into this business we wonder? Maria tells us that her husband used to help feed the people who participated in La Fiesta de los Locos (literal translation Day of the Crazies) which is exclusively celebrated in San Miguel Allende on the Sunday closest to June 13th.¹ He taught himself to make the paper mache masks that participants wore in the parade and slowly established the business of making and selling them. His son, Reina's brother Juan Jose Montiel Castillo, learned the craft from his father and continued this work in his workshop on Calle Sabino #19, also in the San Antonio neighborhood. He hires six women to work with him. Maria quickly adds that these women too are not just working for hire, they also have their own independent businesses plying this craft. Jose business has grown and he now caters to large consignment

¹ See: <https://www.youtube.com/watch?v=0jmlR41tFk8>



Figure 5 A & B: The modest entry way to the store and the tile above it with the address and the family's name. (photos by V. del Rio)



Figure 7 A & B: Maria and Reina with the author (top), and Reina behind the candies with the door to the residence's patio showing behind (below). (photos by V. del Rio)



Figure 6: The paper mache masks. Artistic exuberance and creativity an indigenous cultural expression.



Figure 8: Maria, at age 63, making traditional sweets for sale. (photo provided by Maria and Reina Castillo)



Figure 9: Reina, barefoot, sandals in hand, and her baby brother at the stone threshold to their old house in Downtown San Miguel. (photo provided by Maria and Reina Castillo)



Figure 10: The family altar over the fireplace in the front living room/store of their house displays religious figures and family pictures that communicate what is important to Maria and her hard working household.

clients in cities such as Guanajuato. And he also retails through the family house/store. Reina tells us that Americans and other foreigners are her bigger customers. They buy the masks and large figurines in bulk for export. Her sweets and candies are bought not just by customers in the neighborhood but also for export by foreigners who live in the area.

Their old house was in the downtown. A picture, prominently displayed on a wall of the store, shows Reina as a tiny child in her school uniform on the threshold of their house (Figure 9).

The family sold their old house and invested the money in purchasing two side-by-side plots on this street. Her father built their brick and stone home with his own hands. A courtyard lies behind the front room. And beyond are rooms on the ground floor and the first floor, reached by a secure staircase in the courtyard. The pride they have in this house they own and in their ancestors are very evident in both the women's faces and reflected in their words and in the elaborate altar to saints and to ancestors that hangs over the corner fireplace (Figure 10).

The house is a critical asset from which the two ladies can carry on their various businesses and earn a livelihood. It provides a base from which they support and give companionship to each other. It is a stable center for their family, one that is reflective of their past. Maria recognizes this. Given the increase in housing and land values throughout San Miguel Allende, a result of foreign and big-city immigrants moving in, the family has discussed the fact that they could sell this house and move further out to buy more land and build a much bigger house. But Maria is adamant. This is her home and she says she will only leave the house when she dies. Reina tells us that her mother can tell many stories about how things were years ago in San Miguel. Maria smiles and tells us she knew Stirling Dickinson, the American who founded the School of Fine Arts in 1937 and is credited with revitalizing the town by supporting the arts and crafts activity. Maria tells us he made a big difference to the lives of her family, enabling them to get started in a craft that now sells to a bigger regional and international market and yields good returns. Clearly significant to their business and their improved circumstance has been the "trickle down" effects of a globalized economy, of tourism, and the value that is now placed in "authentic" manifestations of locally embedded art and culture. This house, and the one before it, has provided a, if not the, key asset and security, allowing them to capitalize on opportunity, earn a better living, and create a secure home for their family.



Figure 9: Reina, barefoot, sandals in hand, and her baby brother at the stone threshold to their old house in Downtown San Miguel. (photo provided by Maria and Reina Castillo)



Figure 10: The family altar over the fireplace in the front living room/store of their house displays religious figures and family pictures that communicate what is important to Maria and her hard working household.

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Urbanismo in Mexico

Ana Padilla

Student, BSCR, Cal Poly.

In the summer of 2016, BSCR junior Ana Padilla joined a group of Cal Poly architecture colleagues for a two-month study program in Mexico. Led by instructor Humberto Norton, the program was based at Los Arcos, an educational facility run by local architect Rafael Franco in San Miguel de Allende. Ana writes about her many learning experiences which made her realize how important travelling is for a planner's education.

I am no stranger to Mexico, after all, it is my heritage, but I've never looked at it from a planner's point of view. Going to Mexico with architects was a completely new challenge that I did not anticipate. I learned how to experiment with design by stepping back and going back to basics.

Initially, I thought the program would be like any other trip I had taken to Mexico, but I was quickly proven wrong, and I am glad I was. The program included a week of travelling to the states of Zacatecas, Aguascalientes, and Guanajuato, two months in the town of San Miguel de Allende, and a week in Mexico City. An assignment we had throughout the trip was to make a codex. A codex, historically, is a book that looks like an accordion that contains a lot of history and writings from the times of the Mayans and Aztecs. We each made our own as the trip progressed; we made it travel size by making each page the size of our hands. What would go inside was up to us; we could draw whatever we wanted, with the exception of a few drawings that the instructor asked for. I drew so much there wasn't any white on the page; everything from maps to people, landmarks, food, I wrote what I heard, smelled, felt, and thought. I even experimented painting with Agua de Jamaica, a typical Mexican drink made from hibiscus flower that stains easily. So I tried water coloring with it, and it worked out really well adding a new quality to my drawings!

Our trip began in Leon, where we got to smell all the leather from the local industries, and followed to Aguascalientes, where we enjoyed the hot springs, and to Zacatecas where we experienced a callejónada, a local traditional street party held in the plazas. Every city was so different! Leon is very industrial and had a transportation system similar to one I had seen in a case study from Curitiba, Brazil. The main boulevard had elements of a complete street: benches, trees, bike paths, pedestrian lights, trash cans, plenty of room for pedestrians, and even free Wi-Fi in some areas. Aguascalientes was a bit smaller but was experiencing a lot of construction and a community campaign. It looked like Aguascalientes was reorienting its values towards making a more community-based city focused on

family life. In Zacatecas, we got to experience a very colonial and well-preserved city with its many alleyways and plazas. The alleyways or "callejones" are pedestrian streets that only bicycles and motorcycles can use, and where kids play, friends gossip, and grandmas sell homemade food. This trip taught me to be more analytical and experiential, and I learned how to be more aware of my surroundings and how everything was laid out. Upon our arrival in San Miguel de Allende, the group was hungry for more! The official project for the summer was to design a mixed-use building that consisted of a workshop and gallery and residential spaces for a local artist. San Miguel de Allende is well known for its active arts scene. Me and two architecture students from the group decided to learn ceramics at the school of Bellas Artes. For almost two months, we learned how to make a mug, a plate, clay figures, and jewelry out of clay. I decided to take the teacher as my "client" for the project we had to do, and designed around my interviews with him and his needs.

Figure 1: Ana at Teotihuacan, near Mexico City.





Figure 3: Two pages from Ana's Codex. A self-made diary-sketch book where she sketched, diagrammed, and wrote down observations during the trip. These pages record her impressions from Guanajuato.

I used the drafting and design skills I learned during my studios in CRP program, and enhanced them through this program having to draft site plans and section-elevations by hand. The most challenging part of the trip was experiencing my first architectural critique after being in San Miguel for two and half weeks. I had no idea what to expect nor was I prepared for what the experienced architects had to say about my proposal. Yet, they helped me enormously with redeveloping my design and in refining my design and presentation skills.

By the time they had to prepare for the last presentation, I had become pretty aware of the design of Mexican towns. Throughout the trip, I noticed how most, if not all, the places we visited have a grid layout with a main plaza and a diverse amount of shops and services. For example, just outside our hotel in Guanajuato there was a small pedestrian plaza with a church on one side, a convenience store on the other, a garden in front, a stairway to the subterranean road system and, within a 5 to 10-minute walk, a wide variety of restaurants, museums, and housing. Most streets are one-way and all towns we visited had plenty of good bus and taxi servicetowns. Mexico takes a lot of pride in its cities: colorful and innovative architecture, lively public spaces, walkable streets, plenty of public events with music, elegant plazas, and savory food.

In our way back to the US, after leaving San Miguel de Allende, we stopped to visit Mexico City, an "urban monster". Experiencing Mexico City made me redefine what diversity, complete streets, overcrowding, faith, corporations, a central park, public art, swap meets, community, waste, museums and traffic, lots of traffic, meant to me. We got the opportunity to go to the helipad on top of the 3rd tallest skyscraper in Mexico City, "Torre Mayor", and the view was scary. Not only was I at the top of a 55-plus tower but I saw the immensity of Mexico City, and realized how complex and vast *urbanismo* is, and that I was going to be able to help plan for better cities. Mexico City was simply amazing to me. This trip was an unforgettable experience that I will always cherish. I cannot wait to explore more of the world.

Figure 2: Ana's studio space in Los Arcos, San Miguel de Allende.



Learning from New Zealand: Disaster Risk and Emergency Management

Augustina Elise Remedios

Student, BSCRIP, Cal Poly.

Justin Sauder

Student, BSCRIP, Cal Poly.

Augustina Remedios and Justin Sauder, juniors at Cal Poly's BSCRIP program, had the opportunity to participate in a program on disaster risk and emergency management at New Zealand's Massey University in the summer of 2016. Constantly affected by severe earthquakes types of natural disasters and other types of emergency, New Zealand and its governmental agencies offered our students a great learning opportunity in this fundamental field of city and regional planning. In this article, Augustina and Justin share their thoughts with us.

Augustina Elise Remedios

In late June, I began my journey to New Zealand to participate in a program on disaster risk and emergency management run by Massey University in Wellington. The program consisted of a two-week course which included traveling throughout the North and South Islands, and a four-week internship in Wellington. Including myself, there were only six students, all from different parts of the US. The entire country of New Zealand experiences a variety of natural disasters and is forced to plan thoroughly, prepare, and respond to such occurrences often.

The two-week course began in Christchurch, a city located in the middle of the South Island's east coast. It was a very appropriate place to begin our journey since they had suffered a major earthquake in 2011, and the damage can still be seen throughout the entire city. We toured the city and saw that rebuilding had just begun because, we would later learn, of many political issues. Many buildings were still in terrible disrepair along with several empty lots where the previously existing buildings had been raised to the ground by the quake. New Zealand's Ministry of Civil Defense and Emergency Management (CDEM) has the duty to coordinate preparation and responses to disasters on the national, regional, and local level.

Starting in Christchurch, and in almost every place that we visited, we met with local representatives of the CDEM and visited local, regional, and the national offices where we got an understanding of their missions and daily work. This experience was incredibly insightful because we were able to get first-hand knowledge about the community and its relationship with CDEM, and the economic, environmental, and natural disaster impacts specific to their area.

During these two weeks, we traveled from place to place on a small bus and had the great benefit of having our professor

John Mitchell accompanying us on the trip. He was incredibly knowledgeable from having worked with a variety of different disciplines and jobs in the field. He helped us think about all the potential hazards of particular communities as we drove through them, and shared past experiences he had in dealing with disasters throughout New Zealand. In this company, all bus drivers were Kiwi, and our particular driver was Maori (New Zealand's indigenous people). She was also extremely knowledgeable and shed light on several cultural aspects and particularly on those that affected what we were studying.

After Christchurch, the bus took us up the South Island's east coast. We took the ferry to the North Island. We traveled from Wellington, at the south of the island, up through the center towards the north eastern side then crossing over in the most northern part of New Zealand in the northwest. Some of the well-known places that we stopped were Tongariro National Park, Rotorua, Lake Taupo, Bay Plenty, Auckland, and Paihia. New Zealand is a gorgeous country, and every place where we

Figure 1: Augustina sharing her internship experience at Cal Poly.



stopped and drove through was incredibly beautiful. I was in constant awe.

Once settled in Wellington, the group was divided into four different internship positions. I was placed at the Ministry of Primary Industry's (MPI) Major Incident Management Team (MIMT). The MPI sets the policies, manages, coordinates, and regulates a variety of different governmental areas such as customs and immigration, agriculture, fisheries, forestry, trade, food safety, animal welfare, and more. The MIMT specifically manages responses to major and severe threats to trade, biosecurity (pest incursions), food safety, and adverse events (fires and floods). Although my internship was slightly different than what I had been learning about during our two-week course, I was happy to be in a position dealing with the responses to emergencies and disasters that were not necessarily from natural causes. The responses to these threats were often more slow rolling and very complex.

The MPI had to coordinate with many different stakeholders and options for action. Their style of planning for some of the most common and severe events looked different as well because of each issue's specific aspects and the political dimensions involved. An example of an emergency and response that happened during my time there, and that is still occurring, is the pea weevil. In New Zealand, peas are not fumigated to avoid pest incursions and are sold at a higher price because of this. Because only about ten percent of the pea farmers were affected, and only in the north island, the MPI decided to close this area off and stop the selling and growing of the affected peas. A crucial decision was made to stop a smaller number of farmers from growing for two years until decided it might be safe, rather than risking the pea weevil spread to other parts of New Zealand. I was able to attend many meetings regarding this response, and others. I was also able to assist in preliminary research on where the peas might be bought and sold so that

Figure 2: The group in a field visit with professor John Mitchel. Augustina is in the center foreground, and Justin is the second from the right.



those groups could be contacted and made aware of the issue. Another responsibility I took was to create a document model that could be used across all types of responses. I felt very lucky to be a part of this team and to learn about such different and not often thought of emergencies and problems. Upon arrival and going through customs, I did not quite understand why New Zealand was so extremely strict on what is brought into the country. However, after my internship, I understood the necessity for the strictness in minimizing the causes of some of these types of emergencies.

Overall, I had a fantastic and fruitful professional experience in the most amazing country. I found myself not wanting to leave when the time came. I learned so much on such a short trip and gained amazing insights on New Zealand and the topic of disaster risk and emergency management.

Justin Sauder

This summer I had the wonderful opportunity to study abroad in New Zealand. I was part of a pilot program from Massey University in New Zealand focused on disaster risk management. I was in the program with five other students from all over the U.S. The program, split into two different parts, was just six weeks long yet I gained so much valuable knowledge and experience. For the first two weeks, we took an intro class on Civil Defense in New Zealand. For the remaining four weeks, each student was put into an internship related to emergency management. Two of us were placed at New Zealand Fire Services, two at the Wellington Regional Emergency Management Office, one at the Ministry of Primary Industries, and one at the Ministry of Health.

Our journey started on the south island, in Christchurch, a city devastated by several earthquakes in 2010 and 2011. During our initial two-week course, we travelled on a bus with our professor, John Mitchell. He was an incredibly seasoned professional in the field of disaster risk management. We were lucky to have him with us for the entire two weeks, teaching us every day as we travelled. From Christchurch we travelled to Paihia at the top of the north island, staying in youth hostels all along the way. We visited several emergency management offices throughout our travels. A typical day on the road consisted of a couple of site visits with representatives of the Emergency Management Office in each respective area, lectures on the bus, and then travelling to our next destination. We kept this rigorous schedule for two weeks staying in a new city almost every night. The trip allowed us to see a large part of the North Island from Wellington to Lake Taupo, Rotorua, the Bay of Plenty, Auckland, Paihia, Hamilton and finally Tongariro National Park before we headed back down to Wellington for our internships.

The nature of the two-week course allowed us to learn so much in such a short time. We were constantly being taught

as we drove from region to region learning about the natural disasters, vulnerabilities, and mitigation measures. The various Emergency Management Offices that hosted us were very hospitable and often dedicated their day to teaching us, sometimes travelling with us to different sites to give us a more personal experience. We also visited several fire departments, police departments, and even organizations such as the Red Cross. We even got to tour the bunker underneath New Zealand's national parliament building where all emergency management services coordinate together in times of national crisis. Our travels taught us so much about natural disasters and how emergency management services mitigate, respond, and recover in New Zealand. But we also learned so much about the culture and got a basic understanding of different regions, which would prove to be helpful in our respective internships. After two weeks on the road we were happy to get to Wellington and stay in one place for the next four weeks.

Our new temporary home away from home was the Trek Global Backpacking Hostel in Wellington. Each of us gave a presentation about our two-week expedition as a final for our class. Then we had a couple of days to rest, shop, and explore the city before we started our internships. I worked for the New Zealand National Fire Services and spent my first day at their National Headquarters, observing their operations and getting a basic understanding of their job at the national level. Then I was moved over to the Wellington City Fire Station where I worked with the Planning Sector. I was tasked with starting to plan to move a fire station that was just fifteen feet from the ocean and was at risk of flooding or even being destroyed in the event of a storm.

Given my short stay in New Zealand, I had to get to work very fast. The Fire Services arranged for me to work with Beca Consultants to get a better understanding of the region as well

as the planning processes in New Zealand. I spent a couple days in their office learning about new areas of growth, a new highway project, local laws and studying possible sites for a new fire station. Since I needed to gain a better understanding of the Fire Services as a whole, I spent a couple of days in their different branches. I spent a day at the Communications Center, where I sat with a dispatcher listening to him take calls and dispatch the fire trucks to different locations, and a day out in the countryside with an employee of the area's Rural Fire Station. We checked in on people who were burning brush on their properties, and also met with a consulting firm to talk about the location of the water tanks in a new subdivision.

I even got to a ride along with a day and a night fire response crews! This was the most exciting part of my internship as we responded to seven or eight calls with the firefighters, and I could see them in action. Although we did not respond to any real fires, we were very busy. When not responding to calls, we would go check out on buildings with which the crew was not familiar and perform a walk-through to identify the important elements in the event of a fire. All was able to gain a lot of valuable information for my given task: to put together a brief report on opportunities, constraints, and suggestions for a few different locations for a new fire station.

Although my time in New Zealand was brief, I learned more than I ever thought I would. I had the unique opportunity to experience the New Zealand culture by living and working in the beautiful city of Wellington. I will never forget this experience, the places I went, or the people I met. There was a lot of learning for me as a major in City and Regional Planning.

I am very grateful to the Errett Fisher Foundation for providing me with a scholarship and for helping me to make my dream a reality!

Figure 3: Justin and New Zealand's beautiful coast line.



Figure 4: Justin (grey shirt) with a crew of the New Zealand's Fire Service.



FOCUS 13

Spotlight



Learning from California: Highlights of CRP Studios 2015/2016 AY

Hemalata Dandekar

*PhD; Professor and former Department Head,
City and Regional Planning, Cal Poly.*

Dr. Hemalata Dandekar highlights the studio projects from both BSCRIP and MCRIP programs during the 2015-16 academic year. The studios are fundamental in the learn-by-doing pedagogy embraced by the department, and they help shape students into professionals that are fully engaged with their communities.

This article on learning from California in our CRP studios will be the last one I author. In initiating these Learning from California essays in Focus VII (2010), when I joined the faculty as CRP Department Head, I hoped to spotlight a signature element of our planning curriculum - an exceptionally strong series of required planning studios offered in both the BSCRIP and the MCRIP degree programs.

As studio instructor for over three and a half decades in institutions across the US and abroad, I was keenly aware that CRP's strength in studio instruction played an important role in placing CRP Cal Poly in a preeminent position in planning schools across the country. That first overview of studios that were taught in 2009 - their locations, range, content and goals - illustrated why Cal Poly's strong and vibrant studio-based instruction is recognized across the country. It corroborated that finding city sponsorship for our studios has been embraced by our faculty, despite the additional pressures and concerns this responsibility places on the studio instructor. This commitment to the studio pedagogy has been reinforced in CRP as we have observed, year after year, how effective a carefully tailored studio sequence serves to ratchet up student skills, comprehension, and ability to describe, communicate, synthesize, integrate and innovate.

Having stepped down as Department Head in Fall 2016, I join the studio faculty ranks with enthusiasm and leave to others the task of framing overviews of activities in our department. The seven papers on studio teaching that followed in successive issues of FOCUS foreground the contributions that CRP's community embedded, service-learning-driven work offers in furthering the talents and skills of our students. Intrinsicly involved in the physical planning of our cities and neighborhoods this studio work has been of benefit to the communities with whom we have engaged.

The CRP planning studios during the 2015/16 Academic Year enabled our students to work in contexts that provided a diversity of situations for urban analysis and visioning. In performing the

work student learning what is at the core of our concern and commitment, and, importantly, the work also meet the needs of our host communities. Finding a balance between pedagogic mandates and community-client needs makes studio teaching especially challenging and invigorating. Studio faculty have welcomed this as an opportunity to spur students and themselves to higher levels of accountability and professionalism. Most upper division undergraduate and graduate masters studios received financial support from the host client-communities this past year. These resources were used to subvent student travel, support production of deliverables and procure special equipment and supplies uniquely needed for the work.

The studio work undertaken in 2015-16 is summarized here. Full-length reports are available upon request or from Cal Poly Library's Digital Commons.

Undergraduate Studio: CRP 201 Basic Graphic Skills (Fall 2016). *Professors Amir Hajrasuliha and Woody Combrink.*

In this studio, students acquire basic graphic communication skills and urban design concepts through design development of a site. The Wells Fargo parking lot on the south-west corner of Marsh and Broad in San Luis Obispo has long been used as the project area for this exploration. It is a manageable site which allows students to apply newly acquired skills to a small urban design project and to explore site opportunities, constraints, circulation, and ways to enhance pedestrian friendly environments.

Undergraduate Studio: CRP 202 Urban Design Studio I (Winter 2016). *Professors Vicente del Rio and Amir Hajrasuliha.*

This studio introduces students to the urban design process and increases their design skills. Students addressed a strategic site in San Luis Obispo at the north-west corner of Nipomo Street and Higuera Street. They undertook assignments to complete established phases of a site design problem namely



Figure 1: Proposal for a plaza in downtown San Luis Obispo, by Willow Urquidi; CRP 201.

Figure 2: Proposal for the redevelopment of an area in downtown SLO, by Sabrina Meleo and Alyssa Chung; CRP 202.



Figure 3: Adaptive reuse of the Morro Bay Power Plant, by Amy Gunn, Connor Lavi and Kenzie Wrage; CRP 203.



site analysis, conceptual development, design development, visualization, design document development, visual / verbal presentation. These exercises exposed students to the basics of functional, regulatory, economic, and social factors that influence urban design. The urban design challenge consisted of developing residential as well as retail commercial land uses.

Undergraduate Studio: CRP 203 Urban Design Studio II (Spring 2016). Professors Amir Hajrasulih and Woody Combrink.

The site surrounding Morro Bay power plant was the focus of this third urban design studio. The course built on the knowledge that students acquired in CRP 201 and 202, and advanced their understanding of the planning process and of graphic, written, and verbal communication. Substantively this studio was focused on issues of post-industrial development and waterfront development. Students refined their skills in three-dimensional spatial design, program development and computer applications. And, the course encouraged students ability to problem solve and think critically in the field of urban design.

Undergraduate Studio: CRP 341 Urban Design Studio III (Fall 2015). Professor Vicente del Rio.

The studio focused on developing specific plan alternatives for Froom Ranch, in San Luis Obispo. The 111-acres parcel is located within the city's sphere of influence west of Los Osos Valley Road between the Irish Hills shopping plaza to the north, the Courtyard and Hampton Inn hotels to the south, and the Irish Hills open area reserve to the east. Accessibility is excellent with an almost direct access to Highway 101 and there is a good level of commercial activity in the immediate surroundings. These factors make the site an ideal location for creating a walkable mixed-use development. But the natural conditions are challenging with limited flat areas and significant grade changes closer to Irish Hills, a seasonal creek, and a flood zone. The recently adopted Land Use Element of the City's General Plan identifies the site as requiring a specific plan, currently being developed by RRM Design Group. With support from RRM and the land owner, and based on their programmatic requirements, the class was broken into five teams who developed different planning solutions for mixed-use, mixed-typology, walkable, and sustainable communities.

Undergraduate Studio: CRP 410/411 (Fall 2015 and Winter 2016) Community Planning Laboratory I and II. Professors Adrienne Greve and Chris Clark.

In 2015, Chancellor White adopted a 2040 greenhouse gas reduction goal of 80% below 1990 emissions for the entire California State University (CSU) system. Cal Poly is one of seven CSU campuses who signed the Second Nature climate agreement committing the campus to both GHG reduction and climate change adaptation actions. Our campus extended the Chancellor's target to reaching carbon neutrality by 2050. The first step in fulfilling these goals and commitments is to inventory current emissions, assess existing actions and

policy, and develop a climate action plan (CAP). The 2015-2016 community-planning studio took on these tasks.

The class efforts were broken into seven sector teams, each integral to addressing climate change: Agriculture, Buildings, Campus Life, Renewable Energy, Solid Waste, Transportation, and Water. In addition to sector teams, each student served on a task team. These teams pursued a variety of efforts necessary to develop a Draft Climate Action Plan (CAP) for Cal Poly over the course of two quarters. The first quarter focused on gathering data to document and understand current conditions on campus. Best practices from other city and campus CAPs and related guidance documents were compiled and reviewed for potential strategies relevant to Cal Poly. The second quarter of the course focused on CAP development. Throughout the CAP process, outreach efforts assure that the Cal Poly community has the opportunity to share its hopes for the future of Cal Poly and current campus needs.

Graduate Studio: CRP 553 (Spring 2016) Project Planning and Design Studio. *Professors Vicente del Rio and Amir Hajrasuliha.*

The City of Ventura's Planning Department needed an urban design vision for a "Wellness District" in the city's Midtown district and was the client for this studio. The idea emanated from a 2013 workshop led by Ventura City and the Urban Land Institute, and a response to the on-going multimillion-dollar expansion projects of Ventura's Community Memorial Hospital and the County's Medical Center, both located in the area, and the increase in associated medical services. The studio was asked to work on a vision that could leverage a mix of retail, eateries, offices, and residential uses whose impact on the surrounding community and the city as a whole would be highly positive.

Intensive research, on-site and on-line surveys led the class to a vision with associated goals, objectives, ideas, and a concept diagram which were reviewed by the city staff. The class then developed their final proposals for the public and the private domains, as well as for a "core area", identified as a fundamental to leverage the first development phase and connect with Ventura's downtown and the rest of the city. The *Midtown Wellness District Urban Design Vision Plan* was presented to the public in the Ventura City Hall on Friday June 3, 2016, and a final report was delivered to the city at the end of the summer. The plan received an award from the Central Coast APA and is discussed in some more detail in an article appearing at this FOCUS's Faculty & Student Section.

Graduate Studio: CRP 552/554 (Fall 2015 & Winter 2016) Community and Regional Planning Studio I and II.

Section 1: Professor Cornelius Nuworsoo.

This section of the two-quarter long MCRP Graduate Planning Studio prepared a comprehensive revision and replacement of the City of Weed's three-decades-old General Plan. The studio collaborated with residents, stakeholders, and city leaders

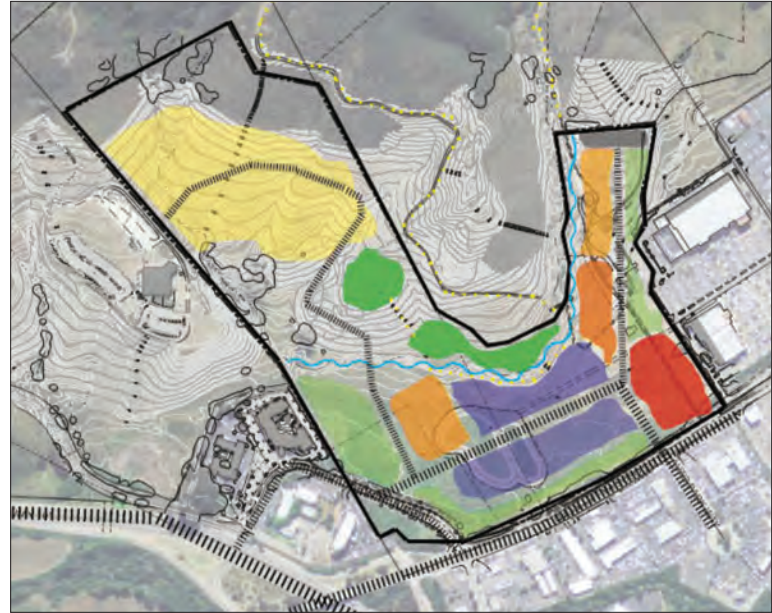


Figure 4: Caballo Place, proposal for a mixed-use community at Froom Ranch, SLO by Horwitz, Luu, Ricklefs & Sandzimier; CRP 341.

Figure 5: A student-led participatory session on campus during the process towards a the Draft Climate Action Plan for Cal Poly; CRP 410/411.



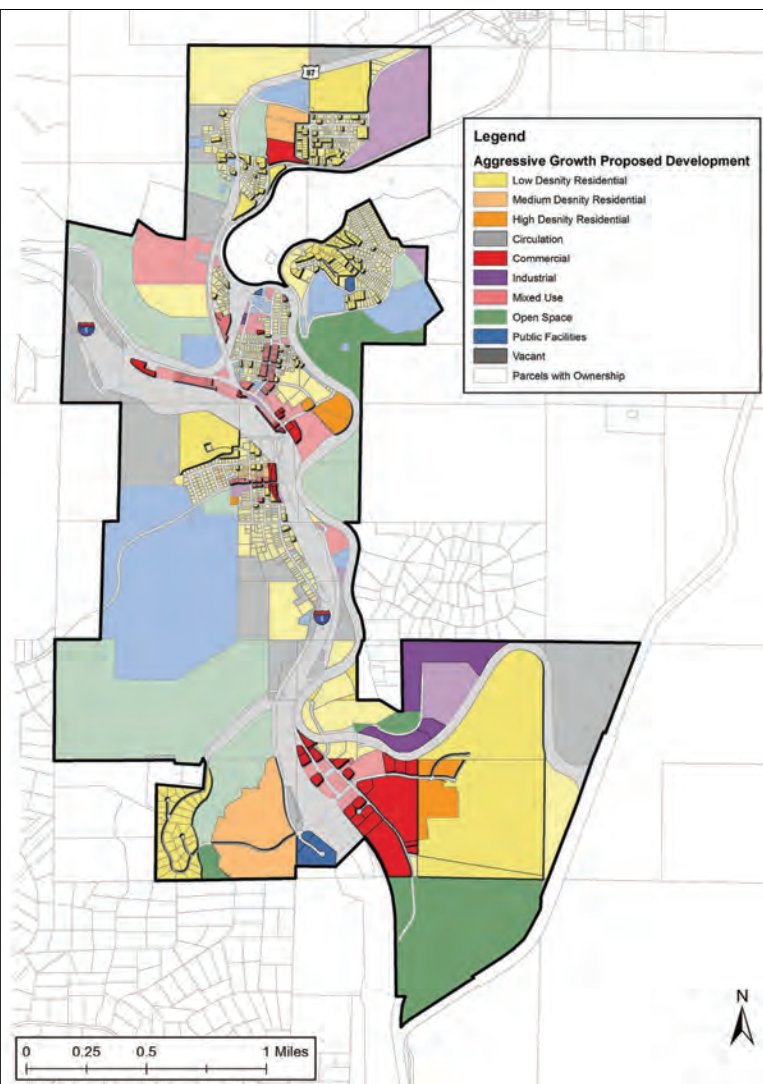


Figure 6: Proposed land-use map for the General Plan Update, City of Weed; CRP 552/554.

Figure 7: MCRP students talking to the citizens advisory committee at Lemon Grove; CRP 552/554.



in formulating a development scenario to accommodate aspirations for growth in population, housing, and jobs by 2040. The City of Weed is a small, mountain town located in Siskiyou County about 70 miles north of Redding, CA and 50 miles south of the Oregon/California border at the intersection of Interstate 5 (I-5) and US Route 97 (US 97). Weed occupies 5 square miles within a sphere of influence of about 28 square miles of timberland. With a total population of 2,967 residents (2010 U.S. Census), the ethnic composition of Weed is predominantly White (65 percent). In 2010, the median household income in Weed was \$28,170 compared to the Siskiyou County and California state median incomes of \$37,709 and \$60,883 per household, respectively.

The project involved a thorough analysis and comprehensive update of the City's General Plan. The administrative draft General Plan includes detailed long-term goals, objectives, policies, and programs to inform future development on twelve Elements: Economic Development; Land Use; Circulation; Conservation; Housing; Public Facilities; Safety; Health; Open Space; Noise; Community Design, and Air Quality. The plan was guided by comprehensive research on community characteristics and on opportunities and constraints for development as well as on public feedback. The General Plan can position Weed to improve the quality of life for residents, provide diverse housing options, generate economic vitality for the city, and enhance its attraction as a service center for travellers between major cities to its north and south.

The class presented the city with three distinct alternative growth scenarios. The Preferred Growth Scenario for 2040 reflects a combination of features from all three scenarios and captures community desires: (a) for vibrant, walkable, and attractive neighborhoods; (b) to preserve the City's character; (c) to provide an adequate and diverse supply of housing; and (d) to increase the number of jobs within the City.

As shown in the Proposed Land Use Map (Figure 6), development is focused in six key areas: (1) Angel Valley; (2) Historic Downtown; (3) Creekside Village; (4) North / South Weed Boulevard Corridor; (5) Bel Air; and (6) South Weed. The first five areas focus on neighborhood commercial centers, and the sixth area expands the City's highway-serving commercial development.

Section 2: Professor Kelly Main

In 2015-2016, one of MCRP's two graduate comprehensive planning studios was hired by the City of Lemon Grove, California, to update its general plan. Lemon Grove is a compact community of 3.8 square miles located near Downtown San Diego. Approximately 26,000 people live in the City, making it the fourth-smallest city in San Diego County. The studio's contract with Lemon Grove grew out of a graduate student's summer internship. When Rose Kelly, then a first-year graduate student in the MCRP program, started her internship in summer 2015, she found that the majority of Lemon Grove's General Plan had not been substantially updated since the 1990s. Ms.

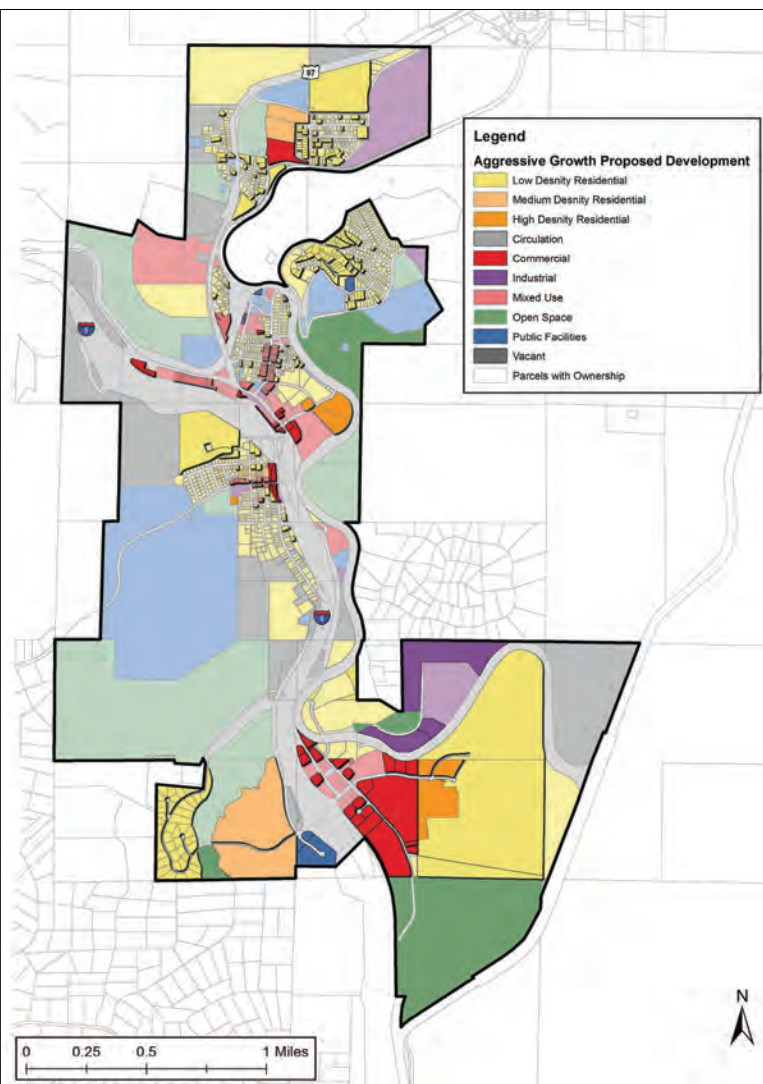


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Kelly's description of Cal Poly's comprehensive planning studio led the City Council to hire the studio and create a citizens advisory committee to provide the students with ideas and input (Figure 6).

The fourteen students in the studio, with their advisor Professor Kelly Main, engaged in one of the most extensive community engagement processes undertaken by a Cal Poly studio. In the two-quarter course studio, the students reached out to more than 120 high school students and 500 hundred adults, through: an online survey; in-person interviews at local holiday events (Figure 7), grocery stores (Figure 8) and local businesses; and focus group meetings at a local church, with the chamber of commerce and at a local high school. The students ideas focused on three areas—community culture and identity, downtown improvements, and infrastructure and design. The student's general plan is now in the hands of the City's Development Services Director, Dave De Vries, who, with a local consultant, is shepherding the document through the public review process for adoption sometime in 2017.

The Lemon Grove studio process and work can be see at: <http://lemongrovegp.wixsite.com/imaginelemongrove>



Figure 8: An MCRP student interviewing a Lemon Grove resident during a holiday event; CRP 552/554.

Figure 9: MCRP students during a participatory event at a Lemon Grove grocery store; CRP 552/554.



Conversations with Alumni

Spotlight on Jimmy Ochoa and Orchid Monroy-Ochoa

Bachelor of Science in City and Regional Planning, Cal Poly, 2009

FOCUS: *An exemplary couple like you is rare in any profession. You were sweethearts when you started Cal Poly and classmates during your all your CRP years, and now work together at Caltrans! Can you tell us about this incredible success story? When did you decide to major in planning and why Cal Poly? Did you share the same passion with the idea?*

We both met in high school and although it was not love at first sight, we did catch each other's eye. In junior college, we noticed we both had similar classes and started to talk more to one another. After a semester in junior college, we decided to start dating. Both of us had a passion for architecture and, like many, fell in love with Cal Poly, San Luis Obispo. After completing all of our pre-requisites, we applied for Cal Poly but sadly got rejected. We decided to look into other majors since architecture is such an impacted major. We both were ready to get school done and start our profession. After researching City Regional Planning, we realized it has architecture components, which gave us more of an opportunity to interact with the people.

FOCUS: *What year did you graduate? When did you become interested in transportation and why Caltrans?*

We graduated the summer 2009. We moved back to Modesto, CA and married two weeks after our graduation. Jimmy was the one with a stable job although it did not pertain to Planning. At that time, my goal was to apply anywhere and everywhere. Times were hard back in 2009, and job prospects were slim. A friend from Caltrans informed me of a job opening, and I immediately applied for it. After a long process and over 100 applicants screened and 20 interviewed, I got the call and got hired. Jimmy applied a year later through a similar process and fortunately was hired as well. What we both loved about the City and Regional Planning program was that we could focus on diverse interrelated topics including environmentalism, collaborative public participation, and transportation to name a few. Our passion while in the program was public participation, but afterwards at that time in our life, we needed a job and considered transportation planning. Now it is a job we both love and have a passion towards.

FOCUS: *Can both describe your jobs and position at Caltrans? What are your responsibilities and what type of work do you do?*

Working for a rural district, we have had the opportunity to work in different positions at Caltrans, which is a company with over 20,000 employees and is divided in 12 districts. We work



Orchid, Jimmy, and daughter Olivia.

in District 5 and oversee five counties: Santa Barbara, San Luis Obispo, Monterey, San Benito, and Santa Cruz County. We entered as entry-level Transportation Planners and over the last three-years have been promoted to Associate Transportation Planners. Orchid works for both the System and Regional Planning Department, which includes developing Transportation Concept Reports (TCRs), a technical document that identifies trends and deficiencies within major corridors and provides a basis for considering future actions to preserve its integrity for the next twenty years. As a Regional Planner, Orchid's also must attend the Technical Advisory Committee and Board meetings for Monterey County. She serves as a liaison between Caltrans and our partner agencies within the county including as the Rail Coordinator and the Training Coordinator for District 5.

Jimmy works within the Advanced Planning Department as the State Highway Operation and Protection Program (SHOPP) and State Transportation Improvement Program (STIP) Coordinator. He is responsible for collaborating with external agencies and internal departments to help facilitate and communicate a 10-year project list that will maintain Caltrans' infrastructure assets while also improving the system's infrastructure. Jimmy monitors approximately 60 projects per year maintaining the budgets within a project's planning phase and facilitating communication between the planning department and project development department. He also works with Sacramento Caltrans Headquarters to communicate any new mandates and laws that may impact project development. Lastly, Jimmy

facilitates dialogue with all five counties in District 5 on capital improvement projects which inform Caltrans' planning department on project development.

FOCUS: *Are there other CRP alumni at Caltrans?*

Yes, we know of several other City and Regional Planning colleagues that now work for Caltrans. Just in District 5 we have five people who came from the CRP department.

FOCUS: *Can both of you describe the most memorable work or projects you were involved with? Can you talk about the most rewarding and the most challenging of them?*

Orchid: The project that is most memorable for me is the State Route 68 Scenic Plan. It is currently an ongoing effort and it is being funded through Caltrans Sustainable Communities Planning Grants. The State Route 68 corridor is a key travel route between Salinas and the Monterey Peninsula and is subject to periods of heavy congestion. SR 68 is designated as a scenic highway and is bordered by significant wildlife habitat including the 14,650 acre Fort Ord National Monument and rural low density development in the Sierra de Salinas mountain range connecting to the Ventana Wilderness of the Los Padres National Forest. The SR 68 Corridor Plan will evaluate current and future travel patterns between Salinas and the Monterey Peninsula, the feasibility of SR 68 improvements, and the potential for wildlife connectivity enhancements. The plan will help identify operational and capacity improvements over the next five to twenty years that contribute to the long-range sustainability of SR 68. What I enjoy about this plan is collaborating with our partner agencies and other departments internally in Caltrans. The most challenging part of this project and other projects is always finding funding. Great ideas come out of many plans that have been funded through Caltrans grants but money to make the projects become a reality is always difficult to come across.

Jimmy: One of the most memorial projects that I have been involved in was an innovative project that would allow the conversion of US 101 highway shoulder Between Avila Beach drive to Spy Glass Drive in the Pismo/Shell Beach into a temporary managed shoulder lane during peak traffic times. This project was one of my favorites because the coordination between SLOCOG, SLO County, and the City of Pismo Beach and Caltrans allowed great dialogue that laid the foundation for proper planning for a project that was not traditional to Caltrans. This allowed Design Engineers and Planners to help address environmental, transit, pedestrian, and bicycle needs on this highway segment that was once only auto centric. This was the first time I saw how important planning was in Caltrans and how all the important skills that I learned in CRP was successfully applied in this project.

FOCUS: *How does your education reflect in your work? Do you feel that the classes and skills learned from the BSCRCP program*

support your professional practice? What did the program provide that is fundamental to your professional practice?

We believe that Cal Poly's BSCRCP did a good job preparing us with a variety of skills that can be applied in my every day job. The "learn by doing" model definitely applies at Caltrans. With limited resources, we cannot depend on others to fully transfer their knowledge to us and train us. We have to be self-motivated and willing to learn on our own. My technical skills like ArcGIS, Photoshop, and InDesign have all been used and much appreciated. Not many people know how to use these programs and therefore are more limited in their graphic presentation skills. After all, "a picture is worth a thousand words." Knowing how to present your project effectively verbally, in writing, and graphically is crucial.

FOCUS: *What are the strengths of Cal Poly's BSCRCP program and what do you think could improve?*

The program has great professors, good real world project scenarios, and provides the opportunity to learn a wide range of topics. Areas where the program can improve would be to dedicate more time teaching students how to write compelling arguments that justify the feasibility of their proposed projects. Funding is also a major problem that many agencies face in developing projects. Understanding the many funding sources and laws that help project implementation is an important and crucial skill. Learning how to write and understand grants requirements is also a critical and valued skill that any employer or agency would value in their employees.

FOCUS: *What was the most challenging aspect of transitioning into professional practice?*

We are taught that the sky is the limit and when you transition to the professional practice, especially the public sector, you realize there are a lot of limitations. There are many laws that you need to be aware of and there is also limited funding. As a professional, you always have to remind yourself why you do what you do. In our case, it is to help serve people by providing a safe, sustainable, integrated, and efficient transportation system.

FOCUS: *From your perspective, which are the critical knowledge and skills for planners entering the field?*

Planners need to sharpen their soft skills as opposed to only focusing on hard skills. Soft skills include exercising self-motivation, discipline, effective communication, adaptability, and versatility. Hard skills are great, but you need to communicate your technical skills to people. Listening skill are also often over-looked. In our generation, we feel entitled and should be heard. The abilities to effectively communicate solutions and have a healthy effective dialogue with diverse actors can enhance one's career.

FOCUS: *What do you see as the big challenges in your field of work over the next 5-10 years?*

The biggest challenges in our field include trying to meet State requirements for Greenhouse Gas emissions, the need to support the needs of and increase access for pedestrians and bicyclists while still maintaining current infrastructure assets. We currently do not have enough resources to maintain our large network infrastructure system, and I fear that this will continue for the next five to ten years. Things to look forward to are linked cars and self-driving vehicles.

FOCUS: *Any final words of advice for our students and young professionals?*

We have been so blessed as a couple to have gone to one of the best universities in the nation with a great planning program and be hired by the biggest transportation agency in California. However, it wasn't easy getting here, and it took a lot of patience and persistence. Planners are a vital asset to the many challenges in our evolving world, so we advise you to be fearless leaders and find creative and innovative solutions. Students aspiring to be young planning professionals need to work hard and go make meaningful a difference in their communities. This may sound cliché, but be the change you want to see in the world.

Conversations with Alumni

Spotlight on Norm Allinder

Master of City and Regional Planning, Cal Poly, 2002

Focus: *Why did you choose CRP?*

I finished my architecture program at Cal Poly in 2000 and decided to go for my MCRP right away.

Focus: *Why a planning degree?*

I wanted to transform the state of suburban development.

Focus: *Can you talk a little about your professional career?*

Norm: My first job was working at the City of Fresno in current planning. After a couple of years I went to work for RRM Design to work on neighborhood design projects. After a few years designing neighborhoods I went to work for Kemp Land Company building new neighborhoods. When the recession took effect, I had to seek other opportunities for the first time in my career. I was lucky enough to be offered the Planning Director position in Madera County and have been there since.

Focus: *What were the most rewarding professional experiences that you remember?*

Norm: Each of them has had their own rewarding experiences and I highly recommend some form of public sector experience early in your career.

Focus: *Can you talk a little about your current job?*

Norm: In addition to being the Planning Director, I also have the administrative title of the Chief of Development Services. In that role I oversee three departments, including Public Works, totaling over 160 employees.

Focus: *How did you end up taking it?*

Norm: The Board of Supervisors offered me the expanded position after the previous Public Works Director resigned.

Focus: *What are your responsibilities?*



Norm: I oversee the Water and Natural Resources Department, Public Works Department and Community Development Department, which includes Planning, Code Enforcement, Building, the Fire Marshal's Office, and Environmental Health.

Focus: *How is it working in the public sector as compared to the private sector?*

Norm: Public sector positions are not as flexible as the private sector.

Focus: *Do you prefer the public over the private sector?*

Norm: Each has its own advantages and challenges.

Focus: *Can you tell us how is it that your department is organized and its main mission?*

Norm: As Chief of Development Services, I oversee the Community Development, Water and Natural Resources, and Public Works Departments, which cover most of the development related activities in the County. My staff facilitates development in the County, overseeing county wide zoning, development review and public improvements, coordinating with other agencies and jurisdictions, and ensuring that the County's interests are represented when implementing mandated regulations.

Focus: *Did you conduct any reorganization when you came in?*

Norm: I have participated in two major reorganizations in my seven years at Madera County.

Focus: *What gets you excited about your work?*

Norm: Finishing a task on time and under budget.

Focus: *Can you describe the most exciting projects you have worked in your career?*

Norm: Every project no matter its size is exciting and important. The most exciting projects are those that get built.

Focus: *What are the major plans and projects that your department is involved with now?*

We are beginning the implementation of a new town. It was planned twenty years ago and construction began earlier this year. It is very exciting to implement a new city.

Focus: *What gets you frustrated in your job?*

Norm: Closed minded public and territorial government officials.

Focus: *Can you share with us some of these frustrating moments?*

Norm: When it comes to the public it is very difficult to overcome misinformation, which has its own inertia in the community.

Focus: *How does your education reflect in your work?*

Norm: I always try and consider the finished product, what gets developed and built. That is the only way to know when you have got it right or wrong and always provides new learning experiences.

Focus: *Do you feel that what you got enough from the MCRP program to start you off in your professional practice?*

Norm: Absolutely.

Focus: *From the perspective of a former student, what do you think are the strengths and weaknesses of the department?*

Norm: Applied learning has always been a strength of the program. More outreach to alumni would be welcomed.

Focus: *What was the most challenging aspect of moving from the CRP program to professional practice?*

Norm: Remembering that it is not your town, but everyone's.

Focus: *What are the critical skills/tools for planners entering the field?*

Norm: Graphic and design skills are always in high demand.

Focus: *What do you see as planning's big challenges over the next 5-10 years, and what does Cal Poly need to teach students so that can successfully engage in these challenges.*

Norm: Know and understand water rights.

Focus: *Any other suggestions to our students?*

Norm: Always continue learning.

Theses and Professional Projects Abstracts

Master of City and Regional Planning

City and Regional Planning Department, Cal Poly San Luis Obispo

For fulfillment of the MCRP degree, the CRP department offers the student a choice between a final comprehensive planning studio, a thesis, or a professional project. The following abstracts represent master's theses and projects approved during the 2015/2016 academic year. They are all available from Cal Poly's Kennedy Library at <http://digitalcommons.calpoly.edu/theses>.

Automated Vehicles: A Guide for Planners and Policymakers.

Charlie Coles

Automated vehicles are those which are capable of sensing their environments in order to perform at least some aspects of the safety-critical control (like steering, throttling, or braking) without direct human input. As a guide for planners and policymakers, the objective of this thesis is to develop a strong foundation for anticipating the potential impacts resulting from advancements in vehicle automation. To establish the foundation, this thesis uses a robust qualitative methodology, coupling a review of literature on the potential advantages and disadvantages of vehicle automation and lessons from past innovations in transportation, with recent trends of the Millennial Generation, carsharing services, and a series of interviews with thought-leaders in automation, planning, policymaking, transportation, and aviation. Five significant findings emerged: (1) the impacts of vehicle automation differ depending on one's visions of what automation means, how it is implemented, what the automation does, and where it operates; (2) current limitations of vehicle automation to perform all aspects of the dynamic driving task in all driving conditions make it difficult to move from level-4 to level-5 automation; (3) level-5 automation is required to have any effect on carsharing, mobility, and quality of life; (4) assuming effective planning and policymaking techniques, housing preferences, urban growth, and increases in total VMT will likely not be significantly impacted by vehicle automation; (5) human drivers may never be allowed to disengage their attention from a partially-automated vehicle, specifically in applications where drivers are expected to reengage their attention in safety-critical situations. This thesis developed a proposed future scenario of vehicle automation in the next five to ten years that is used to suggest guiding principles for policymakers, and key recommendations for planners, engineers, and researchers.

<http://digitalcommons.calpoly.edu/theses/1534/>

Sea Level Rise Preliminary Vulnerability Assessment and Local Coastal Program Guidance Report for the County of San Luis Obispo.

Jonathan Stanley DiSalvo

As a result of climate change, sea level rise is expected to cause changes to local coastal conditions, increasing potential impacts to coastal communities. Given the coastal location of San Luis Obispo County, it is a priority of the County to prepare for sea level rise; however, existing County plans have not been amended to include strategies for sea level rise. This Report assesses regionally-relevant sea level rise projections, performs a preliminary vulnerability assessment of California Coastal Act Resources, as a basis of adaptation planning strategy development for the Local Coastal Program. This Report serves as an administrative draft for the County, and follows the California Coastal Commission Draft Sea-Level Rise Policy Guidance Public Review Draft (2013) and the California Climate Adaptation Planning Guide (2012).

(not available from Digital Commons at the time of publication)

Bainbridge Island Metropolitan Parks & Recreation District Landscape Ecology Adaptive-Management Framework Plan.

Craig Addison Houston

The mission of the Bainbridge Island Metropolitan Parks and Recreation District (BIMPRD) is to build a healthy community through effective, sustainable stewardship of parks and open space, through the development and delivery of innovative cultural and recreational opportunities. The purpose of the Landscape Ecology Adaptive-Management Framework (LEAF) Plan is to serve as a living document to supplement the Parks and Recreation Master Plan by providing a framework for the implementation of ecosystem management practices. The plan focuses on the stewardship and management of the Island's ecological resources and responds to the challenge of managing environmental landscapes that integrate biological, geographic,

and socioeconomic processes. As a living document, LEAF serves as a tool to determine the evolutionary character of Bainbridge Island and to identify obstacles to sustainable stewardship of its environmental resources. Over time, through continual monitoring, analysis, and updating, LEAF will continue to grow with refined detail leading to the development of new management approaches better suited to the future needs of BIMPRD and the Island's community.

(not available from Digital Commons at the time of publication)

Policy & Privilege in Photovoltaics: a Community Level Analysis In San Diego County.

Rose M. Kelly

This thesis is an investigation into the demographic and local government permit characteristics of communities with high levels of solar adoption in the San Diego Region. Utilizing a statistical model, this research illustrates which communities have been able to benefit from the current solar incentive programs in a robust market with an abundant solar resource. In San Diego, zip codes with large proportions of people over 65 have the highest correlation with high levels of residential solar adoption. This potentially illustrates that the life changes associated with retiring, including accumulated wealth, stable homeownership, and a fixed income, make residential solar systems accessible and appealing. Moving forward solar policy should expand to better facilitate installations for renters, sharing between neighbors, and clear pathways to retrofit older homes.

<http://digitalcommons.calpoly.edu/theses/1630/>

Does GRID Alternatives Impact Greenhouse Gas Emissions Reduction Targets in Central Coast Climate Action Plans?

Sandra V. Knapp

As of March 2016, GRID Alternatives' 179 solar electric system installations on low-income housing contributed 103 metric tons of carbon (MT CO₂e) emissions reduction for the climate action plans' Energy or Renewable Energy climate action measures that pertain to solar electric installations in the cities of: Arroyo Grande, Atascadero, Paso Robles, and San Luis Obispo and San Luis Obispo County. In 2007, the San Luis Obispo County Air Pollution Control District (APCD) created a team of government agencies to design climate action plans (CAP) that met the emission reduction goals set out by AB 32 and the 2008 Climate Change Scoping Plan. Each CAP outlines its greenhouse gas (GHG) baseline emissions and GHG emissions reduction targets in metric tons of carbon (MT CO₂e) and identifies climate action measures to reach GHG emissions reduction targets. The climate action measure that pertains to Energy or Renewable Energy, specifically solar electric system installations, is examined in this study.

GRID Alternatives, a non-profit solar installer that implements its Solar Affordable Housing Program, was selected by the

California Public Utilities Commission (CPUC) in 2008, to serve as the statewide program manager for the California Solar Initiative's \$108 million incentive program called the Single-family Affordable Solar Homes (SASH) program, which is the country's first dedicated solar rebate program for low-income families (GRID, 2016a, p. 2). In 2010, GRID Alternatives opened its Central Coast office in Atascadero to serve five central coast counties and tracks CO₂ emission reductions for each installation.

The thesis' objective is to determine the impact that GRID Alternatives' solar electric installations in the cities of Arroyo Grande, Atascadero, Paso Robles and San Luis Obispo, and in San Luis Obispo County have on their respective CAPs' GHG emissions reduction targets for the Energy or Renewable Energy climate action measure that pertains to solar electric installations.

<http://digitalcommons.calpoly.edu/theses/1613/>

After the Paris Agreement: How India Can Use Climate Financing to Implement a Sustainable Clean Cookstove Program.

Hannah Kornfeld

The burning of biomass for cooking purposes without proper ventilation and filters poses a massive health and climate risk. Health implications from exposure to household air pollution from this type of fuel impacts women and children in many developing countries, who spend many hours a day cooking and gathering fuel. Climate implications from burning solid biomass results in increased carbon dioxide and black carbon emissions, which contribute to global climate change. This thesis aims to explore the issues associated with biomass cookstoves in terms of both health and climate, and seeks to understand how a new national clean cookstove program could be funded in India. This includes potential partnerships with United States agencies, nonprofit organizations, and other international funding sources. The topic of clean cookstoves has gained traction as a strategy to mitigate emissions and adapt to a changing climate, and with the recent passing of the United Nations Paris Agreement, funding is increasing to support programs that address climate impacts.

<http://digitalcommons.calpoly.edu/theses/1590/>

Exploring Transit Ridership Using Census, Routing & Scheduling, and Stop Characteristic Data.

Douglas Harvey Moody

This study develops, analyzes, and applies transit-system-specific regression tree models that identify and prioritize transit system improvements through analysis and application of ridership, Census, routing and scheduling, and transit stop characteristic data. Regression trees identify and rank independent variables that split dependent variable datasets into meaningful subsets according to significant relationships with independent variable datasets, and regression tree

models can be used to identify and prioritize transit system improvements. In this study, ridership datatypes are the dependent variables (i.e., boardings and alightings) and Census, routing and scheduling, and transit stop characteristic datatypes are the independent variables. Data associated with the San Luis Obispo Regional Transit Authority (RTA) is the basis of this study.

The literature review identified no other studies using regression trees to identify and/or prioritize transit system improvements. The analysis method helps identify and prioritize improvements to any transit system. The findings of this study may be applicable to other transit systems if assumptions can be made about the similarity of other systems to the San Luis Obispo Regional Transit Authority system.

Relationships between transit ridership and independent variables that may be effective predictors of transit ridership are evaluated in this study. Traditional independent variables used to forecast transit ridership include population and employment densities, land use types, income distributions, service frequencies, and transit stop accessibility; other independent variables that may be significant predictors of transit ridership include transit stop amenities, characteristics, and connecting and nearby infrastructure.

Ridership data needed for the analysis presented in this study can be obtained from transit agencies. Census data needed for the analysis presented in this study is available through the United States Census Bureau. Routing and scheduling data needed for the analysis presented in this study can be extracted from local transit system schedules. Transit stop characteristic data needed for the analysis presented in this study can be gathered by using a survey instrument during field-visits.

The regression tree models developed in this study show a positive relationship in the RTA system between transit ridership and population density (specifically Asian and twenty to twenty-four years old residential population densities), the number of trips serving transit stops, and transit stop characteristics (specifically the presence of a trash can). According to these findings, this study offers recommendations for improvements to RTA's transit system and marketing and planning strategies. More general conclusions that could be applicable to more transit systems could be drawn if the analysis method used in this study were performed with more and/or larger datasets (e.g., other transit agency, regional, statewide, national, and/or global datasets) comprised of more robust, accurate, and precise datatypes, and this concept is the basis for the future work recommended by this study.

<http://digitalcommons.calpoly.edu/theses/1535/>

The Impact of Cargo Bikes on Travel Patterns of Women.

Jana E. Schwartz

There are a number of issues preventing the rollout of cargo bikes as a transportation mode in the United States. One

concern that has been raised is whether cargo bikes can function as a gender equitable transportation solution in the United States, given documented gender gaps in national bike riding statistics and ongoing inequities in childcare in 2-parent heterosexual households. The research is aimed at reviewing the practicality, enjoyment, and outcome of cargo bike use as a gender equitable transportation solution. This research contributes to new knowledge in gender equitable transportation in two ways: a) gender-focused analysis of survey data regarding cargo bikes use; b) extended open-ended interviews with mothers with cargo bikes.

Qualitative and quantitative data from surveys and interviews explore the influence of cargo bikes on transportation patterns and follow how behavior, attitude, spatial context, and perception varies between riders. Specific attention is given to the use of cargo bikes by women with children, as this demographic represents a minority group in the bicycle community and a group who could benefit most from the capabilities of a cargo bike design. Research shows, mothers spend more hours a day around their children and take part in more child-related activities. Therefore, the comfort and feasibility of the cargo bike for women with children becomes the topic of exploration to determine whether this mode type is a functional substitution for trips usually made by an automobile.

Through the collection of a nation-wide survey of cargo bike riders and in-person interviews with mothers in San Luis Obispo, CA who currently use a cargo bike to transport their children and goods, the research assesses the travel patterns of women and the emotional and physical benefits cargo bikes can provide to this specific demographic. Results show that benefits of cargo bike use include boding opportunities with children and a more enjoyable commute, while barriers to use include ill-performing bicycle infrastructure and time allocation for trips made by the cargo bike, in comparison to the automobile. Mode substitution behavior from the automobile to the cargo bike is geographically and culturally specific, but as results from both parts of the study show, women are receptive to cargo bike use and demonstrate a powerful demographic that has the potential to influence the travel patterns of current and future commuters to shift away from automobile dependency.

<http://digitalcommons.calpoly.edu/theses/1584/>



Poor Little Prince!

by **Eduardo (Dede) Rocha**

Architect and professor at the School of Architecture and Urbanism, Federal University of Rio de Janeiro, Brazil. Dede teaches drawing and design, and is an accomplished architectural illustrator.

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