FOCUS

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FOCUS 10
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Welcome to FOCUS X! This tenth volume of FOCUS represents a milestone achievement. With it we celebrate a decade of annual examination of the CRP family's civic and intellectual engagement with communities and places in California and around the world. The commitment to this cause of managing editor, Dr. Vicente del Rio, senior faculty in CRP, has made this possible. Under his guidance FOCUS has become an award-winning journal that makes a key contribution to the department by documenting products of the intellectual curiosity of the CRP community.

The journal has evolved through this decade. Sustaining FOCUS and its success has been important to the department for many reasons, not the least of which is that it distinguishes CRP in that few planning departments in the US academy have a journal quite like it—one that is exclusively dedicated to the concerns and questions of the planning profession. This contribution is particularly important at Cal Poly San Luis Obispo given the university-wide emphasis on learning through action (learn-by-doing) that requires substantial commitment of time and effort from both faculty and students. The emphasis on teaching excellence can be all consuming. The ability to contribute to FOCUS offers a collective opportunity to step back from the day to day teaching pressures to reflect on the larger intellectual concerns and commitments that drive the planning profession to strive to make a difference to society. The pages in this volume illustrate that these concerns are many and varied ranging from affordable housing and neighborhood planning in California to visioning futures for Vietnam and Mumbai.

This past year CRP activity represents inspiration on many fronts. In February-March CRP faculty (Boswell and Greve) organized and hosted the very successful California Climate Action Planning Conference (CCAPC 2013) the first of its kind in the state. It attracted policy makers and practitioners from agencies throughout California and beyond. Registration quickly reached capacity and was closed. A Cal Poly team won the Bank of America Affordable Housing Challenge in 2013, making for a three-year winning streak over excellent projects from universities such as UC Berkeley and Irvine. Three interdisciplinary teams with students from CRP, Business Administration, Architecture and Construction Management entered the competition reflecting a growing interest in the issue of enhancing housing access. In July 2013, US planning academics joined European counterparts in a joint ACSP/AESOP congress in Dublin Ireland around the theme of Planning for Resilient Cities and Regions. Four CRP faculty (Main, Riggs, Siembieda, Dandekar) presented their research on topics ranging from city resilience, sustainability to health. Important cross-national connections were

forged. This issue of FOCUS with its decidedly international flavor of contributions represents a continuation of this professional dialogue. It celebrates the ways in which CRP faculty, students, alumni and extended family of practicing professionals recognize that the field of planning functions in a truly global, thickly interrelated, world. It is one where what happens on our doorstep in California's central coast is informed, influenced and shaped by the forces at work all over the world. FOCUS presents us an opportunity to reflect on planners' observations and discoveries of these forces.

CRP faculty have been engaged globally and locally. Over the last two years, faculty (Simbieda, Greve) have spent time in residence as distinguished fellows at Kyoto University. CRP faculty have been actively engaged in consultative work in Brazil (del Rio), Chile (Simbieda) and Bolivia (Dandekar), and at the same time as they have made very significant contributions to the conversation about, and planning for, climate change, hazards mitigation and resilience (Boswell, Conn, Greve, Siembieda, and Topping). Our students have engaged in studio projects that have contributed to planning in small and large communities throughout the State and all had city partners who made substantial financial and time commitments to their efforts.

The College of Architecture and Environmental Design, under the leadership of Dean Christine Theodoropoulos, has embarked on a strategic planning, action oriented process scheduled for completion in this academic year. The goal is to envision and refine future growth scenarios and emphasis of the college. CRP faculty, students and staff are constructively involved in this effort. The moral of the CRP family remains high and faculty have been entrepreneurial and creative in seeking out alternative sources of support and resources to keep the intellectual life at CRP robust. Given the goodwill and persistence of all we have had a very successful year, one to celebrate and be proud of.

In my four years as Department Head of CRP I have learned to appreciate the values of the CRP community and the dedication of its faculty to student learning and excellence. Our network of alumni and friends have supported us providing students with internships, serving as mentors, offering projects for our studios, organizing alumni reunions, and, endowing scholarships for students. We thank them deeply. Through this volume of FOCUS we welcome you to the rich and interesting world of CRP.

Hemalata C. Dandekar
PhD; professor, CRP Department Head.

It is exciting to celebrate FOCUS's tenth anniversary with its largest issue so far, featuring almost twice the number of pages as the first issue back in 2003. And having it published in full colors again bring the contents so much more alive. In this tenth iteration, once again, FOCUS demonstrates the quality of what is discussed and produced in Cal Poly's CRP Department, and how meaningful this work is to the academic and professional fields.

In his provocative perspective, CRP lecturer Chris Clark reminds us of the importance of our work by noting how the increasing daily demands in our profession make us risk losing the bigger picture of tomorrow's needs. The Cartoon Corner provides a little break from this serious question with a beautiful sketch by Filipa Antunes from the Universidade Lusofona in Lisbon (CRP's international partner), and an ironic cartoon by Tarcisio Bahia from the Federal University of Espirito Santo, Brazil.

The Special Section features presentations by external guests and an account of Cal Poly's first conference on climate action planning. The opener is the CAED Hearst Lecture by Lewis Knight, director of Planning and Urban Design at Gensler San Francisco. Drawing from his international experience, he discusses the importance of inserting resiliency and sustainability in the urban development equation, and shows how planning and urban design can help with these issues, through various projects he has been involved with. Next Claudia Isaac, from the University of New Mexico and a consultant to minority groups, discusses fundamental issues when planning for complex communities such as ethics, empowerment, multiple identities, conflict, community identity, and democracy. The section closes with CRP professor Michael Boswell's account of Cal Poly's 2013 California Climate Action Planning Conference, an important event he co-organized which attracted more than 200 professionals from the public and private sectors.

In the Essays Section contributions come from the US, Mexico, Brazil, and Argentina. Francisco Perez—an architect and planner from Guadalajara, México and a former planning director for the State of Jalisco—writes about his city's competitive sustainable advantages, and identifies nine strategic projects toward this end. John Decker, an architect and urban designer based in the Greater Denver Area, presents an engaging discussion on the use of computers for the analysis and representation of urban morphology through several layers and at various scales. The effects of Cal Poly's Sustainability Program on students is discussed by psychology professor Daniel Levi with senior Rebecca Sokoloski, based on several research studies conducted by students in his classes. The importance of competitions to advance the state-of-the-art in architecture and urban design is discussed by Miguel Baudizzone, partner in one of Argentina's most famous private practices. Hing Wong, a planner with the Association of Bay Area Governments, writes about the history of his organization that provides asssitance to nine counties and more than one hundred cities and towns. Ivor Samuels, senior researcher at Birmingham University and twice Cal Poly's visiting professor, discusses a recent attempt to encourage the delivery of better quality housing in Britain through an assessment program with national standards. Last in this section, Elisabete França, former deputy-secretary for public housing in São Paulo, Brazil, describes the challenge of reorganizing policies and programs for slum upgrading in such a large metropolis, and some of the results of her successful leadership.

Articles on Faculty and Student Work demonstrate CRP's breadth in both undergraduate and graduate programs. CRP senior Andrew Levin describes this year's Low Income Housing Challenge, an interdisciplinary student competition sponsored by the Bank of America/Merrill Lynch and won by a Cal Poly team the third year in a row. Emily Gerger, also a CRP senior, writes about planning for the unincorporated town of Templeton in San Luis Obispo County, a work developed by the fourth-year studio led by instructor Zeljka Howard. The evolution of the port of Mumbai, Índia, and the shortcomings of recent plans to redevelop along international private-sector led models are discussed by CRP department head Hemalata Dandekar and planner Sulakshana Mahajan. Graduate students Stephen Schmidt and Kayla Gordon discuss the Portland-Milwaukie Light Rail Project, one of the case-studies they did as interns with ICLEI – Local Governments for Sustainability. Emily Lipoma writes about hazard mitigation in Watsonville, California noting the importance integrating it to the city's comprehensive plan. Professor William Siembieda describes graduate projects for Clearlake and Bell, developed in-lieu of the master's thesis or professional projects. Lorenza Pavesi—a visiting researcher and PhD candidate from the University of Sao Paulo, Brazil—writes about Ian Nairn, one of the founders of the Townscape movement. Closing the section, MCRP student Abraham Sheppard writes about sustainable planning for Ghenh Rang in Vietnam, the object of an elective studio sponsored by Eric Lloyd Wright & Associates.

The Spotlight Section provides an appropriate closure for FOCUS. It starts with CRP department head Hemalata Dandekar highlighting this academic year's studio projects, noting the importance of CRP's community outreach and studio pedagogy. Assistant professor William Riggs—CRP's newest hire—writes about his professional experience, focusing on the challenges of campus planning. MCRP alumnus Richard Rojas discusses his work with the City of Henderson, Nevada and a successful $3.5 million grant application for sustainable planning. Next, an interview with Trevor Keith (MCRP class of 2003), planner with San Luis Obispo County's Planning and Building Department and coordinator of the county's energy programs. The abstracts of the seventeen MCRP's theses and professional projects defended in this academic year, and their URL addresses, close this issue.

I hope you enjoy FOCUS 10, keep it as your bedtime reading, and continue to support it.

Vicente del Rio, PhD.
CRP professor and FOCUS managing editor.

Ask No Small Question

Chris Clark
JD; lecturer, CRP Department.

A planner thinks two decades down the road. He or she arranges the world to solve problems that are citywide, concerned with the long view, because that's his or her job.

Two days after the 1994 Northridge earthquake a colleague received a call from that city's Public Works Department. "Responding to your request for information about the apartment complex you are assessing for hazardous materials----our records show there have been no releases of toxins at the site." "Thank you," and hung up. My co-worker looked at me.

"Hundreds of buildings damaged or destroyed, city-wide outages of utilities, collapsed bridges and loss of life. But first thing Monday morning he chooses to return my call, the most routine data inquiry."

We discussed this. How could he have so dramatically inverted his priorities? Had he simply hunkered down into the familiar? Was he taking a deep breath, using routine to warm up before plunging into what would be an endless set of phenomenal tasks? We weren't in his shoes, we didn't know.

We planners are trained to build complex programs, solve intricate social and environmental issues. But emails and meetings send out a Siren call. They lure us into shallow waters. So often the daily demands can overwhelm our efforts to delve into the needs of the next decade.

Now we aren't all going to build new cities or save the rain forest, but we have all around us a set of questions of considerable substance, that, if we establish the appropriate priority and approach, will bring us employment in the business of important decisions.

This summer I had the good fortune to enjoy the company of the President's Science Advisor, John Holdren. Three hours across the table at a small dinner party. A discussion that ranged from fishing to global climate change.

Now if I had a nickel for every Presidential science advisor I ever met….well…I'd have a dime. In 1981 I was in a small seminar at MIT with Jerome Wiesner, former president of MIT and before that Science Advisor to President Kennedy. The course was titled the Arms Race in Modern Society and consisted of a first person accounting of the greatest policy efforts engaged in the Cold War. Dr. Wiesner convinced the President that America could suffice with a much smaller nuclear arsenal. This declaration was made to a man who used the "missile gap"

to advance his presidential campaign—truth spoken to power. He also had the task of explaining nuclear "fallout" – a term we would all come to know – at a time when no one knew it.

The President's Science Advisor is the head of the Executive Office of Science and Technology Policy. He marshals resources of our nation's scientific infrastructure to frame, research and propose solutions to our most serious technological policy problems.

Now think for a moment and ask—what are the questions he must determine are necessary for the President's appraisal. There are countless policy matters. A century's worth of complex problems with which to grapple. What do you choose to occupy the mind and time of the most important policy maker on earth?

Dr. Wiesner sat in the room with the President during the Cuban Missile Crisis. He negotiated the test ban treaties with the Russians, he fought the military hawk's tendencies to overstate the Soviet missile capacity in order to augment our own—and he stood at a window in the Oval Office next to the President and explained that radioactive particles would be carried by the wind and fall with the rain, after which the President stood silently looking out the window at the clouds.

His office produced a report called "Use of Pesticides." This was in response to the national recognition of the problems of DDT raised by Rachel Carson's *Silent Spring*. The report provided the substrate for ushering in legislation that controlled the use of pesticides and other chemicals.

So what would you tell the President if he asked for a description of the most pressing technological issues of our day? Dr. Holdren addresses this question in "Science in the White House," a descriptive piece in *Science Magazine* on the process of his role with the President.

> "The cross-cutting foundations of success are: increasing the capacities and output of our country's fundamental research institutions, including our great research universities and major public and private laboratories and research centers; strengthening STEM education at every level, from precollege to postgraduate to lifelong learning; improving and protecting the information, communication, and transportation infrastructures that are essential to our commerce, science, and security alike; and maintaining and vigorously exploiting a cutting-edge set of capabilities in space,

which must be understood not just as grand adventure and focus for expanding our knowledge of how the universe works, but also as a driver of innovation and a linchpin of communications, geopositioning technology, intelligence gathering, and Earth observation."[1]

Those are big questions. In fact, Dr. Holdren was a driving force to bring climate change to the forefront of American domestic policy. And where does the planner fit in this discussion? How are we to advance the discussion of big questions?

Planners, all of us, spend a considerable portion of our time putting out brush fires. Leash laws, plan checks, the deep legal inquiry as to whether a patio should be treated like a porch if the former is not enumerated in the zoning code.

But our training leads us elsewhere, into the most important questions facing the future of a municipality. It may be the need for a new sewer, an alternative mode of transportation, a reconciliation of a city's role and responsibility in managing its effects upon the global climate. It may be delivering a solution to a desperate lack of housing or establishing a course of correction for years of natural resource degradation.

There is the story of a professor who brought a big glass jar to class. He had cobblestones, gravel, sand and water. He put as many of the stones in the jar as he could fit. Then he filled it with gravel. Next the sand, and finally he poured in a gallon of water.

"What's the lesson here?" A student responds, "That there is always room for more." "No," replies the teacher, "That if you don't put the big rocks in first, there won't be room for them later."

Emails, staff meetings, phone calls. The political winds of public commentary. Oiling the turbulence caused between the shifting paradigms of councilmembers. These cannot be avoided. But they are the sand and water of our vessel. Our discipline is to find, fix and deliver the stones—only they last forever.

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[1] In <u>Science</u> vol 324 no 5927; 1 May 2009.

The View from the Road

by **Filipa Antunes**

Architect and urbanist, PhD.; professor and coordinator, graduate program in Urbanism, Universidade Lusofona de Lisboa, Portugal.

Filipa teaches hand and computer representation techniques at the architecture and urbanism programs., and runs her own architectural practice. A talented artist, she takes her sketchbook everywhere, and is a member of Urban Sketchers Lisboa. See her work at: http://urbansketchers-portugal.blogspot.pt/ search/label/Filipa%20Antunes

Deconstructivist Planning

by **Tarcisio Bahia**

Architect-urbanist, PhD; associate professor, Faculdade de Arquitetura e Urbanismo, Universidade Federal do Espirito Santo in Vitoria, Brazil.

Tarcisio teaches studios and runs his own private practice dedicated to architecture and design. He constantly publishes chronicles about his city Vitoria, and he has been drawing cartoons for many years.

FOCUS 10

Designing Resiliency in an Unsustainable World
Winter 2013 CAED Hearst Lecture

Lewis Knight

Landscape Architect, Master of Urban Design; Senior Associate, Director of Planning and Urban Design, Gensler San Francisco.

The Hearst Lecture Series is organized every quarter by the Cal Poly's College of Architecture and Environmental Design. Distinguished professionals are invited for a college-wide presentation about their accomplishments. Invited by CRP, Lewis Knight spoke to a full auditorium about pressing environmental issues such as global warming, and how they are affecting our lives and our design professions.

We are at a critical moment on the globe right now where we, as designers, need to think critically differently about everything that we do. We are at a point where we need to question everything that we have been doing today, in order to be able to define our futures, and it's you who are going to do that. You are the designers, landscape architects, architects, urban designers, and urban planners.

I am going to concentrate on the Pacific Rim, since 60 percent of global population growth and 60 percent of global trade is going to happen around the Pacific Rim. I also grew up in the Pacific Rim, in Australia (yes, we had kangaroos in our backyard). When I was growing up, when it flooded on one side of the Pacific Rim, it was dry and warm on the other. When this happened, the air was pushing 800 parts per million of particulates. Anything above 100 ppm can start to cause major disease.

What we have to start to think about doing is acting locally, thinking globally, and thinking really strategically and critically differently about all we do.

I've been practicing in the Bay Area for the last ten years, having escaped Texas to get there. I had a choice between Austin and the Bay Area, and I definitely chose the Bay Area. The problem with Austin is it's surrounded by Texas, and the Bay Area offers a lot of opportunities right now with an extraordinary wealth of talent that is starting to think critically differently about everything that we do.

Note: FOCUS thanks Lewis Knight for the permission to publish his lecture. The editing of the original transcription was by Kayla Gordon, graduate student CRP, and revised by Vicente del Rio. The number of illustrations in this article is significantly fewer than in the original lecture.

California is also leading the way globally, in terms of trying to connect land use policy and transportation policy with AB 1493, AB 32 and SB 375, with sustainable communities and various greening strategies.

The critical thing is that planning tries to anticipate what happens as the population grows. In California, it is going to continue to grow. Right now, the Bay Area is sitting at about 7 million people, which is projected to go up by about 1.6 million people by 2050. The Greenbelt Alliance in the Bay Area believes that this entire growth can be accommodated within the existing footprint of the Bay Area, but the real implication is the cars and their mark in the environment.

Housing—Do we all want to live in the same type of housing? When there is so much energy, information and research which is proving that mixed-use communities are healthier and that they are better for us physically and emotionally—we shouldn't have to have debates around healthcare and ObamaCare.

So what's happening in the Bay Area? One of the big issues is the sea level rise, of course caused by global warming. They say the temperature is expected to rise 4 degrees Celsius by the end of the century, and that's a low-rise estimate. Over the decade that I have lived in the Bay Area, they have talked about sea level rises going from estimates of 15 inches to 55 inches, and now they say that the sea level may rise above 9 feet by end of cthe entury. That's a lot.

We can start to think about the Bay Area and start asking ourselves the question: Where might that sea level rise impact us? We have some pretty good indicators; when we first came here, all of the salt marshes and all of the wetlands had been filled over time to create the cities that we see today, such as Oakland and Alameda. One entire end of Alameda is landfill.

The Chinese would actually call it "reclamation." I don't know how you reclaim land that wasn't there, but that's another question, right?

Now, what's the impact of this? There are a lot of facilities which are going to go underwater which are worth billions of dollars, and which produce billions of dollars worth of GDP—including San Francisco International Airport (Figure 1). Since 55 inches is now a conservative estimate for mid-century, the airport is going to spend around $400 million putting a levee around it. Except, Highway 101 goes up beside it, and it's going to be flooded because Caltrans hasn't got their act together. So, we'll fly into San Francisco, but we won't be able to get a taxi there. Oakland Airport is in the same situation, except it would flood earlier. The Army Corps of Engineers estimates that 260 of the major companies in Silicon Valley are currently at or below sea level rise (Figure 2). So all of you on Facebook, sell your shares now because they're going to be underwater in ten years.

So, what are the impacts? The impacts are actually really interesting, and we're starting to see them now. Irrespective of the restoration of the South Bay salt ponds, which is the largest salt pond restoration west of the Mississippi, we're going to see major impacts on our wildlife cargos. The Bay Area is on the West Coast Flyway, and so there's a major bird and habitat impact of sea level rise. We're already seeing it in the North Bay in terms of flooding and some of the recreation paths, the high tides on the Embarcadero in San Francisco, and flooding on Highway 880 in Oakland. Oakland is currently going through a plan right now for Coliseum City to determine where the Raiders want to go, and hopefully they'll be able to keep the A's as a Bay Area team (Figure 3). But the entire site is projected to go underwater by the end of century, so why would you invest 1.5 billion dollars in two new stadiums when it's underwater already?

And what happens in the city? We think that Katrina is a myth, and we think the impacts of Katrina are a myth, but they're not. We saw it with Sandy in New Jersey, and we rebuilt. But why on earth would you rebuild on a sand dune?

We're seeing it in the recent flooding in Northern Australia, and we see it in the flooding in Southeast Asia. The Guangzhou Delta has projected to have 25 million people living below sea level who will all be swimming if a big storm comes in and beats the smart out of them.

Going back to the Bay Area, here is a 6 feet projection over SOMA in San Francisco. The impacts are amazing, and so, what we've been doing for the last century, particularly what we've been doing for the last fifty years, has been unsustainable. There are also other impacts: A lot of people talk about the economics of global climate change. We haven't really addressed the issues of farming and agriculture. As the climate migrates, the Rice Belt migrates North and South, which impacts our ability to feed ourselves.

We're still supporting 7 billion people today on the same

16 inches
55 Inches

Figures 1 & 2: Sea level rise scenarios at the San Francisco International Airport area (above) and in the South Bay and Silicon Valley (below). (source: BCDC- San Francisco Bay Conservation and Development Commission)
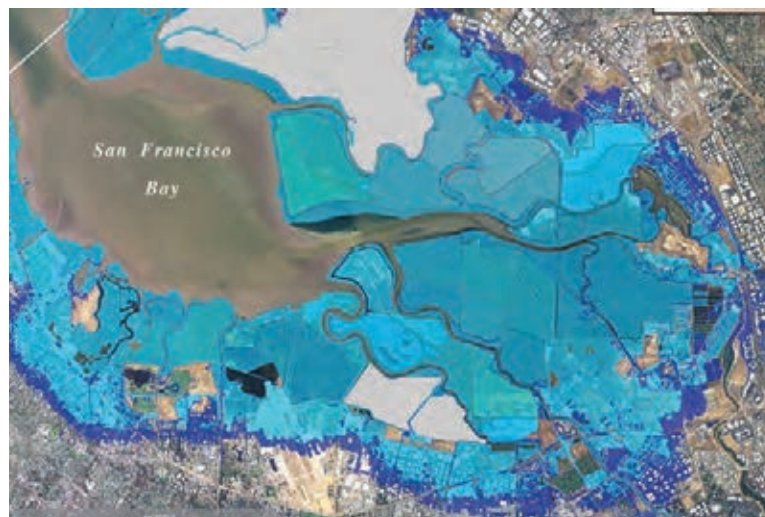
amount of dirt or arable land which was supporting 3 billion people in the 1950s. And yet, we're also not saving as much food for our futures. There's one argument about the Middle East Spring that said that part of the reason Egypt fractured a year and a half ago was because they were getting food shortages. For the first time, Egypt went from a food exporter to a food importer.

Water is another big deal, and particularly the chemicals in our water. The best story is actually about the alligators in the Florida Everglades. PVC emits a chemical which is very similar to alligator estrogen, which essentially makes PVC a pill for
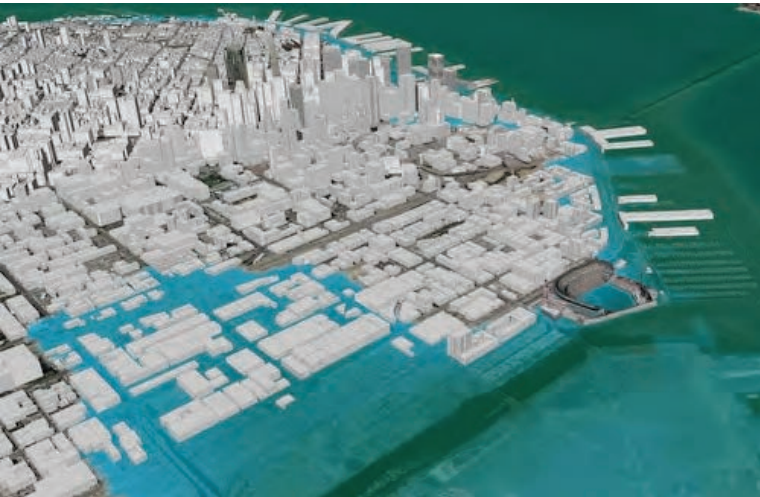
Figure 3: Simulation of the effects of the sea level rise in San Francisco. Note the impact in the South of Market neighborhood and the ATT Ball Park. (source: http://www. openthefuture.com/2008/01/data_points_urban_futures.html)

alligators. But what it's doing to the alligators is it's changing their genetic makeup, and there are now hermaphroditic alligators in the Florida Everglades because of the impact of the chemicals we're putting into our water.

It's happening to the fish and the Delta smelt coming down the Sacramento River. It's happening in the rivers in Europe. It's happening to the polar bears, particularly in the European Arctic as opposed to Canadian Arctic. It's happening with the pharmaceuticals that we're putting down the pipe because we're not fully cleaning those pharmaceuticals out of our systems. We are irrespective of what we're doing, and whether or not you claim it's human-induced climate change, we are changing our real environment in terms of our water and the land which supports us, so we need to think critically differently.

San Francisco is currently in the process of doing the Bay Area plan and since planning and politics take time, we might see some action by 2050, at which point Sacramento will be underwater.

I want to present you with a challenge: It's not just climate change. It's not just food change. It's not just water change. The base cause is population growth—by 2050, we're projected to have 8.9 to 9.4 billion people on the face of the earth. The extreme estimate says it's going to keep on going, and we're going to get to 11 billion people, maybe 12 billion people as a plateau at the upper end somewhere in 2200. To accommodate just the growth by 2050, we need to add 825 "Bay Areas" in terms of urban area globally. That's around 3,000 San Franciscos which is a lot of urbanism. It's a lot of architecture we get to do. It's a lot of parks we get to design. It's a lot of streetscapes, if you believe we should all be driving cars in the century that we get to design. But think of the world

with not one, but 3,001 San Franciscos—it would be pretty boring, wouldn't it? We're starting to see the impacts in terms of the way that people think about design.

My company Gensler is very new at planning the urban design. We've been starters in interior design firms, and space planning firms. We've added airports and train stations and commercial architecture and academics…you name it, we do it. It's only within the last 10 years that we've got into thinking really critically about urban design and planning. So what you're going to see now is some of the ways that we have been thinking about it within the last five years.

The starting place for that thinking is to confront our suburbs. There's a great advertisement in an online magazine, which said agriculture was sustainable until 1950. We were sustainable, largely, until 1950. And then for a number of reasons—the Eisenhower Highway Act, what happened in Europe, the decision to try and to segregate our population so that we're actually resistant and resilient to change—drove us into developing suburbs. That also came with the baby boomer generation, and a lot of other issues. It used to be that the cities were fearful places because they had the highest concentrations of carbon and methane emissions, particulates in the air, and all the other things that can make you sick. When you really look at it, it's the suburbs and the rural areas where the per capita carbon emissions are highest. The US currently sits at around 20 tons of carbon per person.

So we started working in Stockton, California, which for the last three or four years was voted the most miserable city in the country. Stockton has great bones—there's unbelievable agriculture, and it's a rich, historic city with its Hispanic community. However, Stockton was taken to court by Jerry Brown when he was Attorney General. We had started talking with A.G. Spanos (who was one of the worst single-family home developers you can come across) about one of the sites that Brown took the City of Stockton to court over. Think about what happened with Stockton—it began as a sustainable town in the 1950s, and if you were to project how it would look in 2040, Stockton through Lodi and all the way down to Turlock would be single-family homes—not really sustainable.

One of the things that happens with Stockton is its cheap housing, but, everyone who lives in Stockton actually works in the Bay Area, so they drive 60 miles to work and from work, and then all of people who clean their houses drive from the Sierra foothills into Stockton. Therefore, the carbon footprint of someone in Stockton is actually more than 20 cubic tons per year. Someone in India is around 1 ton per year. Someone in Japan or Europe is 8 to10. So, you start to think about how exorbitant this is.

As a result of Jerry Brown taking the City of Stockton to court, the City said, "Well, we need to rethink our general plan a little bit," and they came up with this idea of a series of complete neighborhoods as district centers. The complete neighborhood

makes a lot of sense, right? It's a lot about having housing diversity rather than single-family homes. It's a lot about developing a local job base. It's a lot about creating a walkable, mixed-use community as much as Stockton can conceive it, which is a lot about reducing vehicle miles traveled.

I think the interesting question for us is what happens when all vehicles are electric, or all vehicles haul themselves from non-burn energy—energy which doesn't require us to dig stuff that we burn. The target being that by 2050, Stockton actually has to reduce its carbon emissions by 80 percent from 1990 levels.

Therefore, we went in search of a set of guidelines that said: "Rather than be prescriptive as a leader is prescriptive, can we start to get a little bit ambitious and proactive in terms of where we think about the community, and how we build a plan for the community." So we went to London to an organization called BioRegional, which does a thing called "One Planet Living." It has 10 simple principles around which to build a sustainable action plan, which includes the notion of zero carbon. Carbon is a really great indicator of our energy consumption, and the impact we have on global warming.

Zero waste: Our waste stream is enormous, and it's driving all sorts of environmental issues, the least of which being her-maphroditic alligators in Florida.

Local and sustainable food: In 1950, if you put a calorie of energy into the production of food and got it to your table, you'd have two to three calories to eat. With the industrial food system that we have today, you put 12 calories of energy into the producing of food, and you still end up with three calories to eat. What you were getting then was an--was raw, unprocessed, and better for you. Now, it's nearly straight sugar.

So, what do these things mean in terms of the principles? We actually did a comparison, and the site—the 1,800 acres that we were working on—had been planned by a civil engineer. After doing some calculations, the estimate was 16 metric tons of carbon emissions per person. So our plan—which
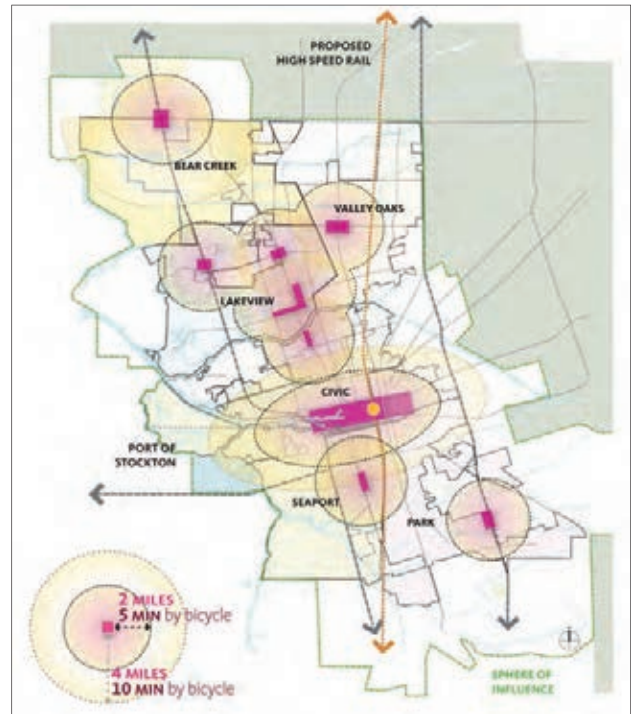
Figure 4: Proposal for Complete Neighborhoods in Stockton.

increases open space, which is set aside for habitat restoration, water management and local agriculture—looks like a pretty big improvement on business as usual (Figure 5). The one problem for us is One Planet Living doesn't like you working on Greenfield sites, and this is a Greenfield site.

The other interesting thing here is that CEQA is run by jurisdic-tions around specific projects, and it does not allow you to count the positive impacts of the project you are proposing. One of the critical things that we looked at here was, how do we truly cre-ate a job space in North Stockton, and how do we counteract 30 years worth of single-family (bad quality) development?

Figure 5: Gensler's illustrative site plan for a site in Stockton.

We have to get schools, we have to get education, we have to get hospitals, and we have to get primary jobs in the location. We did some planning diagrams and held community outreach events, which included the high schools and the hospitals, and we made the project transit ready. They are actually currently carrying the project through the EIR process.

However, the plan looks much different from what you might see. There are way more open spaces, way more habitat. There's many more wetlands. We are attempting to get to a water budget, which means that any water coming into the site is controlled on site. We think we can get to recharge an aquifer which is a big deal in this part of the Central Valley because of saltwater intrusion coming in to the agriculture aquifers.

The $600 billion a year agricultural industry in the Central Valley is threatened because their water resources are becoming more saline. However, it stands a chance. The problem, though, is that Stockton is still miserable: They have 50,000 single-family housing lots already approved, which they need to un-approve. Then, they need to concentrate their energies and they need to be positive about the way they go forward, and they need to rebuild downtown Stockton.

We've also been thinking about changing patterns at work. The problem is that at a planning level, we're still thinking about work as being the suburban model: It's three people per thousand feet, and they all drive, so you construct about 1,000 feet worth of surface parking lots around 1,000 feet worth of building , which looks something like your dad's typical office park. I grew up in a town of 8,000 people, and I never saw one of these things until I came to the United States.

So, we went to work below sea level with Facebook. One of the really cool things out of this is they converted a million-square-foot campus that was done for a microsystem 25 years ago into their new campus. One of the problems that they had was a person cap of 3,000 people for the campus. And yet,

Figure 6: Illustrative site plan of the Facebook campus.

in order for Facebook to work, they needed to do two things. The first was shifting their servers all up to Oregon and Seattle where they could get hydropower that is carbon free and carbon neutral. They also told us: "We're not really interested in sustainability for our campus. We just want to do something cheap and nasty 'cause that's what we've been doing forever." As many environmental concerns came true, they changed their whole plan moving forward, since they realized how important sustainability was (Figure 6).

The tactical problem here is how do you convince a city that has said you're allowed to have 3,000 people, and you're allowed to have 2,800 car parking spaces to match those 3,000 people, to allow you to put six and a half thousand people into this million square feet, and plan for your potential growth for another three and a half thousand people?

What we did when we took the Facebook project through the EIR process is we converted a people cap to the campus into a vehicle trip cap for the campus, which means there is no net new increase in vehicle trips even though you're doubling the number of people using the space. This idea is fundamental to Facebook's corporate philosophy, and their financial success.

The question is, how are you able to be commercially viable within Facebook? It's a lot about buses, such as Genentech buses. It's around these things called Zimride, which is like a dating program for carpoolers. It's about transportation connections, bicycles, and starting to think about how Facebook starts to add housing stock to East Palo Alto, Menlo Park and Redwood City. So you need to start to fundamentally shift the system, and change it.

I have also been working in San Jose. My dad's office park: a "how not to do a dad's office park," where we are doing the first LEED-ND project in San Jose. San Jose has recently redone its General Plan, and they are the first city in the country to include a health element in their General Plan. They also did the North San Jose Plan, which includes an amazing set of urban design guidelines which are now being copied all over the country.

San Jose is a remarkably forward-thinking city in terms of its planning. We're doing the first LEED-ND project in San Jose, and yet we're gaming the system. There currently is not one iota of housing on this project—this is your dad's office park. However, we're experimenting with it—it's not all the same building type, and there is some flexibility to it. Some of the project could actually become housing, particularly some multifamily housing. It's intended to be a mixed-use plan, even though it's being sold in Phase 1 as an entirely commercial plan at 1.8 million square feet. The great thing is the developers are willing to flex a bit because they only need 1.2 million square feet on the site to make their money, and the city has given them the right to put 2.8 million square feet.

The economics of sustainability and resilience are really interesting: very quickly approaching the time where the

Figure 7: Bird's eye view and character renderings of the N1 Campus Master Plan in San Jose.

economics are going to be imperative that we do change and we can see the things differently. EPRI, which is a power research institute out of Stanford, has predicted that our energy prices in the next 10 years will probably go up by 400 percent if we stay on the same trajectory. The techs and the oil barons are radically trying to accomplish this because they're fracking the ground in Texas in order to produce cheap natural gas, which again has its own environmental issues.

Thinking about public domain, thinking about the quality, the spaces, the other common spaces of us all, I actually have a weird theory about American urbanism, which goes something like this: Hollywood invented the movie industry. They also invented the film set. The film set got translated to the way that we think about urbanism, particularly the new urbanists. We are more concerned about the façade, or the film set of our daily lives, than we are about the social connections that we have. It's most important that we have a set of connections, because that is our future.

We are also doing some work in San Francisco that is radically different. In the 1950s the *San Francisco Chronicle* employed 3,000 people in 4 acres. They had 300,000 square feet worth of development. It's a building which was once great, and it's been bastardized because of having to seismically upgrade it all the time. Fifty percent of the site is surface parking lots, and 6th Street has the highest density of SROs and low-income hotels west of the Mississippi. Mission Street, however (in the opposite direction), is being built up with 300 foot towers with million dollar condos. The really interesting thing is that when we started doing community meetings with condo owners, lo-cal business owners and the tech community, was that they all wanted the same thing: They wanted greater density of people on the street. Its' that simple—they just wanted more connec-tions, and they wanted more interactivity.

So we designed a project which is now starting the EIR process (Figure 8). The problem with it is that we breached every single one of San Francisco's urban design guidelines: They want tall skinny towers, we designed fat, solid towers. We connected over alleyways and we did connected floor plates. One of the things we heard when we were talking to the community is that the SoMa blocks are so long, and they're so windy, that you don't really get to interact in a public domain.

Here's my rule number one of urbanism: "The one-minute rule" of the great walkable towns, and the great walkable cities. Every one minute as you're walking, you have to make a decision. You have to hang out for a moment, and you have to be social while you're waiting for the traffic lights. The same thing happens in cycling: Cycling, about every one minute when you're on a bike, you have to make a decision, which makes it a comfortable ride, and makes it an interesting ride. This is the same as driving. Freeway engineers put three-way intersections no more than about a mile apart, which is about every minute. "The one-minute rule of urbanism. "

The second piece is thinking about the right kind of density. Forty years ago, San Francisco built BART, and Muni just turned 100. It's a really transit rich city, and it is the second most dense city in the country. Yet, Gabe Metcalf from SPUR has said that San Francisco needs to double its population. So we only have to build 2,999 San Franciscos by 2050.

BART stations are over capacity during peak hours, but this site is transit rich. We've got new transit lines, and we've got BART. We need to do lots of density, and it's going to have a regional impact. We talked about putting 1.8 million square feet on 4 acres, which doesn't sound a lot until you get into the FAR numbers, but it's the right place to do density.

Figure 8: The 5M Project in San Francisco proposes a different mix of uses and high densities.

Think about the civic spaces, and how they've changed. Think about the way that people changed over time. The way that we inhabit public space is going to change radically. With wireless and the cloud, we can do our business anywhere now. What you're doing now may not be the same in 20 years time, because computing power and the connections are changing so radically that we can do our work anywhere.

The other question is thinking about dynamic floor plates and floor plate sizes. This is where we need to question "business as usual". The best way to think about this is think about if you're a startup firm: A hundred years ago as a startup firm going into Wall Street, your company was likely to have a 95 to 100-year lifespan. Today, a startup firm has maybe a 15-year lifespan. During those 15 years, they can go up to 10-15 thousand people, and then scale back down really fast. The big cost for them is hopscotching around the city, trying to move into ever scaling spaces, and then getting 60 percent of their population of "engineers with earbuds on," communicating because they need them to drive innovation, and change, and collaborate. The notion here is that if you think about 60 percent as horizontal floor plates bridging across alleys, you can actually drive that collaboration to happen, get them out of there, get them out of their cubicles, get them clever, and going to coffee shops and tech shops, such as the Hub in San Francisco.

There is also something here about legitimacy and authenticity. I think people are done with the Hollywood film set school of urban design. We need a little bit of authenticity about the way we do things, and that ground plane needs to be democratic. Everyone is complaining because we are putting too much density on the project, we're bridging it over streets and we're doing some things that challenge all of the fundamental norms;

and it's the CEQA process which is holding us up right now, it's the CEQA process which is probably not going to allow this project to come to fruition. So, should we then move to places where there is no environmental control?

Now I would like to address some of the work I have done to rapidly changing cities, such as Shanghai and its old town. How do you start to think about social sustainabilities and retention of those things that are authentic, retention of zoos and museums, parks, open spaces, that are really important for the functioning of the city—by starting to cluster the density and by utilizing TDR programs? That will ultimately provide a much richer environment. Also, don't be scared of height, height is okay. However, height indiscriminately is not okay. In Shanghai, the height is located around transit, and it's designed to help reinforce and support the historic city (Figure 9).

And now we go back to the idea of land reclamation and landfill. Most of the cities from Hong Kong all the way up to Tianjin including Shanghai and Wenzhou get free land by doing landfill. So we did a competition for Wenzhou, which develops free landfill (Figure 10). One of the interesting things about Gwangju, though, was that over time, it lost its economic base—it has been a great shipping port, and because of the strength of the Wenzhou Delta, it needed to stop to rethink about itself. It's also dealing with extraordinary organization at a rate that we actually can't conceive when we're sitting here either in the Bay Area or San Luis Obispo. So, it needed to fundamentally rethink its economic base in a manner which was different from every other coastal city in China.

It's really about being smart—the smart city is sustainable, it's deeply mixed in terms of its uses. There is a really deep connection to art and culture that is responsible about having a social domain. We can't continue to exist as isolated individuals and we need to be transit-oriented.

Figure 9: Project for central Shanghai.

Figure 10: Renderings of the proposal for the Wenzhou peninsula master plan competition.

Wenzhou is about the same size as Manhattan, and it's in a typhoon zone. You can't build it in five years, it needs to be able to be scaled over time, so the island itself is designed to be resilient on a phase-by-phase basis, as are the energy systems and the water systems and the social systems with community support.

We have also done some work with campuses, specifically Renmin University in Beijing. It's "the People's University." It's the third of the three major universities in Beijing, with Peking and Xianghua being the other two. This project is a major expansion for the University, with 30,000 students, outside the 6th Ring Road east of Beijing. With this project, we fundamentally challenged the Chinese government and said, "You guys actually need to think about this as a living-building campus."

The Living Building Challenge is an offshoot in Seattle out of USGBC and a few other very intelligent people. The Living Building Challenge's fundamental thesis is that instead of checking the lists, we have to get predictive about what our buildings are going to do, what our landscapes are going to do, and what our urban centers have to do. This is extremely important because we're building and we're designing buildings now that are going to be occupied by mechanical systems until 2050. In 2050, our climate is going to be at least 35 degrees Fahrenheit warmer. That doesn't sound like a lot, but the volatility of the 35 degrees is enormous, and the systems that we are designing now are not going to be able to cater to the climate that we're going to be producing. Therefore, we need to be way more advanced.

The really great thing about Living Building Challenge is it asks us to be a little bit predictive and it gives us a very simple framework in which we have around seven petals and twenty challenges. In terms of the water challenge, there's a lot of reuse and recycling of water coming out of the river. Since the campus is on the river, we believe we can use geothermal to

basically power the entire campus. The plan is actually radically different from the other four competitor's schemes: They all have their 10 hectares worth of water, their traditional Chinese communist buildings. The plan is actually really simple—it completes the Beijing axis and goes all the way back to the Imperial Temple. It provides the communist party their royal address as you come in and pass the student center and the performing arts center, and the hall of fame.

However, we did a few things differently. We said, instead of having 10 story academic buildings and labs, you need to have no more than six stories and reduce the number of elevators so everyone has to climb the stairs. We also said that instead of being divided into five colleges, you need to take 20 percent of the program out of each one of those colleges and establish a future institute, which needs to see the axes of the plans, but not close the Beijing axis. However, it starts to have a really high sustainability quotient. It's all about the quality of the landscape, the quality of the architecture, and the inspirational quality of the engineering that goes into the building and the landscape collectively, and that it changes over time.

Universities have traditionally had cloisters, and they've been all about exclusive thought. One of the things that we've said in terms of establishing this forest of growth is that this was an expression of the cloister and the meditation that happens in that cloister in a big landscape move. Every time when you went in to the academic core, you had to go through a landscape cloister—you had to actually go through an inspirational meditation as you went to and from campus each time.

If we win, we get to create a living building campus which is all about connection. Social sustainability is the key, and social resiliency is the key. You take a look at disaster recovery and disaster preparedness out of Sandy, out of bush fires in Australia, out of any of the flooding, out of what happened in New

Figure 11: Renmin University master plan competition.

Orleans, and the communities which recovered fastest were those which had the greatest connections.

Finally I wanted to end with our proposal for the 2016 Olympic Park Master Plan in Rio de Janeiro.[1] The team had The SWA Group and other professionals, including CRP professor Vicente del Rio. We came close, our project was the runner up. The competition site was originally used Formula One track, 15 miles out of downtown Rio de Janeiro. The great thing about the last few Olympic Games is the development of the idea that they have to leave a legacy to the city; before the only interest was in the sports. In Helsinki through Melbourne, Stockholm, Rome, and Tokyo, the Olympics have all helped produce livable cities which rank really highly in any of the global livability or sustainability or innovation matrices.

We realized that we really needed to underpin the entire site plan with six very simple approaches to site sustainability, and think about the plan in terms of games mode. Games mode is four stadiums, a warm up track, the aquatic center, gate and ticketing where you're getting 200,000 people coming in and out of the gate at one time (Figure 12). There are also tennis courts, the Velodrome, field hockey, a TV center, hotel, media… a whole variety of structures with 250,000 people in the space. So we decided that this was a radical opportunity to increase environmental sustainability for the site. While establishing infrastructure to cater to 200,000 people, we can start to think about changing the plans. When the athletes have gone away, we can create a new town for 25,000 people which may fundamentally reshape this part of Rio, and can build upon the urban infrastructure that we put in place for the Olympics.

Figure 12: Master Plan Competition for the 2016 Olympic Park in Rio de Janeiro. Project shown in Games Mode.

1 See the article on this project in FOCUS 9, 2012.

The Ethics of Navigating Complex Communities
The CRP Brown Bag Series

Claudia B. Isaac

PhD.; urban planner, associate professor at the School of Architecture and Planning, University of New Mexico.

In CRP's "brown bag" series last winter, Claudia Isaac talked about ethics in planning from on her broad experience in community engagement, education and training, and her work for the City of Albuquerque and other organizations. Her professional practice includes work on workforce housing, historic preservation, community health, domestic violence prevention, and community food and farming.

I am really fascinated and intrigued by your studio-based, client-based studio approach to teaching and learning and I also get the strong sense that you are grappling with some similar community-engaged scholarship questions that I have been engaging in my own work. So I am hoping to learn from you as I share with you community-engaged work and experiences at the University of New Mexico.

I would like to start with a brief comment about my approach to community-based planning process: I work primarily with community-based organizations, community-driven service agencies and, to some extent, municipal and state agencies, all of whom are interested in building the capacity of their communities, so that they are less reliant on outside experts and more able to make their own decisions.

I am particularly interested in what are being called "hybrid communities" or "cosmopolitan communities,"[1] that is, communities that have experienced migrations of people over time to create very diverse and sometimes very complicated communities.

Albuquerque is in a very poor state—we rank at the bottom of just about every indicator in terms of income, social determinants of health, and education. The thing that links many people in New Mexico is the experience of poverty. Beyond that, there is an enormous amount of diversity in the City of Albuquerque and in the rural and urban places in New Mexico, which, though a cultural and social strength, often leads to contention, and sometimes makes it very difficult for communities to find a common ground and a way to move forward collectively.

So my work engages that diversity and contention, and tries to help communities figure out who their allies are, where they are in contention, where they simply are not on the same page, and help them strategize around that.

I use two primary methodologies in my practice. The first is participatory evaluation (empowerment evaluation)[2], which is an evaluation tool, but I find it a tool that is extremely useful working from problem identification through implementation, and in turn through evaluation. In empowerment evaluation, participants and beneficiaries are the primary actors. Funders, policy makers, government are not unimportant actors, but they are not the primary focus. The purpose of empowerment evaluation is to facilitate a reflective culture among staff, community members, and other participants so that they are actively involved in designing, implementing, and evaluating their own planning activities.

Empowerment evaluation uses the evaluator's, or the planner's, outsider perspective to convene participants, collect information, and analyze information from stakeholders in a confidential way, which allows them to say things that they may not be comfortable saying in a group setting. My job is then to compile that information in a way that rigorously reflects back to the larger group—without breaching confidentiality—the issues, concerns and solutions that have been generated.

These solutions are then open for review, reflection, and reconsideration without becoming divisive, (something that often happens in diverse communities where people are fighting with each other and find it difficult to find a point of common ground). As an outsider, I can come in and say "All right, I am going to talk to you, just to you, please be frank, I promise that I will not breach your confidentiality," and then I pull it together in a way that tells a complicated story, without

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Note: FOCUS thanks Claudia Isaac for the permission to publish her talk. The editing of the original transcription was by Kayla Gordon, graduate student CRP, and revised by Claudia Isaac.

[1] Concepts developed by Young (2002), Sandercock (1998) and Rocco (2002).

[2] Fetterman (1996) and Kemmis, Stephen and McTaggart (2005).

identifying individuals.

The other body of theory that I use to guide my work is called "reflective practice in theory of action." This comes from Chris Argyris and Donald Schön, another "oldie but goodie" from 1975. They taught about double loop learning, that is: we have a theory, we know what it is, and we thought about it before we go into a community—we know what our approach is. We then use that to guide our planning actions, and we reflect on those actions and outcomes to refine our theory. So it is a constant loop where we are constantly going back and forth between, "this is how I think things are," "this is what I saw when I was actually doing the practice guided by what how I think things are," and "now I am going to go back and rethink my theory." It keeps us from getting into habits of practice that may not be productive or socially just; it keeps us from relying on "this is just the way we have always done things". This allows us to engage in a reflective process: double loop learning. It also helps us bring our espoused theory together with the theory we're actually using.

This reflective practice is also particularly useful when engaging with community participants. If one can reshape the planning process so it is more of a dialogue than a deliberation, then everybody is learning from everyone else, and although they may not end up agreeing with each other, everybody at least understands that they are talking about the same terms. So community engagement is inherently reflective practice.

That is the basis of my overall practice. Now I would like to discuss how we understand the complexities and identities that are in existence in the communities that we work in. This is not a new conversation: Sherri Arnstein wrote about it in the 1960s in "The Ladder of Citizen Participation", but what is new is that I think planning practitioners and theorists have gotten much more sophisticated in understanding how complicated communities are. In one of Leonie Sandercock's books on cosmopolitan cities she writes about the core story.[3] Think about a map: if a map had every piece of information about a place on it, it would be a completely useless map. We make decisions about what is important to put on the map, and what we can leave off. That implies a distinct point of view on the part of the map maker, map-making is taking a position.

Think about when you go to talk with the communities that you are working with in your studios: they tell you a core story about what their community is about. If they told you absolutely everything about their community, you would still be there right now. It would take forever, but you really wouldn't have a very clear understanding of the priorities and values of that community. Rather, the community members you talk to have distilled what they consider the core story: the most important information that should go on their conceptual map. That distillation of information is great, because it means

[3] Sandercock, 1998.

that the community has come together and figures out who they are; however, it means that some ideas, interests, even residents, or participants get left out.

As an example, the work that I have done in the Sawmill/ Wells Park community in Albuquerque, an old industrial community, where a lot of homeless services are located. For a very long time, the neighborhood association that I was working with was adamant that homeless people were not members of the community. Well, if you assess the demographics, they are actually about a third of the population of that neighborhood. The neighborhood association core story explicitly excluded homeless people, and it has taken almost a decade now to finally have a conversation about welcoming supportive services for that population. This is an ongoing conversation, and it is taking a very long time to rewrite the core story in a way that is more inclusive, and that is more respectful of all the different kinds of people in the community.

So I treat all of this as an ethical question, and I think we do have obligations to communities as planners. The first obligation is to know who we are (and that is not as easy as it sounds because we all have very complicated identities ourselves). The second is to learn the tools for understanding community complexity. We have aggregated data, we have Census data—there are all kinds of sources of data out there. There is, however, also community data which is critical to our full understanding and analysis. Learning how to work with communities to mine what they know about their communities is a whole set of tools that I work with quite often.

The third obligation is to be reflective on how our own identity intersects with the complex identities we encounter in practice. When I walk in to an African American community, there is a different relationship that I have there, than when I walk into a white community. It is not better or worse, but it is different. Understanding who we are in relation to the communities we work in can help us build that better communication, which in turn allows us to get our work done in a more inclusive and just way.

We need to develop tools to help us navigate that complexity towards positive outcomes, since this work is often contentious and interests are often in contradiction with each other. Sometimes those contradictions cannot be bridged, and sometimes you have to say, as in the Sawmill/ Wells Park Neighborhood case, "Well, as a planner I am taking a stance, and I think that homeless people are getting the short end of the stick in this community." I cannot just say, "Well, it is the community's will to try and expel homeless people." That would not be consistent with my own personal ethics, and I have to find a way to communicate with the community that I respect them, that I like them, and that I respect what they are doing, but I really have a critique of the way in which they are addressing homelessness.

I think it is helpful to step back a little bit and ask, how do we know about communities? Most of us as planners and as

academics have been trained in Cartesian rationality. Named after Rene Descartes, it is the idea that knowledge is based on logical deduction. It is characterized by strict rules of evidence and avoidance of distortion caused by emotion, or a researcher's relationship with subjects. The epistemology is based on the idea that the more distanced we are from the data, the better our data and analysis. This is a great approach to generating knowledge, but I disagree with those who accept Cartesian rationality as the only route towards reliable knowledge. There are other kinds of rationalities; those are called "standpoint rationality." There is a difference between this and Cartesian rationality where we get as distant from our data as possible. In stand point rationality our first person lens on reality helps us understand truths invisible to others. There is no single truth; there are a number of truths depending on our experience.[4]

Standpoint rationality is referred to as "local knowledge" by Clifford Geertz; it is called "experiential knowledge" by the famous pragmatist philosopher John Dewey: expertise as experience-based.[5] For those of us trained as planners in Cartesian rationality it is often really difficult to embrace local knowledge as real, and to take that knowledge and experience as just as rigorous, as thoughtful and analytical, as that generated by our Cartesian rationality. But in the end the key in doing effective and ethical community based practice is to bring the technical and methodological skills that we have to the community, but also learn from the community and their experiential knowledge. You may then bring those together into a much richer and more nuanced understanding of now not a core story, but a much more nuanced and overlapping, and sometimes contradictory, community story.

The next concept that I want to talk about is called multiplex identity, which is really just anthropologist Renato Rosaldo's snappy way of making a new word out of the terms "complex" and "multiple."[6] The idea is that we all have multiple and complex identities. I am a woman, I am an African American, I am a scholar, I am a professor, I am a teacher, I am a Quaker, I am an activist—all of those are absolutely important aspects of my identity. I want to ask each of you to think about all of the things that define you, and describe you. When we say "this is who I am," it is all of those things together. I am old, I have arthritis: all of these things are part of my identity, and they shape the way that I see the world.

The same is true in the communities in which I work. This idea that all of these things shape our experiences also means that they shape what we consider a good outcome. If we understand these complex and multiplex identity, then we can understand where somebody who seems to be coming from left field with an idea about what their community should be about is

coming from, what experiences and identities are shaping their position. The idea of multiple identities helps us understand that no one is just one thing. I have recently been working with New Mexico Main Street. As you may know, the National Main Street program does downtown redevelopment in small and rural communities, and at least in New Mexico, those are mostly small and rural communities. Those communities are incredibly complicated, although they may have a population of only 500. There may be industrial ranchers, small scale ranchers, garden farmers, industrial farmers, small business people, Wal-Mart's, elected officials who may have been in a political family for generations, and new people moving in to run for office—these are incredibly complex places. That multiplex identity of the community makes it very hard to write a core story about them. And most important, this idea that there is always going to be "multiplexity," means that there is always going to be some form of conflict.

Early on in my practice I had to get over my discomfort with conflict, because if I didn't, I would not be able to do my work. I personally hate conflict, but it exists, and understanding it helps to do what Manuel Castells calls the "choreography of conflict,"[7] which is helping people to acknowledge and respect their differences and decide where they are not going to agree with one another. At least then we are honest about the fact that we are fighting with each other, which ironically means that we can also discover realistic points of common ground that may not encompass the entire community. This means that you have to come up with a planning outcome that is much more specific and narrow, because you do not have that sense of common purpose amongst the entire group.

This is called mapping "subject position" and "social location." Subject position is another anthropological term, and it refers to all of the different aspects of our identities as a collective. We have a multiplex identity as an individual that then communicates with each other surfaces certain aspects of our subject positions over others in our communication. For instance, when I go to a Quaker meeting where there are mostly Quakers, the other aspects of our identity are not really all that relevant to our sense of community; what binds us together is our "Quakerness."

When I go to the South Valley in Bernalillo County, in the metropolitan area of Albuquerque, and talk to farmers, it is really important to them that they are not only small scale farmers, but they are Hispano and Native Americans farmers who are maintaining their tradition which goes back centuries—that is the heart of their identity. It is not just that they are farmers, it is not just that they want to make a living from farming, which they do. The key point is that they want to preserve that sense of identity that draws them together of being traditional, Hispano, and Native American farmers who have a very specific relationship to their farming enterprise. It

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[4] Heikes, 2010.

[5] Geertz (2000) and Friedman (1996)

[6] Rosaldo, 1993.

[7] Susser, 2001.
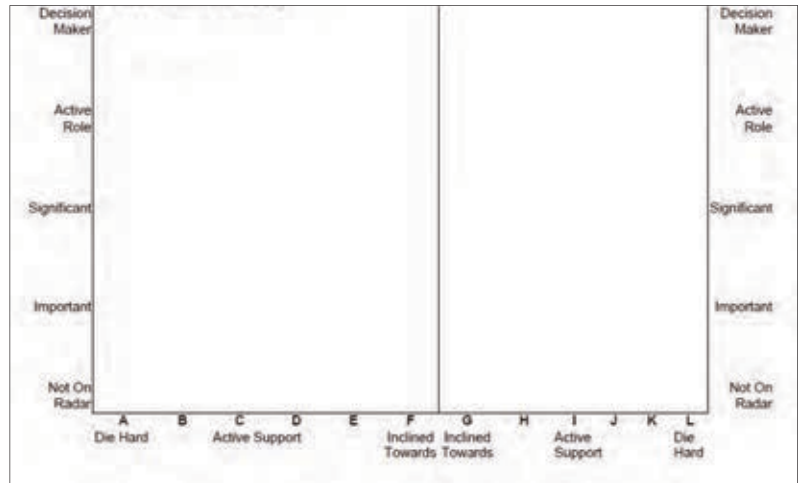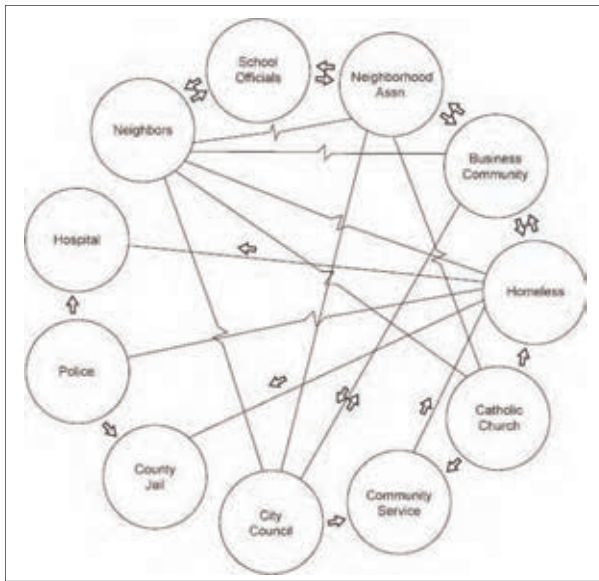
Example of a Sociogram (left) and of a Power Analysis Chart (above).

is different from, for instance, industrial farms. So for this issue, in this moment, this is the part of their identities that rises to the forefront.

Sometimes experts come in and try to share new techniques with these farmers. This prioritized share identity allows them to say "that is very nice, but we do not just choose our techniques because they are efficient and will make us more money, we choose them because they preserve an historical tradition that is really important to us."

So what are some of the tools that we have to map community identity? One tool is a sociogram[8], which is basically looking at the individuals and institutions (formal and informal) in a community and figuring out the relationships between them. Who talks to whom? Who learns from whom? Who relies on whom for influence when you have got to go to the city council or county commissioner? How are these institutions in alignment, and where are they separate? Now remember, it is a multiplex identity, a complicated community, and so how that plays out is going to be really different in every community.

Another way of mapping community identities is though power analysis.[9] In power analysis, you ask on a given an issue, who has what kind of power? That is the vertical axis. Who is a decision maker? Who has an active role? Who is significant, but not necessarily a decision maker? Who is not on the radar? Then you ask if people are neutral on the issue, if there is "die hard" support, or "die hard" opposition, or if there two are positions that are "die hard" on either side.

It is a really interesting, often fun, and very illuminating community exercise. You break people down into groups and you

ask: "Who are the actors on this issue?" Participants then write things down on sticky notes or cards, you cluster them up on the wall and say: "We have a cluster that includes mostly municipal officials." Then you ask "Where are they on this power analysis chart?" Municipal officials are decision makers. They may in fact say that they really hate the idea of downtown redevelopment, and want to put a Wal-Mart up by the freeway at the edge of town. So they constitute die-hard opposition and represent power as a decision maker. This is a problem if you want to promote downtown redevelopment. Then you ask if there is there anybody on the other side? Well, yes, there is the National Main Street which has decision making power, strong connections to the State Legislature, and is strongly in support of downtown redevelopment. The point of this exercise is to figure out where there is potential to move opposition to a community initiative toward support (to the right on the x axis), and/ or to reduce the power and influence of community actors in opposition to a community initiative (down on the y axis).

Note that this requires planners and community members to make a decision about where they stand. Community based practice is not just about finding the lowest common denominator and ending there. It is about determining what community members (as complicated as they are) think is the right thing to do, being ready to persuade and argue for that position, and then seeing who is in the middle and can be persuaded in one direction or another.

If somebody is in die-hard opposition and the decision maker, communities have two strategic choices. They can either try to diminish the power of that person or they can try to move them towards die-hard support. That is a strategic question, and when I do this with community groups, they have to be really clear of who is an ally and who is not, and they need to make a strategic decision of whether to try to bring those non-

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[8] Schensul et. al, 1999.

[9] Castillo, 2012.

[10] McKnight and Kretzmann, 1990.

supporters on board, or whether just to try to find somebody to run against them in the next election.

This is messy. This is not the nice process of "Let's all get along and we talk about things to death until we reach a conclusion." That is not always possible. It's important to get comfortable with the fact that conflict exists. As opposed to taking the neutral public servant position as planners, the fact is that we do have political positions, and we cannot build models that completely separate our views from our recommendations. So knowing what those views are, and knowing just how far you are willing to go with the community to push those views, is really important.

The other thing that I often do with a community is ask who has access to community assets. We have lots of macroeconomic and Census level data that helps us identify what community assets are. There is fiscal capital; physical capital (the built environment); natural capital (carrying capacity and the natural resources available); human capital (the skills and tools and knowledge that individuals have); social capital (which is really important in poor communities, because they do not have much access to fiscal, physical, or natural capital, and which says what are the nodes and networks and relationships that we rely on to help advance our interests); cultural capital (those traditions and values that we carry with us historically); and political capital (obviously the ability to act in the political arena to bring about solutions to our problems).

Kretzman and McKnight define three kinds of assets.[10] The first category of assets are those that are accessible assets—that is, they are in the community, owned by the community, and the community pretty much has complete control over how they are used. An example of an accessible asset is a community bank—the community owns it, people in the community invest with deposits in that bank, and get loans from that bank. The second is partially accessible assets. An example of a partially accessible asset is a national bank that has a branch in the community—they have access to it, but they do not have control over it. The third is inaccessible assets. Again with the banking example, these are places where banks just simply have redlined and refused to locate branches, an asset that a community actually really needs, but does not have access to. I define a fourth set of assets, which Kretzman and McKnight do not define this but I do. These are imperial assets - assets that people outside the community can use against the community. We do not always see imperial assets used against communities, but I guess I am enough of a conflict theorist to want to ask: "Who is out to get this community?"

Here's an example in the South Valley of Bernalillo County, Metro Albuquerque: housing developers have imperial assets there because they not only want to acquire agricultural land for housing development; they have the financial means to acquire that land despite widespread community opposition to that kind of development. The land is cheap, the city and

county keep putting services in there, and developers are allowed to buy up small family farms right and left. For farmers that I am working with in the South Valley of Bernalillo County, that is an imperial asset. They have to protect themselves, and when they do the power analysis, housing developers are highly influential and in die-hard opposition.

When going through these exercises with community members, it helps me to work with them on order to get a collective analysis and a collective understanding so I am not the only one getting this information, but rather the community is getting more information about how this all plays out. This methodology helps break down that idea of the singular core story. This approach helps us understand that there are people who, for instance, represent one aspect of the community that has lived there for 50 years. Then there are people who moved in 10 years ago, or came to work in the farms or came in the 1950s when the military base came in, who, as a result, have a different lens and different subject positions. This exercise of mapping community identity lets people identify where they stand on this map, and determine whether they are central to the sociogram or peripheral to it, and finally to determine how they can get themselves more central.

This is a strategic process, and it is one that is messy. I cannot emphasize enough how messy that is. Sometimes that messiness leads to a decision of a community to come up with strategies to protect themselves from encroachment. For instance, pushing for county regulations that limit residential housing development, or that support agricultural industry; looking at things like agricultural land trusts that make agricultural land more productive so that it is not so susceptible to developers offering more money for their land.

Protection from encroachment is one kind of identity practice. I call it identity practice because it is all based in preserving and protecting a community's subject position and social location. There are other kinds of communities and the ones that I work with most are hybrid communities, or cosmopolitan communities, and they are trying to figure out what this map of identities is.

In downtown Albuquerque, the Albuquerque Affordable Housing Coalition got together to try to counter gentrification in the downtown. The problem was that that there were people who could trace their families back to the 1790s, families who had come in to work in the railroad (the railroad went right through Albuquerque in 1890s), there were families that came in with the military, there were homeless, there were businesses that had located downtown because they thought they could make some money there. They couldn't come together to figure out what their core story was. Meanwhile Californian and Texan developers were coming in and buying parcels right and left.

It was a very disinvested downtown; land was pretty cheap, housing affordability was just completely going away.

It took some really serious facilitation, conversation and intervention from the Ford Foundation and the McCune Foundation to notice how many lots were sold that could have been used for affordable housing and to form the Albuquerque Civic Trust (ACT) to attempt to ensure that affordable housing was preserved in the move toward downtown revitalization in Albuquerque. Though the ACT wasn't successful, it led to the formation of the Albuquerque Affordable Housing Coalition which actively goes through what is called the "deliberative democracy process."[11] This process requires recognizing different interests. Because the cost of not coming together is so high, those differences became less important than coming together to figure a way to accumulate a "land bank" of affordable properties in the downtown and elsewhere that could be used to build affordable housing (and in some cases, to encourage affordable retail commercial properties). One of the reasons it has been so successful is that after 2008 and the housing bust, the only subsidy for housing or the only financing for housing was low-income housing tax credits and other federal subsidies. All of a sudden, the private sector wanted to build affordable housing because it was the only housing they could build, which was a lucky outcome.

I do think that the community process that which brought community groups together to realize housing affordability between 2000 and 2008 is important , , and although they had their differences, key stakeholders realized that they needed to be organized to pounce on any land and banking opportunities in this complex housing market. So when the recession happened, there was an organized group of community members who could act on that opportunity. I hate to say anything was opportunity out of the recession, but in affordable housing in Albuquerque, it was.

Finally, methodologically, all of these community based methodologies require triangulating community identities, and my favorite tool for triangulation is the creation of triangulation matrices. I love matrices, because you can put really complicated information in a matrix, and basically read the rows and read the columns and get a pretty clear picture. Triangulation is just saying that we have these various different points of view (such as New Mexico Main Street state staff, the local Main Street staff, the ones who are executive directors of the local organizations, municipal employees, local elected officials, business owners and entrepreneurs), and there are a number of issues that each group with distinct points of view are addressing, for instance: "What's the role of downtown redevelopment?", "Who should fund redevelopment?", "What should we expect from the downtown redevelopment process?", and "Who should build our capacity?"

So as an example, I took some of the ideas that have come out of working with NMMS for a year and a half, and noticed that

there are some points of convergence for municipal employees and local elected officials—both believe that the state legislator and outside leveraged funds should fund downtown redevelopment, and that there should minimum municipal involvement. However, for the state, they really want municipal involvement, and they want investment from the city or the village. The staff feels so understaffed and overworked that unless people drop some money on them, they will just try to do what they can with what they have. The business owners and entrepreneurs tend to be very market focused, and they want the market and the State Legislature and foundations, but they do not want people being pushy in telling them what they need to do with that investment.

What we tend to do is think in Cartesian rationality and ask what the convergence is, and determine whether or not it is statistically significant. Never do statistical analysis on a qualitative database: you take really good data and turn it in to the worst possible dataset in the world. You want to look at the narrative in the stories and find out which of the stories are convergent. Municipal employees and elected officials are telling the same story, but it is really different from what the state and the business people are saying. In this kind of analysis, the outliers are often the most important data. We don't eliminate them as simply not fitting within our confidence levels. Even though they are outliers, you focus your energy and your policy and planning activity on building their capacity to do their work.

I wanted to end with in that thinking about the ethics of inclusion. Part of that is paying attention to the outliers—paying attention to the tails of the bell curve, and asking yourself, "What is it about that group of people, that subject position, that social location, that puts them out there?" And as planners, what can we do working with community members to undo that?

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California Climate Action Planning Conference 2013

Michael Boswell

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The Cal Poly College of Architecture & Environmental Design in partnership with the Governor's Office of Planning and Research (OPR) hosted the inaugural California Climate Action Planning Conference on Thursday, January 31 and Friday, February 1, 2013 on campus. The conference was attended by over 200 professionals working in the public, private, and non-profit sectors on climate change and sustainability.

This was the first conference to focus solely on the practice of local and regional climate action planning in California. It featured in-depth presentations and discussions on both technical and political facets of climate action planning and featured experts and practitioners from around the state. Sessions addressed a variety of topics including GHG inventories, climate mitigation and adaptation, public participation, implementation and financing, and emerging challenges. Conference presentations are available at http://digitalcommons.calpoly.edu/ccapc/2013/

The timing of the conference was opportune. The week before both President Obama and Governor Brown gave major speeches on climate change. In his Inaugural Address, President Obama made clear the ethical obligation to address climate change when he said: "We will respond to the threat of climate change, knowing that the failure to do so would betray our children and future generations."

Governor Jerry Brown stated the urgency of climate change problem: "When we think about California's future, no long-term liability presents as great a danger to our well-being as the buildup of carbon dioxide and other greenhouse gases in the atmosphere."

Michael McCormick, Local and Regional Affairs Policy Advisor and Senior Planner, Governor's Office of Planning & Research linked these calls to action with the conference: "California is a national and international leader in the field of climate action planning and this conference brings together the best professionals in the field to share their collective knowledge."

The conference was kicked of by introductory remarks from Cal Poly President Dr. Jeffrey Armstrong and College of Architecture and Environmental Design Dean, Dr. Christine Theodoropoulos. Dr. Armstrong talked about actions taken by Cal Poly to reduce the campus carbon footprint including aggressive water conservation practices, LEED-certified new buildings, and heating/cooling efficiency upgrades. He

concluded with wishes for the conference attendees: "Please enjoy. Please learn. And then let's put in all into action." See more about Cal Poly sustainability successes at: http://afd.calpoly.edu/sustainability/

The keynote speaker was Henry Hilken, Director of Planning and Research at the Bay Area Air Quality Management District. Mr. Hilken spoke about the need to maintain the environmental progress that has been made in addressing air pollution in California.

Sponsors included PG&E, PMC, Bay Area Air Quality Management District, Ascent Environmental, California Chapter of the American Planning Association, SIP/Central Coast Vineyard Team, San Luis Obispo County Air Pollution Control District, and ESA.

The Steering Committee for the conference included Matt Burris, Raimi & Associates; Jeff Henderson, PMC; Michael McCormick, Governor's Office of Planning & Research; Ian Peterson, Bay Area Air Quality Management District; Jillian Rich, PG&E; Honey Walters, Ascent Environmental; The Cal Poly CRP conference team included Michael R. Boswell, Ph.D., AICP, Conference Director; Adrienne I. Greve, Ph.D., Assistant Conference Director; Jean Long, MCRP '13, Student Coordinator; Stevie Schmidt, MCRP '14, Student Assistant; Alice Zanmiller, BSCRP '15, Student Assistant.
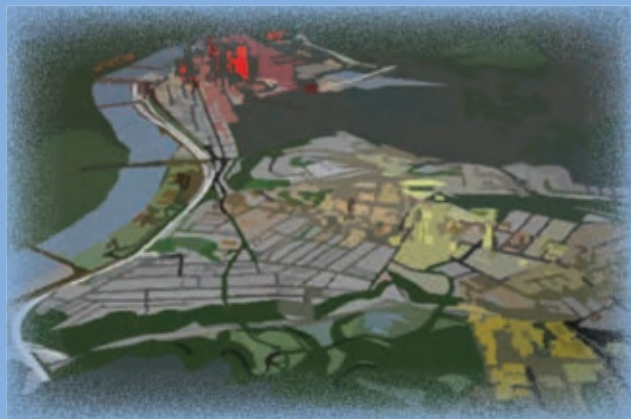
Cal Poly President Dr. Jeffrey Armstrong opening the conference.

FOCUS 10

Essays

Planning for a Strategic Guadalajara:
Towards a Sustainable and Competitive Metropolis

Francisco Perez

Architect and urban planner, MA in Urban Design. Principal; FPA Planning, Guadalajara. Former vice president of the International Society of City and Regional Planners (ISOCARP).

Increasing competition among cities, regions, and countries has moved public planning to developing strategies towards sustainable and competitive advantages. Francisco Perez, a planner based in Guadalajara, Mexico and State of Jalisco's former planning director, discusses the competitive advantages of Guadalajara's Metropolitan Area and the objectives behind the current strategic projects, including several he authored.

Developing productive cities is more feasible if it is based on identifying and exploiting their unique resources, characteristics, and capabilities: their comparative and competitive advantages. Once cities identify their advantages, they must develop strategic projects to exploit these advantages. These projects should have a comprehensive scope, an equitable benefit, and a sustainable result. Based on this hypothesis, this article describes the comparative and competitive advantages of Guadalajara, Mexico, and discusses nine strategic projects to exploit these advantages.

Comparative and Competitive Advantages

Nature itself shows us that ecosystems and the species that inhabit them are more successful in their evolution, survival, and development as they adapt themselves to the characteristics of the territory where they live. There are even some species that are the only ones to exploit certain advantages of their environment, finding minimal or no competition at all for those resources from other species.

By contrast, in the global world, except for some primary sector activities, it seems that all regions tend to produce as quickly as possible whatever the market demands, without much consideration of the characteristics and potential of the place where the cities are located. These cities concentrate on their ability to compete against a number of other cities that are eager to produce the same products. This makes the development of many regions of the world very uncertain and volatile, because it depends on external variables of the global capital and labor market which are difficult to predict and control.

Therefore for cities to advance solidly being very creative by constantly generating new development opportunities in an ever-changing environment is not enough -and often cities do so with great effort and considerable consumption of energy and resources. In this context, the idea of developing productive cities should be based on identifying and exploiting their comparative and competitive advantages.

The comparative advantage model is one of the basic concepts that justifies the theory of international trade. This model shows that countries and cities tend to specialize in the production and export of manufactured goods that they can produce at a relatively lower cost compared to the rest of the world, which makes them comparatively more efficient than others.[1]

On the other hand, competitive advantages are unique attributes of a city that give it the ability to achieve higher returns than other cities or regions in a sustainable way over time. This attribute must be unique because if competitors have it, it is not a competitive advantage. Moreover, a characteristic that is the basis of any competitive advantage should be appreciated by potential consumers. An advantage not perceived or valued by customers is not really an advantage.[2]

To make use of their advantages, cities must identify their potential resources and unique attributes. According to the UNDP definition, potential is defined as all those resources that exist in a given area, but that are not being fully utilized to enhance the level of sustainable human development. For UNDP, the potentialities go beyond the traditional concept related only to natural resources, considering a broader approach that includes as potential other factors linked to human, social, and cultural assets, as well as infrastructure and financial capital. According to UNDP, there are two types of potential: the tangible and the intangible. The former refers to physical investments such as utility infrastructure, infrastructure for production and /or transportation, natural resources, and financial resources. The latter refers to factors

[1] See http://esepuba.files.wordpress.com/2009/03/david-ricardo-principios-de-economia-politica-y-tributacion-cap-1-y-2.pdf; access 7/10/2013.

[2] See http://www.elergonomista.com/3ab12.html; access 7/10/2013.

related to social capital, among which are: people skills (level of education, knowledge, and technology skills), forms of organization, and cultural and historical aspects.[3]

Comparative and competitive advantages of a city are better exploited by developing strategic projects. These projects will allow the organization, in a structured way, of those elements necessary for the successful use of unique resources. Strategic projects are defined in this article as those that meet the following characteristics:

• They should take advantage of the unique resources and aspects in a territory (location, natural resources, climate, economic structure, social aspects, cultural values, etc).

• Their development components should be well balanced and integrated: productive infrastructure and local economic development; protection and sustainable use of natural resources; social development and improvement of quality of life, etc.

• They must be identified through the analysis of local and global market opportunities.

Figure 1: Stategic projects in Guadalajara.

1. Aerotropolis GDL
2. Green Guadalajara
3. Voltea a la Barranca
4. Cerro del Cuatro
5. Tierra Mojada
6. Jalisco Fiestas
7. Chapala Plan
8. Expo 2
9. Ciudad Creativa Digital

[3] See http://web.undp.org/spanish/latinamerica; access 7/12/2013.

• They must help structuring, ordering, and fostering urban development, materializing a city plan. We must consider that potentialities do not generate sustainable development by themselves unless they are part of a comprehensive territorial strategy leading to the rational use of the resources.

Within this framework, the purpose of this article is to describe the comparative and competitive advantages of Guadalajara Metropolitan Area and to present some strategic projects that would utilize these advantages (Figure 1). Among these projects, the first eight have been prepared or are being proposed by the author. The last project has been promoted by the government and the private sector. These projects address advantages that have not been exploited yet or should be better exploited, and are at various stages of development. Some are feasible in the short term and some of them are feasible in the middle or long term.

This presentation of potential projects does not include the kind of infrastructure and services that are essential for the day-to-day functioning of any city. Therefore, it does not include projects that are now a priority for Guadalajara, such as those related to supply and treatment of water, mobility, public transport, and public safety, among others.

Advantage I: Location

Located in the central west part of Mexico, Guadalajara was founded in 1542 with the purpose of serving as a strategic hub linking the capital of New Spain with the northwestern territories. From this foundational role the city, now has 4.5 million inhabitants and has become the country's second largest city. Guadalajara is not only a necessary step to reach the vast Mexican Pacific region but it has established itself as the center of Mexico's West Central Region that integrates eight states. It is the cradle of Mexican independence and is probably the country's most dynamic and productive region.

Figure 2: Guadalajara´s location.

Located only 180 miles from Manzanillo, Mexico's largest port— Guadalajara is the Mexican metropolitan gate to the Pacific Basin and is a strategic link in the North America Free Trade Agreement corridor.

Project 1: Aerotrópolis GDL

Airports are magnets for new investment and they involve the development of areas between it and a city. These areas are key for economic development in many metropolitan areas, particularly in those where the airport is a strategic element for a city's progress and competitiveness. In today's competitive global market cities must have the ability to attract appropriate development to the area surrounding an airport: companies that depend on trade and air transport as well as multimodal logistic centers, multinational companies, research and development centers, trade, tourism, and other services.

A model called Aerotropolis has recently been developed; it combines airport planning, urban planning, and a business plan in a new urban concept that is highly attractive, competitive, and sustainable (Figure 3).[4] Guadalajara International Airport is Mexico's second most important and due to its location and historical role, the city functions as a regional and meso-regional hub. This is an important competitive advantage to be seized. The airport's development potential itself and that of its surrounding area is huge, and could become one of the most important districts in Guadalajara's Metropolitan Area.[5]

Presently the airport is not conveniently connected to the city and the metropolitan area. There is no comprehensive development plan for the airport area and the urban sprawl has reached its current limits, threatening the area's future growth

possibilities. Recent sprawl in the municipality where the airport is located, based on social housing, has brought more problems than benefits to this area, wasting the potential to attract sources of productive employment and development.

The trend scenario is one of chaotic sprawl, decay, and strangulation of the airport, with the consequent deterioration of service and loss of competitiveness. Among other things, this degrades the actual experience of airport concession for a private company. Facing this scenario, none of the three levels of government (federal, regional and local), nor the airport concessionaire, has made effective efforts to alleviate the problems of this area.

On the contrary, the desired scenario is one that solves the environmental and social problems of the area, leading to orderly growth and the promotion of productivity. This would ensure the future development of the airport itself and the improvement of the service in a more competitive framework, presenting a successful model to follow. Achieving this scenario is the aim of promoting Aerotrópolis GDL.

The overall objective of the Aerotrópolis GDL initiative is to put forward a solidly supported vision for the future, with a portfolio of projects to promote the integrated action of federal, state, and municipal governments, the airport concessionaire, and business sectors and social groups involved in the area. Its specific objectives are to:

- Ensure the necessary reserves for the airport´s growth.
- Define the necessary infrastructure for both the airport and the development of the area in terms of roads, transportation, sewage collection and treatment, and storm drainage, among others.
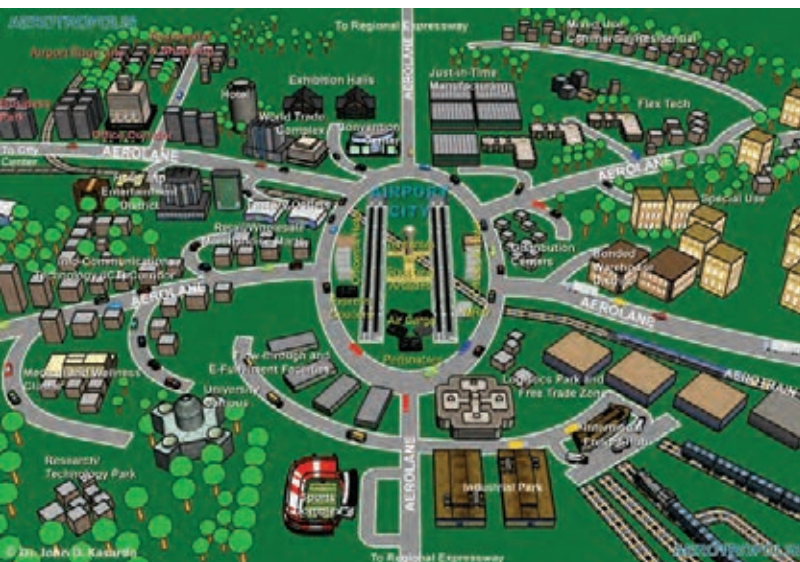

Figure 3: Aerotrópolis conceptual layout.
Source: Dr. John D. Kasarda.

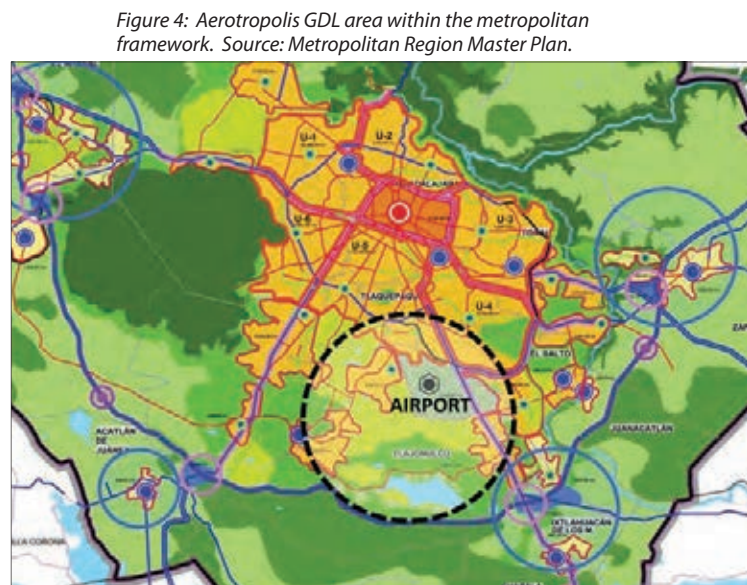Figure 4: Aerotropolis GDL area within the metropolitan framework. Source: Metropolitan Region Master Plan.

[4] See http://www.aerotropolis.com; access 7/12/2013.
[5] See http://www.aeropuertosgap.com.mx/aeropuertos/guadalajara; access 7/12/2013.

- Convert the area into a strategic district of Guadalajara Metropolitan Area.

- Solve current environmental problems and risks.

- Design gears for coordination, management, financing, participation, and monitoring.

- Consolidate the airport as a first-level regional hub.

- Promote competitive complementary uses.

A portfolio of ten projects aims at implementing these goals (Figure 5). Aerotrópolis GDL is a huge long-term project still at its first stage of promotion. It requires vision, planning, and consensus on a large scale, as well as short-term actions to address the priority needs. This project is of regional interest, needs to be part of the state government's strategic agenda, and requires strong support from the federal government. It is essential to involve private investors, landowners, and all stakeholders. Financing requires substantial government investment in basic infrastructure but most of the resources will certainly be generated from having an attractive business portfolio, internationally financed.

ADVANTAGE II: NATURAL RESOURCES

Mexico is one of the most biologically diverse countries in the world; Jalisco is one of the states with the greatest biodiversity in Mexico and its capital, Guadalajara, is the most biologically diverse region of Jalisco. It has even been described as "the biological synthesis of Mexico". This rich biodiversity is due mainly to Guadalajara's location at the confluence of Sierra Madre Occidental, Sierra Madre del Sur, and Eje Neovolcánico.

Moreover, the city is located on vast and productive valleys of moderate topographic slope at approximately 4,500 feet above sea level. It is flanked to the northeast by La Barranca --the Santiago River Canyon-- which runs 3,000 feet above sea level, and by La Primavera Forest to the west, which rises 6,000 feet above sea level. This allows the metropolitan area to have more ecosystems than many countries in the world.

Another strategic advantage is the kindness of the prized temperate climate, averaging 70°F. This allows not only the comfort of its inhabitants most of the year, but minimum energy consumption for heating and cooling.

Project 2: Green Guadalajara, or Guadalajara Verde

It has been said that Guadalajara is located in a privileged natural environment. Unfortunately it must be recognized that the city has not exploited this competitive advantage to make it a better place to live. In contrast, among the problems faced are: threatened natural areas, a deficit of green areas, infill of natural waterways, erosion, loss of groundwater infiltration, diminishing aquifers, and increasing air pollution.

It is therefore essential to promote a green vision for the city, to reverse the prevailing problems and take advantage of the

1. Second track
2. Cargo terminal
3. Logistic hub
4. Alternative access
5. Hotel and shopping
6. Technological cluster
7. El Ahogado development
8. Cajititlan Eco-resort
9. Garden City
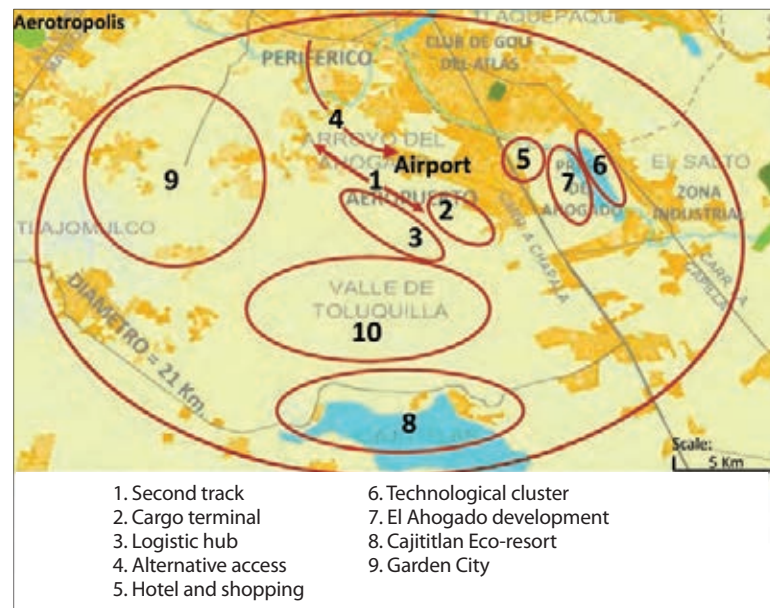
Figure 5: Strategic projects to support Aerotropolis GDL.

existing potential in a sustainable way. For such, it is important to pursue the following environmental objectives:

- Reforestation of 2,400 acres. This will increase green areas by two square meters per inhabitant.

- Conversion of CO2.

- Rainwater infiltration and soil retention.

- Social objectives:

- Increasing equity and social integration.

- Supporting sports and health.

- Promoting environmental and botanical education.

- Urban objectives:

- Improving urban image and identity.

- Raising quality of life.

- Promoting ecotourism.

These objectives will be achieved through the following 10 programs (Figure 6).

1. Protected Natural Areas.

La Primavera, a 72,000-acre forest, is the most emblematic protected natural area in metropolitan Guadalajara. The main benefits it brings to the city are clean air and water. However, the forest is constantly threatened by urban growth, and every year during the dry season it suffers from numerous fires. Although there is a decree for its protection and there is an agency for its management, the official support has been minimal. On the other hand 23,000 hectares in Cerro Viejo have also been recently declared protected natural area, and the

Santiago River Canyon (La Barranca) Act is to be signed soon, protecting another 52,000 hectares.

These three protected natural areas alone account for more than 240,000 acres. However, it is not enough just to enact these areas as protected. It is necessary to ensure their proper management and the financial resources to do so, mainly through a charge for environmental services. All this is to be promoted through a metropolitan program for the management of protected natural areas.

2. Green Boundaries.

It has been mentioned that La Primavera Forest is heavily pressured by speculation and urban sprawl, especially at the metropolitan edge. Meanwhile La Barranca has suffered the disdain of the city, which has turned its back over the years. In both natural areas, a public property edge must be generated to allow the final demarcation of urban growth, and to allow public transit to ensure security, firefighting, and public access to all citizens. These green edges extend to 25-mile wide in La Primavera Forest and 38-mile wide in La Barranca; they will be as wide as circumstances permit, at least allowing free transit. These strips would be transferred to public ownership as part of prospective urban developments on vacant land or through gradual public acquisition.

Figure 6: Location of Green Guadalajara programs.

3. New Metropolitan Parks.

In Guadalajara there are only three large urban parks with an average area of 240 acres each. There is a deficit of green areas, particularly in low-income sectors. The Green Guadalajara initiative includes the promotion of three large parks at a metropolitan scale: La Barranca Botanical with 840 acres hectares, Cerro del Cuatro with 360 acres, and El Ahogado with 960 acres. These three large parks provide a substantial public green area for three urban districts with significant environmental and social problems. They are the central pieces of three strategic projects presented in detail below.

4. Botanical Network.

A botanical garden is in the process of consolidation at La Barranca. However, the botanical wealth of metropolitan Guadalajara offers the possibility to present at least seven ecosystems where a large range of plants live in their natural environment: 1. gallery deciduous forest in La Barranca itself, 2. springs in Los Colomos, 3. pine-oak forest in La Primavera, 4. thornscrub in Tonala, 5. wetlands in el Ahogado, 6. riparian ecosystem in Los Sabines stream, and 7. lake ecosystem in Chapala Lake (see location in Image 8). Seven botanical stations can operate in these places in an integrated botanical network, presenting a unique alternative for specialized tourism; in a couple of days, visitors can enjoy seven completely different botanical communities in their natural state. These stations would include botanical education centers, recreational activities, and services.

5. Environmental Education Network.

A city cannot become sustainable only by decree or good will. It needs informed, educated, and engaged citizens. Therefore, environmental education is essential to build a sustainable culture. Green Guadalajara includes a series of environmental education centers. Reflecting the characteristics of their location, the focus at each place will be the particular urban-environmental issues facing Guadalajara. A) In La Barranca, as the most bio-diverse area of the city, the focus will be natural resources. B) In Los Colomos, where the first source of piped water for the city is located, the theme will be water. C) In Cerro del Cuatro, where the highest air pollution in the city is recorded, the topic will be air and rational energy use. D) The Matatlán landfill will be remedied, turning it into a public park, and the focus will be recycling and management of solid waste.

6. Green Corridors.

While the per-capita deficit of green areas is increasing, this city—once appreciated for its parks and gardens—has been "forested" with an impressive number of humongous billboards along its avenues, burying the ancient and famous image of Guadalajara as "The Pearl of the West "and "The City of Fountains and Roses". In addition, most of the city's natural streams have been filled in or channeled, with the consequent
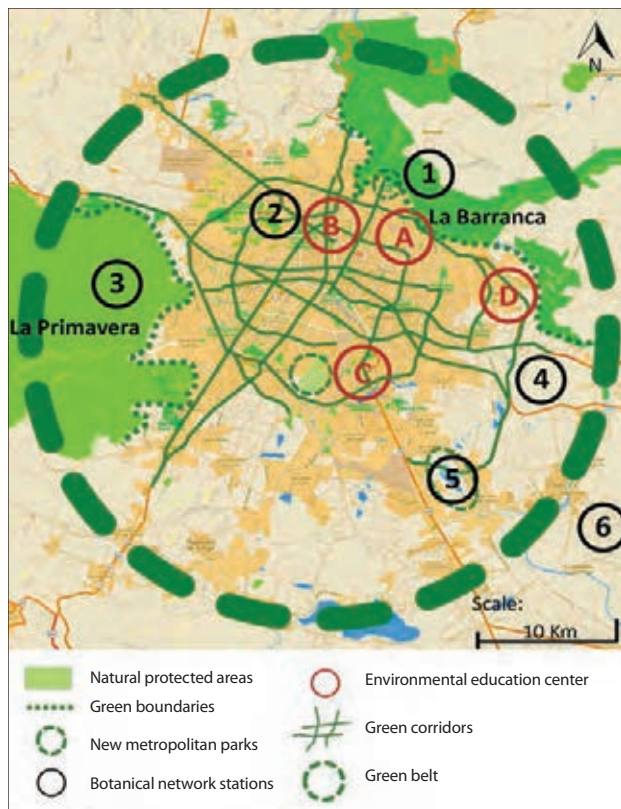
flooding and loss of rainwater infiltration. Green Guadalajara aims to recover and reforest natural runoff areas and reforest the primary roadway network, removing advertising and penalizing logging and vandalism to trees.

7. Rainwater Infiltration Areas.

Guadalajara subsoil is basically formed by volcanic foam that poured out during the eruption of La Primavera. This foam solidified to form a porous gravel called *Jal*, which is said to have given the name to the state of Jalisco, a place of *Jal*. This subsoil, which is very stable, forms an enormous sponge that can store large amounts of water. However, development on the land does not allow as much infiltration of rainwater as formerly occurred, which not only depletes aquifers but also causes flooding in several areas of the city. For mitigation, rainwater infiltration areas must be created to lessen flooding and to help restore the aquifers for later use.

8. Reuse of Treated Water.

With a primary goal of economical and simplified operation, the current metropolitan wastewater sanitation program for depends on large treatment plants located in the lower areas of the basins. This allows for minimal possibilities for the reuse of treated water since pumping is required. There is still a considerable amount of raw sewage that needs to be treated. Instead of the current program, small plants could be distributed based on the topography, allowing the reuse of treated water for industrial purposes and irrigating the green areas during the dry season.

9. Green Periphery.

In the last ten years, Guadalajara's metropolitan area has seen a disastrous wave of urban sprawl, motivated by the search for cheap land to build affordable housing. The result is fragmented suburbia with houses vacant due to the remoteness and lack of urban facilities and transportation. Since this phenomenon was repeated in nearly every city in the country, the federal government has changed the housing policy, now promoting compact cities. In this context, the future for the scattered settlements in the periphery is increasingly gloomy and it is unlikely that some day they will be integrated into the actual urban fabric. There is the possibility of integrating these settlements into a semi-rural environment, encouraging the use of fertile land in a most profitable way, with technically advanced organic crops and agro-industry offering new jobs within walking or cycling distances.

10. Green Belt.

The old concept of a green belt, proposed a long time ago for Guadalajara, is now more likely to become a reality, incorporating the protected natural areas mentioned, Chapala Lake, and other natural areas around the metropolis.

Project 3: Voltea a la Barranca

The Santiago River Canyon, locally known as La Barranca, is an area of great environmental value (Figure 8). It is a biological corridor that runs from the Pacific Ocean and continues along the Green River Canyon, a tributary of the Santiago River, all the way up to the highlands of western Jalisco. Additionally this canyon, more than 500 meters deep, is an area of outstanding beauty that is unique in western Mexico. The area's exuberant vegetation during the rainy season is dry in the winter.

Guadalajara has always turned its back on this canyon, degrading it and polluting it with sewage and garbage. Some of the poorest neighborhoods of the city, which lack infrastructure and services, clamber up its cliffs. This has generated a series of big environmental, landscape, and urban impacts leading to the conclusion that Guadalajara should restore La Barranca, improve the neighborhoods around its borders and order the chaotic growth of the city's peripheric areas.

Figure 7: Biodiversity in Metropolitan Guadalajara: El Ahogado Wetlands, La Primavera Forest, Chapala Lake, La Barranca Canyon, Los Sabinos Creek, and Los Colomos Springs.

Figure 8: La Barranca , the Santiago River Canyon.

1. Park
2. Urban edge
3. Neighborhoods
4. Urban reserves
5. Green corridors
Arcediano Dam
(under construction)
Extension of circular highway

Figure 9: Voltea a La Barranca strategic lines: natural park, scenic walk, neighborhood upgrading, compact city, green corridors.

Baptized *Voltea a la Barranca*, which means "look back towards the canyon", this project started to be promoted ten years ago. The comprehensive general vision covers five main strategic lines (Figure 9 and 10):

1. 125,000 acres will soon to be declared as a protected natural park will provide opportunities for environmental research and education, ecotourism, sports, and recreation. Many of the activities will contribute to financing the park management.

2. A border promenade 28 miles long, integrating the city and the natural environment into a panoramic band. This will provide access to park facilities and services with footpaths, cycle paths, and roads.

3. Neighborhood renewal, involving the improvement of marginal neighborhoods for more than 200,000 inhabitants. This includes reforestation of 2,400 acres, as well as programs related to equity and poverty alleviation. It will also undertake social research involving participatory projects for house improvement, facilities, and services. This will make use of already existing social development programs.

4. A compact city program, involving the occupation of more than 960 acres of empty land. This will involve proper planning of the urban periphery, defining the urban limits and building public urban facilities on La Barranca's panoramic edge. This will be mainly undertaken by private developers, utilizing financial programs for low-income housing.

5. A green corridors program involving the recovery of more than thirty-two miles of watercourses and bodies of water. This network will extend the natural areas of the city. This program will also diminish the risk of flooding and will generate green areas and urban facilities.

Voltea a la Barranca is a long-term vision for the metropolitan region. It involves seven municipalities and a large number of departments at three levels of government, as well as private
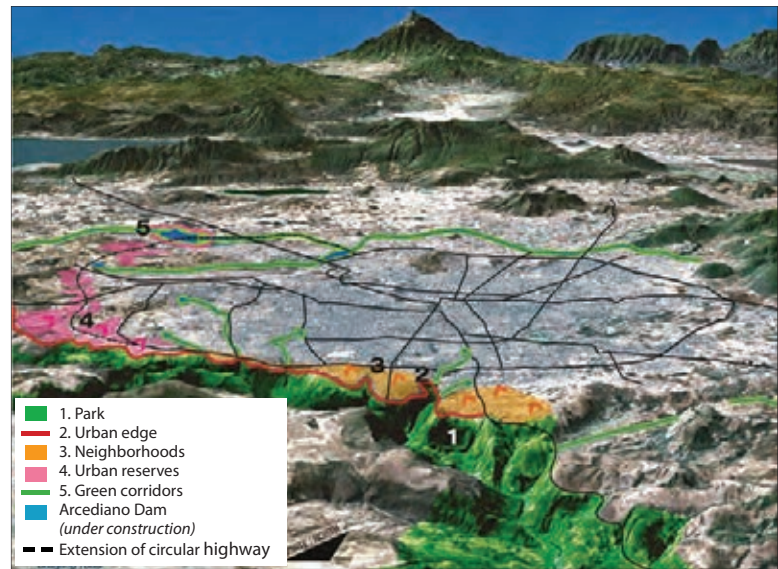
initiatives and the input of the general public. It is expected that this project will give a historical turn to metropolitan development and a new face to the city. It will certainly generate considerable environmental and social benefits and significant economic returns, particularly from ecotourism.

This large-scale, long-term project has being slowly progressing over the last ten years. At the moment, the protected natural area act is close to being signed by the federal government, and Guadalajara Municipality has just launched to great expectations and a will to develop its first phase soon.

Project 4: Cerro del Cuatro

Cerro del Cuatro is located in the area of the city with the most polluted air, its hillsides mainly covered with slums. Land-use conflicts, lack of basic infrastructure, a deficit of urban facilities, environmental problems, mudslides, and difficult accessibility characterize this area. In recent years, efforts have been made to alleviate the problems, without much progress.

Nevertheless, Cerro del Cuatro plays an important role, offering enormous potential because it has a privileged location and is the highest hill in the city (1000 feet) with splendid 360° views. For many years it has been expected that this hill will be preserved as a major green area but illegal settlements have been winning the battle. In recent years a conceptual project was proposed with four strategic lines: urban renewal and mobility improvement, social and economic development in slums, sustainable urban consolidation of urban reserves, and a major park and viewpoint (Figure 11).

At the moment the only strategic lines that has advanced is the park, with the goal of making it a major social development node, a catalyst for urban and environmental improvement, and

Figure 10: Voltea a La Barranca conceptual renderings.

a new symbol of the metropolitan area. The 360-acre park sits at the top of the hill and will be surrounded by a ring road on its lower level for allowing full accessibility to the park and an important concentration of urban facilities around it (Figure 12).

The park will offer a wide range of activities at the regional, metropolitan, urban district, and neighborhood levels, to attract as many people as possible. A number of attractions will be located on the hillside, such as extreme sports, leisure, and other economically productive activities to attract tourism, generate jobs, and make the park operation self sufficient. The major attraction will be at the hilltop, with a sky-view resort, a monumental antenna, and an open forum, accessible by road and cable car. A first phase of the park has already being built, and efforts are underway to incorporate developers of neighboring private empty land into the project.

Project 5: Tierra Mojada

The Tierra Mojada -which means wet soil- project will transform an area with severe environmental and urban problems in the heart of the airport district and the Aerotropolis GDL project. It is located at the end of the metropolitan area's largest water basin which suffers from pollution of its soil, its surface water, and its groundwater. A wastewater treatment plant has just been built next to the reservoir but not all sewage generated in the basin is connected to the system yet.

The 2,000-acre area to be developed is currently occupied by the El Ahogado dam and reservoir (Figure 13). Built more than 100 years ago to provide water for irrigation the dam is now used for flood control. The area has been progressively occupied by irregular settlements that get constantly flooded with the communities exposed to unhealthy conditions, and the area suffering from environmental degradation. Nevertheless, the area is strategically located next to the airport, very well connected by two major regional-metropolitan roads with all needed infrastructure in place, and very close to a vast job market generation.

The area is planned to develop and operate almost as a self-sufficient small city, with all required land uses and public services. It includes: 530 acres of water bodies, 480 acres dedicated to housing, 96 acres for public facilities, 480 acres for green areas and open spaces, 216 acres for shopping, services, and leisure, and 240 acres for a technology cluster. Due to the advanced construction phase of the wastewater treatment system, the project might start development soon.

ADVANTAGE III: TRADITIONS

Although Mexico enjoys a rich cultural mosaic across its territory, the state of Jalisco and its capital Guadalajara are the cradle of the traditions that have given Mexico its image around the world. Among these traditions from Jalisco, tequila, mariachi music, and the wide charro hat are unequivocally Mexico´s distinctive image in every corner of the planet.

Figure 11: General concept for Cerro del Cuatro.

Tequila, with an ever increasing global consumption, has a designation of origin, and area located on the outskirts of Guadalajara, the Agave Landscape which has been declared a UNESCO World Heritage site. As for mariachi music, its international popularity keeps on growing and it is cherished by tourists. A spectacular Guadalajara International Mariachi Festival attracts numerous mariachi groups from different countries across five continents. The state of Jalisco's traditional crafts, gastronomy, and folklore add to this region's the picture unique traditions and attractiveness.

Project 6: Fiestas de Jalisco

Guadalajara has great tourism potential and is the ideal place to present reginal traditions and Mexico´s identity in the world. This represents a potential competitive advantage to exploit. Fiestas de Jalisco will make these traditions available in one place.

- Show traditions in an attractive and joyful way, in a fiesta atmosphere, all year round.
- Include complentary activities, some of which are already ongoing in the city.
- Expand the center´s impact with international events.
- Implement a self-financing mechanism.

Fiestas de Jalisco will be located on a 31-acre public site whre the road from the airport meets Mexico's geographical center. The development will include six thematic areas (Figure 14):

1. Tequila Fiesta.

Includes the Tequila Pavilion where, through interactive displays, visitors will learn about tequila history, its importance in the region and in local culture, and its dissemination in the world. In the Agave Garden, visitors will appreciate a small sample of that beautiful landscape and the work of the *jimador* harvesting the agave. A distillery will showcase the manufacturing process and there will be tequila tasting and sales. Additionally, conferences, courses, and an annual World's Fair of Traditional Drinks will be carried out.

2. Mariachi Fiesta.

The Mariachi Pavilion will showcase the origins and history of mariachi, the best mariachi musicians, its role in local culture, and its influence on music all over the world. It will be the venue for the annual International Mariachi Festival. A National Mariachi Conservatory will be founded, with an auditorium for daily performances and entertainment.

3. Charro Fiesta.

An area to be developed in conjunction with the existing *lienzo charro* (arena), which will present daily *charreadas* (rodeos) and shows. The *lienzo* will also host a *Charrería* school. A museum, a saloon, and a specialized boutique will complete the set.

Figure 12: Hill top antenna, view point, and amphitheatre.

Figure 13: El Ahogado Master Plan.

1. El Ahogado dam
2. Geen areas
3. Hotels, shopping, recreation, services
4. Public facilities
5. Housing
6. Technological cluster
7. Business cluster

4. Handicrafts Fiesta.

The existing and almost forgotten Jalisco´s Handicrafts House will be relocated here to show the vast diversity of production in the state, including among others: blown glass from Tlaquepaque, Tonala pottery, *equipales* from Zacoalco, *piteado* from Colotlán, cutlery from Sayula, bone manufacturers from Teocaltiche, and Huichol handicrafts. A crafts school will be established for classes, conferences, and workshops, and an annual International Handicrafts Fair will be held.

5. Folklore Fiesta.

The area will house the Folklore Museum of Jalisco, a folk dance school, and an auditorium for the Ballet Folklorico de Guadalajara. An annual International Folklore Meeting will be hosted.

6. Gastronomic Fiesta.

The Gastronomic *Parian* (court) will be the epicenter of Fiestas de Jalisco, where visitors will enjoy all sorts of Jalisco´s tasty dishes, while toasting with tequila and being entertained with mariachi music. There will also be a museum, a school and food market, and an annual Festival of World Cuisine. Additional activities and facilities will be included, such as traditional *Fiestas de Octubre*, a shopping center, hotels, an amusement park, and a tourist tram circuit to Tlaquepaque.

Still in its promotional phase, the Fiestas de Jalisco project will expand Guadalajara's and Jalisco's visibility around the world, strengthening city and regional tourism and cultural activities, and help preserve and promote local traditions.

ADVANTAGE IV: CHAPALA

With an area of approximately 420 square miles, Chapala Lake is Mexico's largest freshwater lake. Surrounded by seven municipalities in the states of Jalisco and Michoacan it is part of the country's most important watershed and has great environmental significance. Chapala Lake supplies the Guadalajara Metropolitan Area with 60 percent of its drinking water. It has recently been declared a Ramsar site, as a wetland of international importance.[6] The lake offers great potential for development of fisheries and agriculture, and especially for tourism, mainly housing, accommodation, and services for large foreign retirement communities.

Located sixteen miles from the international airport and 31 miles from Guadalajara´s historic center, Chapala has been a traditional tourist site since the beginning of the last century. It has been an attractive place for foreign retirement, and in the 1950s it became one of the most popular places of the kind. These retirees are mostly U.S. and Canadian citizens, although

1. Main court
2. Fairgrounds
3. Lienzo Charro
4. Hotels and shopping
5. Parking and services
6. Parks
7. Existing public buildings
8. Pedestrian pathway
9. Tramway

Figure 14: Fiestas de Jalisco conceptual layout.

the foreign community is comprised of more than twenty nationalities.[7] As the area is well known, this market is rapidly increasing and offers enormous potential for the region.

Project 7: Chapala Plan

In spite of its importance and potential, in recent years Chapala Lake has been heavily threatened by excessive water extraction, land invasion into the lake, wastewater discharges, pollution, and disorderly urban growth, especially along the Chapala-Jocotepec corridor. In the face of these problems, only very limited isolated, short-term action has been taken without really meeting the area's requirements, and without a comprehensive action plan to sustainably utilize the great potential of the area in the long term.

The restoration and development of the country's largest lake, shared by two states of the federation, is undoubtedly a national priority and requires the full support of the federal government, but should be promoted by the government of Jalisco, the most significant stakeholder in the tributary basin. This program should be supported firmly by social and private sectors. It should be based on a comprehensive development plan to drive the improvement, management, promotion, and full development of the area.

The plan must not only consider solutions for the current problems in the area, but must also include a vision for the future. The vision must be as ambitious as the great potential of this region allows, and must be as sustainable as the environmental fragility of the area requires. It should be an

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[6] See http://www.ramsar.org/cda/es/ramsar-news-archives-2011-mex-ico-jaguey/main/ramsar/1-26-45-489%5E25262_4000_2__; access 7/12/2013.

[7] See http://www.lakechapalasociety.com; access 7/10/2013.

Figure 15: EXPO 2.

1. Expo Guadalajara
2. World Trade Center
3. Mixed use development
4. Hotels and shopping corridor
5 and 6. Shopping malls
7. Area for redevelopment

▬ ▬ Urban highway

▪▪▪▪▪▪ Major metropolitan highway

▬ ➤ Proposed vehicular links

▪▪▪▪▪▪ Lightrail

integrated vision for the long term, with concrete actions to be carried out in the short term. Chapala Plan will be the tool to achieve the following goals:

- Total cleaning and hydrological sustainability of the lake.

- Environmental protection.

- Total restoration of federal lands and sustainable use of areas where no environmental impact will occur.

- Consolidation of Chapala as the largest foreign community of U.S. and Canadian citizens outside their respective countries.

- Greatest levels of sustainable fishing and agriculture.

ADVANTAGE V: TOURISM

Given its location, climate, wide availability of shopping and services, and the diversity of available attractions, Guadalajara is a major tourist center in the region, with more than 22,000 hotel rooms available. Business tourism is particularly relevant. A number of important national and international events take place in various venues in the city. Expo Guadalajara alone has 1,2 million square feet and claims to have generated an economic impact in 2011 of about 7,000 million (7 billion) pesos.[8] It is the largest and most important fair and exhibition center in Mexico. Among the most relevant exhibitions held here each year is the International Book Fair, the world's largest Spanish language book fair.

Project 8: EXPO 2

Expo Guadalajara is located in an area that concentrates a large amount of hotel rooms and square meters of shopping. The area is heavily congested by vehicular traffic, and is already close to its full land-use capacity. The only available neighboring land is about to be developed into a large mixed-

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[8] See http://www.expo-guadalajara.com; access 7/10/2013.

use complex. This means expansion of the exhibition activities in this area is already quite curtailed.

On the other hand, behind Expo Guadalajara is an extensive area with a gloomy future. This is the once- flourishing regional food market, an area where tons of perishable food were traded every day by merchants from a quite vast region of western Mexico. The evolution of the perishable food trade in recent years—with large warehouses no longer needed—has already left many hectares of underutilized land in this place. It is Interesting to note here this area developed successfully at a time when the regional circumstances gave the city a comparative advantage that does not exist anymore.

The Expo 2 project proposes gradually redeveloping this former food market area into a modern extension for congresses, fairs, and exhibitions, together with hotels, shopping, services, and, of course, housing (Figure 15). Additionally, the current Expo area would be linked directly to the most important freeway connecting to the airport and the rest of the metropolitan area.

ADVANTAGE VI: KNOWLEDGE ECONOMY AND CREATIVE INDUSTRY

Mexico is producing television, movies, and cultural programs watched by more than one billion people in more than one hundred countries. It is an emerging global leader in the creative industry and it is becoming a destination for content creation. International companies see Mexico as a step into the rapidly expanding Latin American market.

CANIETI (National Chamber of Electronics, Telecommunications and Information Technologies) started promoting a digital cluster in Mexico and, with help from the Massachusetts Institute of Technology (MIT), searched for the best place for the Ciudad Creativa Digital (CCD) or Creative Digital City. This cluster will enhance Guadalajara's competitive advantages to compete in the knowledge economy and the creative industry,

particularly because the city already offers:

- Rapid access to all of Mexico and the United States through 3 to 5-hour flights.

- More than twenty universities offering many disciplines, including engineering, applied sciences, and arts.

- An important high-tech community and is known as Mexico's Silicon Valley, since it is an IT national leader with the country's largest tech cluster and more than 600 specialized companies.

- One of Mexico's most successful software incubation facilities.

Project 9: Ciudad Creativa Digital

In CANIETI´s initiative a dozen cities in the country were assessed across multiple aspects including macro-economics, environmental quality, industrial base, and development potential. Guadalajara was chosen as the best place to locate the Ciudad Creativa Digital because of its comparative advantages. The CCD will occupy more than 96 acres of public land in the heart of Guadalajara, leading to the revitalization of approximately 1,100 acres of the historical center. CCD will become a hub for the digital media industry including TV, cinema, advertising, videogames, digital animation, interactive multimedia, and e-learning (Figure 16).

CCD is now in its formative and promotional phase with the full collaboration of CANIETI and the federal, state, and municipal governments. CCD will attract Mexican and foreign creative professionals and will enhance Guadalajara's natural position as a global creative leader. At its maturity CCD will employ an estimated 10,000 digital creative professionals and provide for a population of approximately 50,000 people.

FINAL REMARKS

There are no doubts that Guadalajara is a city well favored by a wide range of unique resources, characteristics, and capabilities that shape its comparative and competitive advantages and offer enormous potential for development. It is evident that the city has not yet done enough to exploit this potential and in many cases is wasting and deteriorating that potential. This seems to be because the decision makers do not have enough knowledge and analysis of the area and of the city itself, and because decisions about city development are heavily influenced by the strong synergy of the global market.

Additionally, important strategic projects aligned with the city's advantages are not easily undertaken because many are long-term enterprises. It does not fit within the short-term view of governments that focus on the immediacy of short political administrations and entrepreneurship expectations that seek secure and fast returns. In any case, it is clear that there is a lot that can be done to fully exploit Guadalajara's competitive and comparative advantages to their full potential, but unfortunately there is no clear strategy to do it.

Figure 16: The CCD setting in Guadalajara's historic core. (From MIT Senseable City Lab. http://www. carloratti.it/FTP/CCD/files/CCD_ brochure.pdf)

On the Art and Practice of Urban Design

John Decker
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of Cincinnati, Carnegie Mellon University and the University of Colorado.

John Decker has been studying the form of the contemporary city and the application of cutting-edge digital representation techniques, including film making, in the urban design and planning processes for many years. In this provocative article he challenges us with the need of a comprehensive urban design theory, and discusses some of its fundamental analytical layers: mass, movement, scale, geometry, and functional units.

The last century saw humankind make remarkable industrial and technological progress. One of the outcomes of that progress is that the worldwide human population has been artificially sustained and has grown to unprecedented levels. Because of the scale of our exploding population, just about everything we do is magnified to have global implications. Around 2006 we passed a benchmark where more than half of humanity now lives in cities. We have become an urban species.

As the largest visible evidence of human presence and activity, cities have always been problematic things for their builders. They are physical constructions that must be managed; they have massive infrastructures that must be maintained; and their sheer accumulations of humanity can make them places of conflict, with many and various inequities. The things we do to build and run cities are mostly intentional, but they can have both intended and unintended outcomes. Regardless, maintaining and running a city of any size requires a very large amount of cooperative behavior and continuously tests every level of human organization.

In current history, cities are getting much larger, expanding at an unprecedented rate, and this leads to a simple fact: the larger the city, the greater the magnitude of its impacts, both positive and negative (Figure 1).

As their population increases, these cities have greater potential to create whole-world impacts. City-building is a consolidated piece of the whole of our technological capability, and as such, it creates challenges for collective humanity similar to what other consolidated pieces of technology, such as the Internet and other media, have created. Just the same, in theory everything about and in the city could be comprehensively

designed, engineered, optimized, and brought close to self-management.

The Challenge

The single biggest challenge of this time is the impact on human-built structures, including whole cities, that is potentially delivered by climate change. Cities tend to be fixed installations and as such they have limited capability to absorb unprecedented environmental loads; many may not be able to survive them in any form at all. Every city is potentially vulnerable, but coastal areas are the most so, and a high percentage of large cities are sited in coastal areas. Here climate change impacts, such as larger storms and coastal erosion, could have the most severe impacts. Ultimately, sea and tide levels will rise and significant areas of coastal territory may be inundated or broken and eroded away, which will be devastating to ports and other seaside urban structures.

Cities will need to be significantly retrofitted or outright reconstructed so that they can survive the shocks of climate change and remain intact and operational. Whole sections of a city may require relocation as land is either lost or needs to be radically repurposed. Neglecting the level of human organization that will be required to be capable of executing these things, a massive amount of fully comprehensive, fully multidisciplinary and multi-scalar urban design will first need to be developed. In order to design at these scales, the physical entity of the city must be fully understood. Its structures and systems must be mapped and engineered, based on science and analysis.

In short, there needs to be a unified method or process for urban design that is built on a comprehensive urban design theory. This theory must be clearly considered and logically describable, presenting a method that is repeatable and that will yield consistent and measurable results. So as an attempt at devising this method, I discuss my approach in this paper.

Note: The author is currently researching, diagramming and filming large-compound multi-urban systems, such as the Los Angeles region, that he terms hyper-cities. Some of his animated urban analysis studies can be seen on Youtube at: http://www.youtube.com/watch?v=vgB56ClKADI

Figure 1: The complexity of a large modern world-city is well represented by Los Angeles, in this view from Griffith Park. (source: Wikipedia/Creative Commons)

Patterns of Settlement

Cities occur where they do for a whole set of convergent human reasons. They are formed at the crossroads between physical human needs, art, and commerce. People build cities as a natural outgrowth of their human tendencies; humans began seeking and building shelters at a very early stage in their development. Being gregarious, they built their shelters in groups. This passed through phases of larger and larger groups until eventually it evolved into cities and attendant civilization. Cities can therefore be considered natural formations, and when multiple cities are observed externally, such as from space, they tend to be composed of recognizable patterns and structures, and show much commonality. These patterns will remain similar, regardless of differences among cities in their organization, culture, economy, zoning patterns, or system of governance.

If one looks at the overall shapes of just the built-up areas in a group of cities, one can deduce a great deal of information about each city and its relationship to the cities around it. The forms and articulation of these shapes have meaning which can be identified, isolated, and read. Spatial and organizational codes can be revealed, and these codes can serve to guide design for subsequent intervention (Figure 2)

In the pattern of boundaries and properties on the land in a single city, one can see what has been termed pulverization, or the visual grain of the divisions in the continuous land created by the economic need to obtain maximum yield out of any piece of improved land. (Harvey, 1985) The scale and component shapes of this grain reveal a great deal about the nature and history of a given city.

Looking at other patterns and structures, one can see convergence, or describable similarity between the forms of the same type of components, when one city is compared to another. One can quickly recognize their purpose and know a great deal about their function, because most people will have had personal, direct experience with something similar in their own city and country.

Looking at much larger groups of cities, such as images of large areas at night, relationships and connections between the cities can be observed, and patterns of growth or interconnections become apparent.

Complexity

The city is a complex manifold of structures and related actions. To analyze it, one must take it apart and study its systems and components in graphical reduction and isolation. A city is a physical entity. It exists in physical space and is subject to the laws of nature. The physical city can be better understood by using analogy to other physical phenomena.

Urban structures are first environmental entities arrayed on the land and subject to all surrounding environmental dynamics, including the shortcomings of the thermodynamic principle. City installations don't simply interrupt environmental flow, they often actively interact with it; and they induce perturbations that are persistent and are felt some distance downstream. Urban components are designed with the primary intention that have the capability, and the arrrangement, to resist environmental pressures. They must shed water, resist gravity, remain thermally comfortable, and sustain various other loads. Engineering and design should be applied to both new and existing city structures to minimize the environmental disruptions they can create.

The city is also an organic entity. It is subject to growth, development, and other changes; it replicates and duplicates itself at multiple scales and frequencies as its needs expand. Like other organic structures, its parts are ideally highly interconnected. These arrays of interconnection must be capable of being intensified and rearranged as needed, with the least possible disruption to the functioning whole of the organism.

But overall, the physical city is best understood as a large compound machine. Stated more simply, it is an engine, a human-engineered device which consumes fuel, expends energy, moves and rearranges mass, and generates both waste products and heat. In essence, it is a contrived physical mechanism operating somewhere between original enthalpy and maximum entropy. It can run out of gas and seize up. The ideal is that its systems, installations, and structures be maintained, continuously rebuilt, and continuously optimized.

Armed with this understanding and executing an analysis broad enough to fully comprehend the extent and processes of a problem, cities can be designed so that they fit most harmonically into environmental patterns and become more transparent to these environmental flows and their systemic continuity, as well as having fully optimized functional characteristics (McHarg, 1969).

Figure 2: The center of Pittsburgh shown in terms of some of its component layers. Layers tend to fall into three broad categories: build-out, movement and the environmental components.

Analysis and Process

Designers and artists both know that a variation in the nature or execution of a process will alter the outcome it yields. To insure predictable results, processes must be documented and reviewed to be describable and logically mapped. Design process must be founded on scientific analysis.

As previously noted, the physical city is a composite object arrayed in space; it is a spatial entity. It is composed of above-grade and below-grade structures, analogous to the substructure and superstructure description of its component buildings and other structural installations.

Because a city is a large spatial entity, it cannot be directly experienced in the overall except from a great height, so normally a city is experienced from within, from its individual points. Sufficient experience at enough points allows urban dwellers to build a mental map and thus, by a kind of series-of-images-cinematic memory, they come to know their town. (Gosling, Maitland. 1991) Looking at the abstract graphic form of plan projection, or map, the city's form and organization can be seen in the overall, at least to the limits of the map. Once assembled, similar elements in the map can be viewed in isolation and the city will be seen to exist in multiple observable layers. The information on these layers can be isolated from all the others and observed all alone, showing sub-set relationships otherwise buried in the aggregate. Layers can include three-dimensional information and can account for the city's vertical structures and their more complex spatial relationships. Use of the tool of isolation and recombination allows creation of decomposed or dissected views of a complex assembly and reveals the spatial characteristics of the city's largest structures and spaces.

Reducing the information to just the two-dimensional figures or footprints of the buildings and the places where all of the other vertical structures meet grade creates a very compelling graphical representation called figure-ground. This simple graphic form reveals a great deal of information about a city's scale, organization, phases of growth, history, density, and health. Other similar insights can be gained by reducing and observing data on the other layers that include systems of movement or mapped environmental factors.

Combining selected sets of the isolated layers can help trigger a first step toward a design synthesis or system optimization. This de-layering method can be applied to just about any set of mappable data at every order of scale (Figures 3 and 4).

Scale

Modern cities are much larger than what is normally recognized and considered within most conventional planning or urban design processes. To be more broadly effective, design, even for relatively small interventions, must consider the whole of the city, and beyond to the extended city, not just its contiguous

Figure 3: Frames from a movie that form a serial-view of moving in LA. North on Figueroa, just south of downtown.

Figure 4: The figure-ground of central Cincinnati plus five smaller views that show several ways of looking at the relationship with the underlying land.

build-out but also all of its more far-flung influences. All cities sit in networks of fixed supply lines and territorial trade routes. Large modern cities often draw power, water, fuel, and other resources from great distances. If considered in this way, modern urbanization and the largest parts of its extended infrastructure will be seen as interconnected, and in some cases, continuous over hundreds of miles and through multiple regions. Design must consequently be applied from a much larger perspective and must account for these real impacts extended well outside of a given city. Ultimately a form of overall urban design must be applied to the entire regional infrastructure associated with these systems of cities or mega-urbanizations.

It is possible that with significant advancement in our capability to build cities and our increased global systems of cooperation, the integration of the extended urbanization could eventually reach the point of totality, becoming an almost singular, planet-wide hyper-city.

Functional Units

Since many urban studies and planning initiatives are sharply limited to a boundary defined by political, demographic, or economic intention, other important factors and actions can be left out of the study area, or completely neglected, even if part is inside the boundary. One consequence of this can be that the best solution lies outside of the study area and will thus be left unconsidered. A better approach is to identify and then break the city into its set of functional units.

A functional unit is a portion of the city that includes all of the buildings, movement systems, and natural systems within its area that are necessary to represent at least one complete urban function or action (Figure 5). To fully study a functional unit, the defined unit must include areas that follow and extend out along movement corridors, ideally to where they meet the next set of functional units. Proposed urban design studies of a district or facility should first define the main inclusion

in the study and then include in the boundary more of the movement and infrastructural connections, environmental flows, and downstream impact areas. A basic functional urban component will have a core, or center, attached to rays, which include a combination of the movement system and the associated linear building developments along it. As one looks at larger areas, the city is seen to have multiple cores, with multiple rays extending between the cores, and at larger scales the many cores are seen to have a hierarchy of sizes and levels of integration by numerous rays to all of the others (Figure 6).

This descriptive system is both a derivation from and integration of Lynch's paths and nodes system. It differs in that by using graphics of direct physical data, this system can show concentrations of development associated with portions of the movement and environmental system. Bounding these studies appropriately around at least one complete functional unit will improve the success of every type of urban initiative it is applied to, at every order of urban scale (Lynch 1960).

Figure 5: The functional unit of Cincinnati used for a study of approaches and entry points to the downtown (top). The functional fabric in the central core of Pittsburgh (bottom).
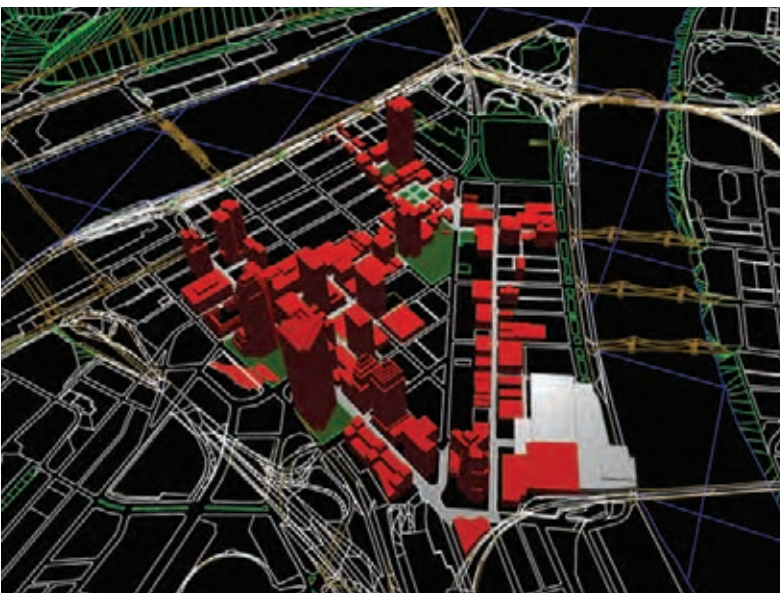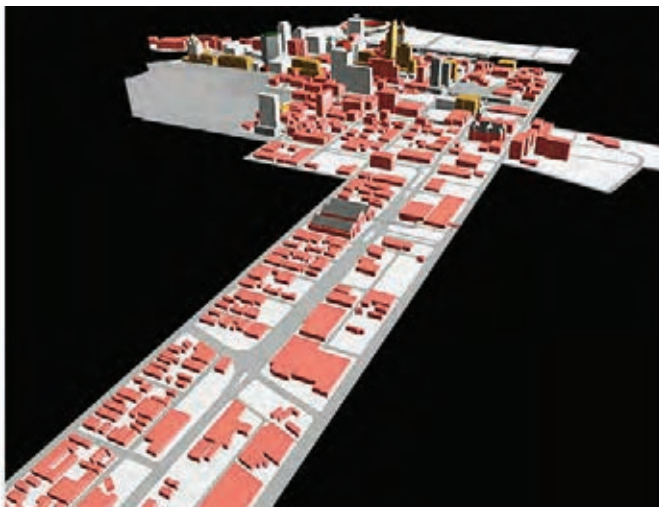
Geometric Realms

As previously stated, as physical things, cities are spatial entities and geometry is the best way to describe and understand their spatial structure. Every physical pattern, action, influence, view, light condition, temperature, or interaction with the dynamic environment, both occurring inside and around the city, is geometrically traceable and is best understood and visualized in terms of its measurable direction and form.

The geometric organization of a given city is the first thing that is observed and remembered about it. Seeing it in a map, the layout of streets and blocks has recognizable shapes and gives other information as to what things look like from the ground. This provides visual information that helps dwellers navigate through the streets and districts. The geometric pattern of the frequency of intersections and the angles they make can reveal codes about divisions between districts and the uses within. They can also show system continuity and interruptions in it. By mapping and studying types of layouts and their morphology, cultural and historical insights can also be observed. Maps,

Figure 6: Three views of two major cores and the ray-fabric between them. Downtown and Oakland district in Pittsburgh.

especially when augmented with satellite imagery, can further represent the larger geographic realm the city is built in, and can show points on the land of extended view, patterns of monumentality, areas of higher density, open spaces, places of intensified vegetation and bodies of water.

The collective layout of streets falls into geometric grid-types and varies from city to city, or sometimes between districts in a specific city. Frequently perturbations or deformations in these grids are caused by the shape of the land surface or even by less physical factors like ownership or land use that force the roads into a modified location (Figure 7). The whole grid overall can be bent at points by the process of correcting, adjusting, and realigning the component streets through longer distances. Different layout areas in the city will thus be broken into a series of spatial districts, or geometric realms, which will have distinct edges between themselves and adjacent realms. Sometimes the process is induced by major streets being built first, with adjustment to their route as they pass the front of a range of hills or along a coastline. The bending might also be applied to ease changes in grade. Other lesser streets are built perpendicular to them, to form orthogonal intersections. Where geometry differs in an adjacent area it may create an odd street between them with a bearing that bisects the angle between the two colliding realms. In other cases, for intentional reasons a change in layout geometry is employed for a district, such as places where the downtown grid is rotated against the rest of the city grid to reflect its significance (Gandelsonas, 1991).

As the city grows, construction of hierarchically larger systems will be required. The geometric logic of this next-scaled system, such as an expressway, may disrupt the continuity of original neighborhoods, and cut their grids into disconnected pieces as it passes through them. This can create fractured and damaged districts in the city, and isolated slashes of territory can become underutilized wastelands. These areas could also be well repurposed as natural areas, parks, and possibly even sites for intensively managed urban agriculture. They could also host forests and aquifer recharge areas and help provide continuity to surrounding natural systems.

The arrangement and scale of the land, structures, and spaces create a visual portion of the city called the viewshed. Arrayed in rooms and corridors along straight lines, these visual spaces and their points of view can extend well into the city's surrounding territory, and contribute significantly to the aesthetic and way-finding experience of the city (Figure 8). Cape Town, Rio de Janeiro, Los Angeles, Tehran, Denver, and many others have fairly dramatic distant landscapes in their greater viewshed. Others like Paris, Sydney, New York, Dubai, and Shanghai have intentionally built their own dramatic visual systems of monuments, parks, and skylines.

Movement

In a modern city, movement systems take up the largest part of the public realm. The geometry of this realm also creates the

largest part of the city's order and capability for function. As the capability for efficient movement is expanded, the city will grow and the inhabitants will spend more time moving around in more parts of the larger city. As the city grows, hierarchical systems will need to be introduced, but as before, the logic of the layout of these superior systems may conflict with and locally disrupt the original order of the city even though overall they improve the efficiency of movement and can cause the city to grow at their ends.

Figure 7: Three images that show disruptions to movement and build-out created by superior hierarchy movement systems, in this case I-75 through the Queensgate district of Cincinnati.

expressways; and then extends out to neighborhoods, transit-oriented developments, individual apartments in apartment buildings, and individual houses (Figure 9). The whole system has to absorb the increased load. This set of impacts and the system that carries them is called the access tree (Regional Plan Association, 1969).

Development of a new, farther-out portion of a city is frequently triggered by construction, extension, or upgrade of a movement system, either existing or new. The development will occur all along the upgraded corridor but will tend to concentrate at the end of it, inducing latent demand for more extension of the system farther into unimproved surrounding territory. In a reverse way, extreme congestion will throttle development and can cause neglect or deterioration of large underserved or otherwise dysfunctional portions of the city.

The ideal less-disruptive super-hierarchical system is the one that is plane-isolated from the form-giving one on the surface, either above or below it. Subways accomplish this best of all. They can travel freely at various flat angles underneath surface arrangements and can change direction as required, and as a system they can be adjusted to functional optimums. Multiple layers can be built and interconnected, and they can

Figure 8: Three spatial/environmental phenomena observed in terms of their geometry. Top: shadow-fall in a high-rise district, Middle: View corridors into, and out of, a dense downtown. Bottom: Skyline monuments and the view corridors towards them, all in Pittsburgh.

Movement is the essence of a well-functioning city. The ideal is that every part of the city is connected directly to every other part of the city. Further in the ideal, systems of connection should be multimodal, continuously running, have many redundancies, and offer maximum freedom to their users.

The reality is that movement systems are very often undersized, incomplete, bottlenecked, and limited. At the same time, the growing city will accumulate stress and the demand for additional capacity will be added to the entire system. Every major new building or significant development creates a pattern of movement demand that goes from all of the included new floors, down the elevators to the lobbies, out into the streets, parking garages, sidewalks, mass transit routes, arteries,

Figure 9: Visual elements from two views of moving along a street, isolated into component layers. Top to Bottom: Composite of layers, signs, building masses, overhead utilities, landscaping.
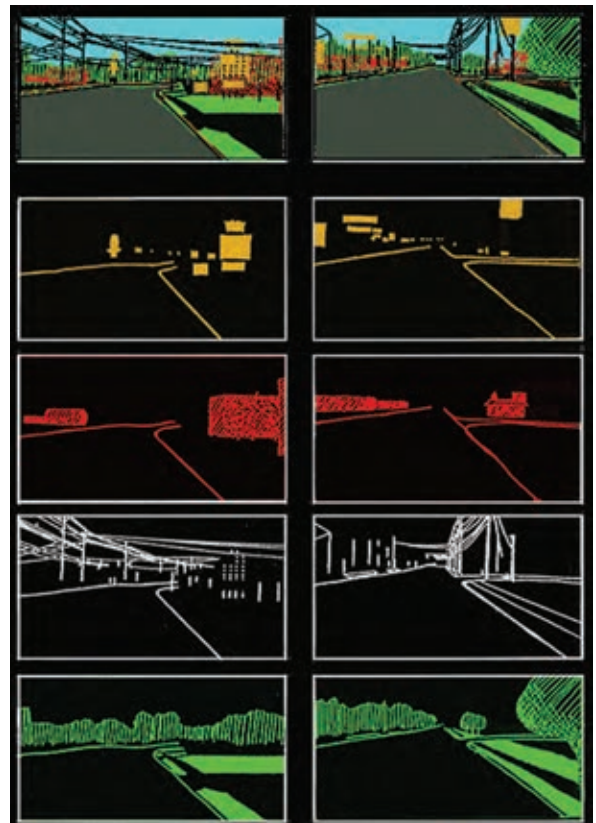
also be brought to the surface where needed to help level and maintain efficiency of their system of grades.

Mass and Environment

When singular urban structures such as industrial installations and districts of very tall buildings become large enough, they begin to interact with the dynamic environment at the lower range of geographical scales. A high-rise district in particular can create an interconnected system of tall-narrow vertical spaces that behave environmentally like narrow canyons, while the tallest parts of taller buildings rise above the general height of everything around them and have environmental qualities in common with mountaintops, such as susceptibility to high winds and lightning strikes (Figure 10).

Urban structures and their spaces generally create a desert-like environment with extended areas of rock-like pavement, walls and roofs. This, in turn creates, a hydrological and thermo-dynamic environment that is desert-similar. Light-colored surfaces create high albedo, or reflection of sunlight; even darker surfaces that may absorb more sunlight give it up quickly as radiant heat, and resultant temperature changes are often extreme. Generally the temperature in and around the entire city can be expected to be somewhat higher than the surrounding areas. This is termed the urban heat island.

The surface hydrology occurring around and through the city is its watershed or drainage net, and every exposed surface of the city must be engineered to shed water logically into this network. Extended areas of impermeable pavement can cause extreme, sudden, hazardous sheet drainage, and contribute overall to larger regional run-off and floods. Properly designed urban surfaces will absorb more water, and have landscaped breaks and undulating surfaces to help break up and slow down sheet flows.

The immediate piece of the atmosphere around the city is called its airshed. Normally this air acts as the ventilation system of the city, but in cases where the surrounding landforms form a bowl-shaped basin around it, the airflows can stagnate and accumulate impurities and complex pollutants around the city. If large urban structures or potential pollution sources are badly located on the land, they can sometimes exaggerate and worsen these effects; likewise if the city is located at high elevation, or in a solar-intensive region, the pollutants' chemistry can be photo-chemically changed and made more complex, creating a smog of worse pollutants. With proper consideration and clear understanding of these phenomena, things can be placed more appropriately in the air-shed and negative impacts may be diminished, although reducing emissions overall is the best approach.

Microclimates are created around individual objects and by groups of objects, depending on a combination of factors like the depth and intensities of permanent shadow, or constant wind or solar exposure. Understanding microclimates and
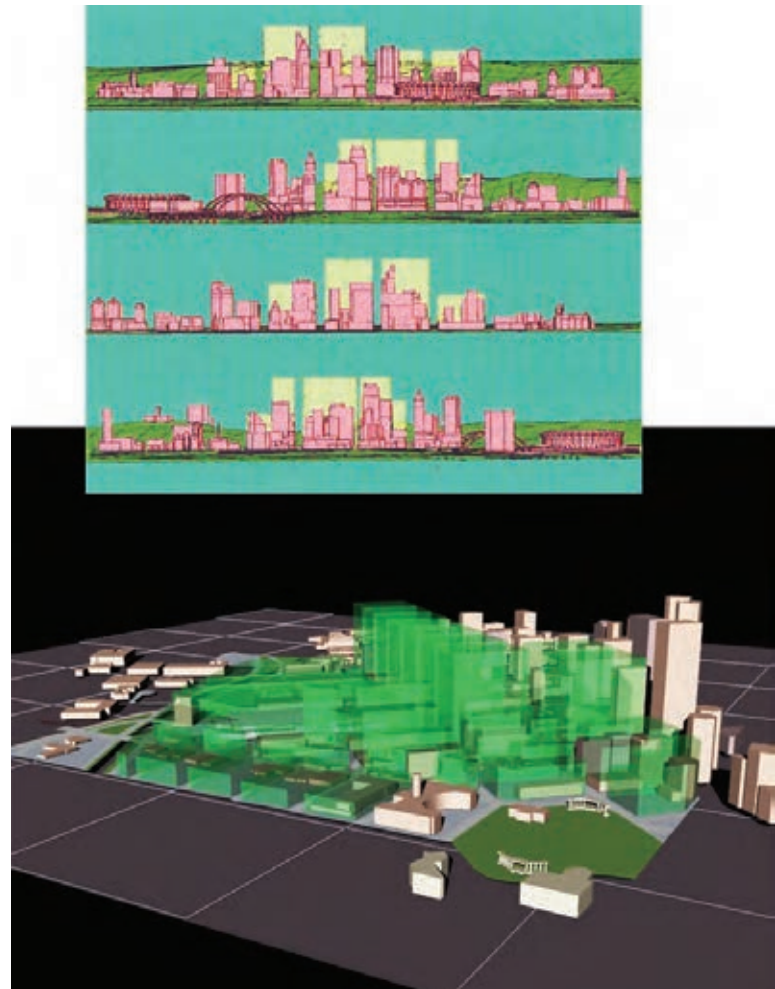
Figure 10: Two studies of skylines. Above: directional views of the elevation of downtown Cincinnati including height-limit volumes and surrounding landforms. Below: Volumetric model of tallest buildings in Denver with the adjacent height-limit volumes (green).

how building orientation and arrangement creates them can give designers a mechanism to create more outside comfort for urban residents, and even modify an otherwise harsher general climate. Ignoring these factors can create wind tunnels and other environmental hazards. Introduction of plant materials into and on every possible surface of a city can greatly modify negative environmental factors by buffering heat-island effects and working to filter and purify the urban atmosphere (Marsh, 1983).

Synthesis

What this essay is calling for is a literal revolution in city design, one that can enable and can deliver the kind of response required by cities to meet, and survive, the monumental challenges posed by the effects of climate change; and at the same time create renewed or relocated cities that produce a

radically diminished contribution to the factors that cause climate change.

We have proved at various historical points that combined human effort can accomplish fairly significant and durable things. With progress it may become possible that any condition or contingency could be designed for. Anything that can be done at any level can be optimized and improved to the next one, with sufficient collaborative commitment. Given enough observation and analysis, we can devise and apply systems of preparation for our cities. Many types of event impacts could be minimized to a point that they have sufficiently less effect on the life of the city, thus allowing the city to survive.

In order to be capable of designing and then executing the modifications that cities need, a change of base is required: a new way of looking at cities and of understanding them. This also requires an acceptance of an expanded sense of what is possible and a willingness to confront what isn't. If we rise to this challenge as a species, the outcome could take us well beyond mere survival to a next and more advanced phase in our development.

Figure 11: A successively decomposed view of the volumetric model of a high-rise part of Cincinnati. From the top-composite model it proceeds down to the bottom streetscape layer.
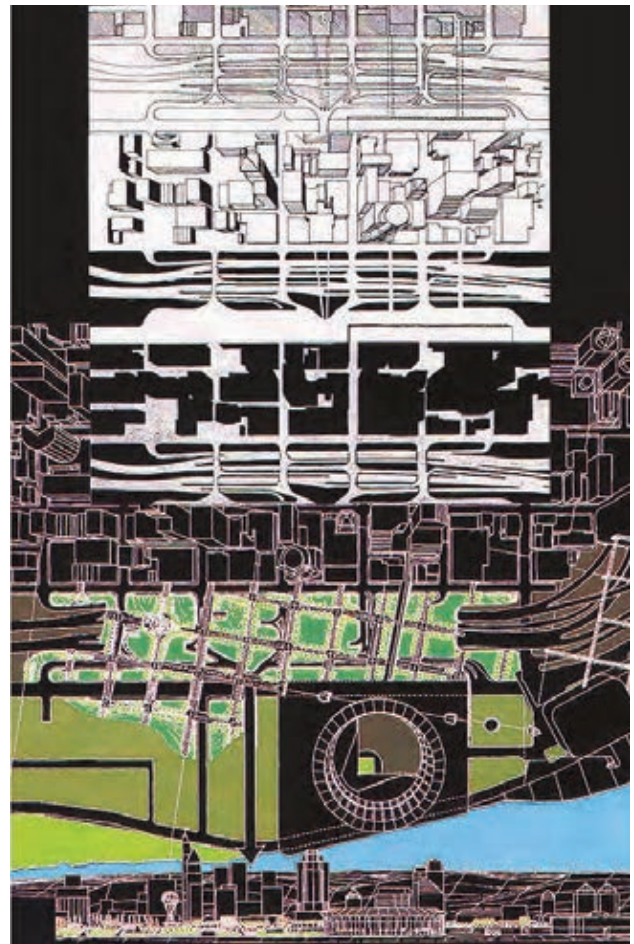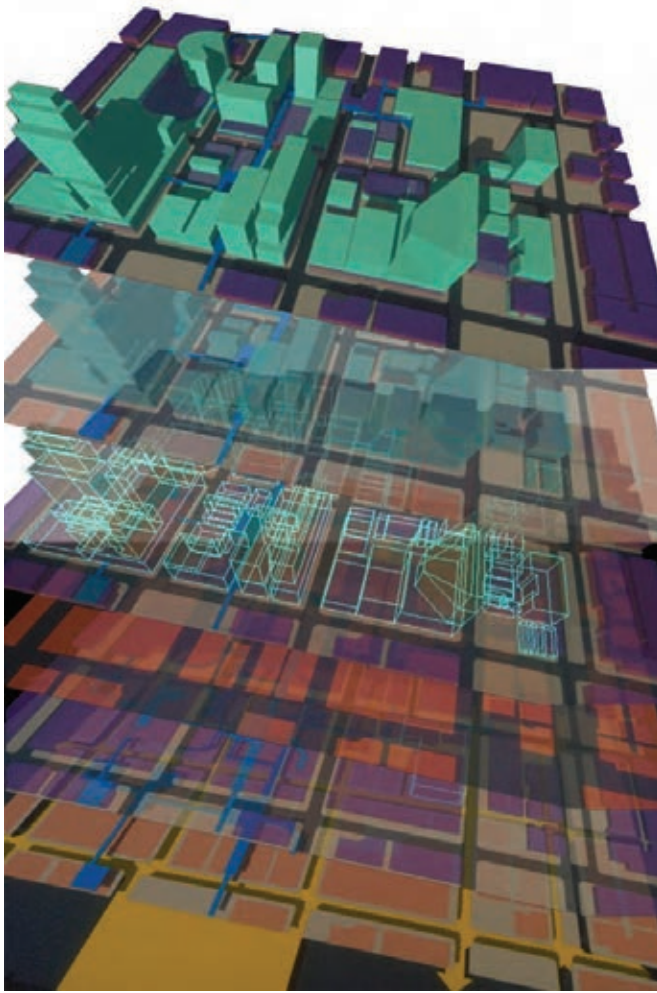
Figure 12: A series of analytical images leading down towards a design solution. In this case, a proposal for an air-rights park over a downtown expressway in front of Cincinnati.

What kind of urban future is possible? Completely computerized intelligent-cities, robotic cities, cities with moveable components, waste-free economies, equitable and open societies, beautiful, natural cities, and cities powered by unlimited clean energy.

All of these things might be possible if we collectively push hard enough. They just need to be designed, tested, and installed; this only requires that we embrace urban design wholesale, as an art and a science, distinct from but part of all the other disciplines.

What we need to do is make up enough of our minds, allocate the required resources, and do it.

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Cal Poly's Sustainability Program:
What is Its Effect on Students?

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Cal Poly has been promoting sustainability directly through campus planning and the design of its new facilities, and indirectly through curriculum changes and a series of events and on-going activities to raise consciousness. In this article, Daniel Levi and Rebecca Sokoloski ask themselves if Cal Poly has been successful and discuss their studies on the meaning, attitudes, sustainable behaviors, and social norms regarding sustainability among students.

Cal Poly has been working for nearly a decade to improve sustainability on campus, utilizing a variety of approaches. It is important to assess the effects of the University's sustainability program on the knowledge, attitudes, behavior and social norms of students.

Sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN Commission on Environment and Development, 1987). Sustainability creates the potential for long-term maintenance of human well-being, which has environmental, economic, and social dimensions. With environmental problems threatening our economic and social well-being, a change to sustainability has to be seen as desirable, as creating a better future. This change will not occur by threatening people with ecological doom, but by promoting positive attitudes toward sustainability (Porritt, 2005).

Since 2004, Cal Poly has been a signatory of the Talloires Declaration, which is a ten-point plan to promote sustainability and environmental literacy in teaching, theory, and practice at universities. The plan's components include increasing awareness of sustainable development, educating for environmentally responsible behavior, fostering environmental literacy, and practicing institutional ecology.

The University has developed a set of Sustainability Learning Objectives for students. Cal Poly students should be able to: "1. Define and apply sustainability principles within their academic programs; 2. Explain how natural, economic, and social systems interact to foster and prevent sustainability; 3. Analyze and explain local, national, and global sustainability using a multidisciplinary approach; and 4. Consider sustainability principles while developing personal and professional values." (Cal Poly, 2013).

Cal Poly has undertaken a variety of actions to promote sustainability on campus. The management of the campus's physical environment has undergone major changes to improve sustainability, with expanded recycling and water conservation programs, energy and resource use audits, solar panels, and LEED-certified new buildings. There are over 100 courses offered at Cal Poly that address sustainability issues, and 12 University minors focus on sustainability, including the Sustainable Environments Minor in the School of Architecture.

Students are not currently required to take a sustainability class (although this is under consideration by the University); however, sustainability awareness is encouraged in other ways. The Green Campus Program works with student clubs, such as the Empower Poly Coalition, to promote sustainability knowledge and practices among students. Sustainability education and awareness programs are part of freshmen orientation. Programs in the dorms promote awareness of sustainability issues on campus, such as water use, transportation, energy use, and recycling. Sustainable behaviors are encouraged through programs such as the Red Brick Energy Competition among the dorms.

Cal Poly's efforts to promote sustainability have received a number of awards. In 2012 alone, Cal Poly received Best Practice Awards for Water Efficiency, Innovative Sustainability Mentor Program, and Student Sustainability Program by the California Higher Education Sustainability Conference (Cal Poly, 2013).

Assessing Student Sustainability

Cal Poly has a goal of promoting sustainability. Part of this goal is to encourage the students to become more knowledgeable about sustainability issues and to act in a more sustainable manner. How does a university promote sustainability among its students? Should the focus be on increasing knowledge about sustainability or promoting sustainable behaviors, or

both? What are the appropriate measures to evaluate whether Cal Poly is successful? These are questions facing the University.

As a university, it is obviously important that Cal Poly focuses on teaching students about sustainability. Cal Poly's Sustainability Learning Objectives focus on the development of knowledge about sustainability and its application. Knowledge about sustainability is a necessary but not sufficient condition for encouraging sustainable behaviors. Research shows that there is a weak link connecting sustainability knowledge with attitudes and behaviors (Gifford, 2007). This is why university programs also need to focus on changing students' attitudes and behaviors toward sustainability, not just on imparting knowledge.

Environmental psychologists have examined the relationship between knowledge, attitudes, and behavior about sustainability (Gifford, 2007). In addition to awareness and knowledge, performing sustainable behaviors relates to attitudes about sustainability, behavioral control (or how difficult the behavior is to perform), and social norms (the attitudes and behaviors of important people in one's life) (Ajzen, 1991). For university students, social norms come from one's family, friends or peers, and professors.

Descriptive social norms guide ones behavior based off of what most people do (Cialdini, 1991). The more salient a norm is, the more it calls for the individual to make social comparisons between themselves and perceived norms. Although social norms do not directly and immediately change an individual's attitudes on sustainability, they can be used to influence the individual's behavior. In particular, an individual's friends and family's behavior can heavily influence the person's own behavior (Nickerson, 2002). Descriptive norms are particularly apparent on college campuses.

The University has undertaken a variety of actions to improve its ecological footprint and to promote sustainability among the students. It is important to assess how well the University is performing in order to provide feedback to improve. The changes in the University's physical operations are regularly monitored and assessed. The University has identified the need to develop a better assessment system for examining whether it is meeting its Sustainability Learning Objectives. Our research was conducted to help examine some approaches to doing this and to see how well Cal Poly is doing promoting sustainability among the students.

Methods

In order to assess Cal Poly students' knowledge, attitudes, and behaviors toward sustainability, Dr. Levi and his students have conducted several studies. These studies have been part of class projects in the Environmental Psychology class and Rebecca Sokoloski's senior project. The first study examined knowledge about sustainability with the open-ended question, "What does sustainability mean to you?" It also pretested an attitude rating scale about the impact of sustainability on self and

society. Over 140 students from General Education (GE) classes and the dorms participated in the study. In the second study, which was a senior project, over 100 students from GE classes completed a survey on sustainability attitudes, behaviors, and social norms. In both studies, the sample included students from a variety of majors and class levels.

Results

Knowledge about sustainability was examined from the responses to the question, "What does sustainability mean to you?" Two judges classified the responses into six issues related to sustainability. A response could relate to more than one topic. Although most students emphasized the conservation of energy and resources and concern about the future, only a minority of students recognized the economic and social implications of sustainability. (See Table 1 for the results)

Table 1: Meaning of Sustainability (Percent).

Energy conservation and resource use	63%
Concern about future generations	32%
Sustainable economics and social justice	21%
Protection of natural areas and wildlife	18%
Reducing pollution	15%
Managing human population growth	7%

The attitude survey asked the students to consider the impacts of our society's shift toward sustainability on their personal life, society and the world. Attitudes toward sustainability were measured on a five-point scale from very negative to very positive. Table 2 presents the percent of positive responses (a 4 or 5 rating). Overall, the students had positive attitudes toward sustainability. They were more positive about the effects of sustainability on society and the world than the personal impacts of sustainability.

Students also rated how often they engage in sustainable behaviors. The selection of behaviors was designed to be available to Cal Poly students, including those living on campus. Table 3 presents the results for the behaviors that students usually or always perform (which were 4 and 5 on a five-point scale that ranged from never to always). As can be seen from the table, the frequency of behaviors varied substantially among the topics. Students were good at doing laundry with full loads, using stairs, and recycling, but were less likely to take sustainability classes or participate in campus sustainability activities.

Students were asked about the sustainability attitudes and behaviors of groups that may provide social norms for evaluating their behaviors. Attitudes were measured on a five-

Table 2: Attitudes toward Sustainability (Percent positive).

What is the impact of sustainability on these aspects of your life?	
Life satisfaction	77%
Your career	67%
Your health & well-being	94%
Your friendships	41%
What is the impact of sustainability on our society and world?	
Next generation	91%
Quality of local communities	90%
U.S. economy	62%
Natural environments	90%
Overall view of sustainability	90%

Table 4: Social Norms

How do the following groups view sustainable practices?	Percent Positive	Attitude	Behavior Correlation
Friends	71%	.27*	.31**
Family	70%	.30**	.29**
Peers	72%	.25*	.16
Professors	75%	.15	.15
How often do the following groups engage in sustainable practices?	Percent Frequency	Attitude	Behavior Correlation
Friends	61%	.24*	.36**
Family	71%	.11	.13
Peers	52%	.24*	.27**
Professors	55%	.21*	.27**

* p<.05   ** p<.01

Table 3: Sustainable Behaviors (Percent Usually or Always).

Wash laundry only with full load	94%
Use stairs rather than elevators in library	89%
Recycle newspaper, glass or plastic bottles	78%
Consume beverages in reusable bottles	67%
Use both sides of paper when printing	63%
Conserve water by taking shorter showers	26%
Use reusable bags when shopping	24%
Take a class about sustainability	17%
Buy organic or local vegetables	16%
Participate in campus sustainability activities	8%

point scale from very negative to very positive. The results on Table 4 present the sum of positive and very positive attitudes (4 or 5 on the scale). The frequency of sustainable behaviors was measured on a five-point scale from never to always. The results on Table 4 present the sum of usually and always (4 or 5 on the scale). Table 4 also contains the correlations of these social norm ratings with the students' sustainability attitudes and behaviors.

The results show that the majority of the students' social groups had positive attitudes toward sustainability and over half of them frequently engaged in sustainable behaviors. The attitudes of friends and family were significantly related to both sustainability attitudes and behaviors. The behaviors of friends, peers, and professors were significantly related to both sustainability attitudes and behaviors. In general, friends

were the most important social norm group and sustainability behaviors were more strongly related to social norms than attitudes. It is interesting to note that it is the sustainability behaviors of professors, and not their attitudes, that had a significant impact on student attitudes and behaviors.

Background information about the students allowed for an analysis of the effects of being at Cal Poly on sustainability attitudes and behaviors. It should be noted that because this sample was collected in the spring quarter, all of the participants had been exposed to the Cal Poly educational experience. There were no significant differences related to major or gender.

Although upperclassmen had more sustainability knowledge, attitudes, and behaviors, only the difference in sustainability behaviors was significant and it was not very large.

Conclusions

This research presents an assessment of the sustainability knowledge, attitudes, and behaviors of Cal Poly students. Students recognized the environmental aspects of sustainability, but often did not acknowledge the economic and social aspects of sustainability. They had positive attitudes toward sustainability and believed our society's transition to a sustainable future will be good for society, but they were less certain of its benefits to their life and careers. The students performed many environmentally responsible activities, but few were taking classes on sustainability or engaging in campus sustainability activities. The norms of the people in the students' lives were positive, but positive attitudes were more prevalent than positive behaviors. The attitudes and behaviors of their friends had a significant impact on students' willingness to engage in sustainable behaviors.

There were few differences among students related to major or class level. This is a problem, because if Cal Poly's sustainability education were having a positive effect on students, then there should be a more substantial effect due to class level. (The lack of differences at class levels may be due to the fact that the only widespread sustainability education program on campus is aimed at freshmen in the dorms.) Cal Poly needs to do a better job showing students how sustainability will have a positive impact on their careers and on the economy. Students view their professors as having a positive attitude about sustainability, but demonstrating mixed enactment of sustainable behaviors. However, it is faculty behavior, and not attitudes, that had a significant impact on students' attitudes and behaviors.

The University environment provides an important setting for promoting sustainable behaviors. Psychological research on sustainability shows that one of the most important predictors of sustainable behaviors is other sustainable behavior (Gifford, 2007). Once people get in the habit of performing some sustainable behaviors, it is easier to persuade them to perform more sustainable behaviors. Moreover, their sustainable behaviors encourage others through the influence of social norms. The University has the opportunity to promote sustainable behaviors and expand the impact of those efforts through the effects of social norms.

University sustainability programs need to be assessed in order to demonstrate their effectiveness and provide feedback to improve the programs. Cal Poly has only begun to evaluate its sustainability educational experience and its effects on students' knowledge, attitudes and behaviors. The assessment system is still under development. Although measures of sustainability knowledge and the ability to think critically about sustainability issues are important, assessment approaches should not overlook the importance of sustainability attitudes and behaviors. We want our students to be knowledgeable about sustainability, but a successful University sustainability program must also result in students' willingness to act in a sustainable manner.

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Competitions in Architecture and Urban Design

Miguel Baudizzone
Architect; professor, University of Buenos Aires, Argentina.

As a partner in Baudizzone - Lestard y Arquitectos Associados, one of Latin America's top architecture firms, the author has been involved in all kinds of projects from buildings to urban parks to urban districts, including the important 180-acre redevelopment plan for Retiro, a historic station and railyards in central Buenos Aires. In this article Miguel discusses the importance of competitions in encouraging fresh views and outside-the-box thinking.

Acompetition is a wonderful opportunity for urban and architectural research. The winner of a competition is the one who has given much more than the "better solution" to a program. The first prize goes for the project that is successful in finding the ideas which, within the given difficulties of the competition brief, appear to be transforming challenges into opportunities for innovation. Of course, as well as being a chance to develop ideas, a competition is a way that a firm has to look for a new job. Without any doubt the most interesting contracts for our office have come to of our drawing boards and computers through competitions.

A competition may be considered to be a design investigation. Why? Because proposals are based in memory and discovery: memory as cultural values, including of course the history of architecture and design precedents but also the recovering of personal experiences. Valuing memory means neither to copy what came before nor to try to produce a monument to your own feelings. It means re-invigorating the wider scope of experience, making it part of the future. But this approach is not enough since you need to produce something more, finding it within the program and the competition brief.

Discovering these hidden and non-written parameters gives you the key to creating a new way of interpreting and using that program, building a new geography for a place, adding a new landmark to the city. Next, I will describe two interesting examples from my firm Baudizzone - Lestard y Arquitectos Associados experience.

Top: Miguel Baudizzone looking at the model one of his projects. Right: Model for the redevelopment of Retiro central train station and rail yards in Buenos Aires.

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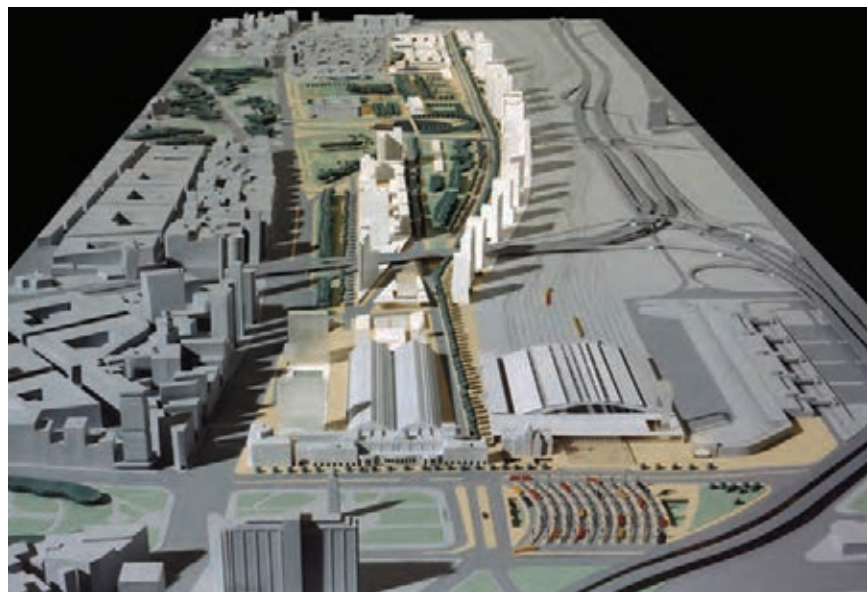
[1] For a view of the work by Baudizzone - Lestard y Arquitectos Associados go to <http://www.baudizzone-lestard.com/>

Buenos Aires University Park

On the bank of the Rio de la Plata, Buenos Aires University Park was designed in honor of the victims of State terrorism, and was awarded first prize at a national architectural competition (associated with architect Alberto Varas) in 1999. This 96-acre park is already built and was designed with two distinct areas. The first one is in an island that was preserved in its original natural state, with its bushes and trees growing from the silt. To maintain its natural character only some necessary protection against water erosion and a few elevated decks for occasional visitors have been added.

The park's major area was designed to honor the victims of the Argentinian military dictatorship[2] and the victims of the 1994 bombing of the Argentine Israelite Mutual Association headquarters in Buenos Aires where eighty five people died. A strong reminder of a terrible time in our social memory. The site was gained from the river by using precast piling and filling it in with the debris from the bombed building.

The design of the Memorial Park follows a semi-circular abstract plan that continues the Rio de la Plata´s waterfront. From a riverside avenue you enter the park through a plaza, a patchwork of grass and stone that in some ways resembles a cemetery. You then arrive at a ceremonial platform designed for speeches and public assemblies. At this point starts a series of walls made of stones engraved with the names of each of the 30,000 people who disappeared during the dictatorship and their age when they were kidnapped. As a bloody scar, the walls zigzag along a processional path across a large bare lawn on a very gentle slope towards the La Plata River.

Selected through a specific competition, several sculptures are scattered in the park. At the end of the path, an impressive human figure sculpture is set in the river and sometimes gets covered by the water, a reminder of the victims who were thrown alive from flying planes by the military.[3] This dynamic image seasonally bathed by the fresh water provides hope and respect to relatives of the victims and visitors. At this point you look at the endless river, and you meet the waterfront pathway that follows the area circular shape and provides exciting perspectives of the city, under the buzzing movement of the nearby airport.

Illustrative site plan of the University Park with the part on the left taking the original island (top), and the semi-circular area on the right dedicated to the Memorial Park.

[2] Argentina was ruled by a ruthless military dictatorship from 1966 to 1973 and 1976 to 1983, perhaps the most repressive in South America and responsible for the disappearance of more than 30,000 people from 1976 to 1983 alone.

[3] A method used by the military dictatorship to make their opponents and political prisoners "disappear".

Photos showing the zig-zagging wall with its inscriptions, the long vistas, and the monument building in the Memorial Park.

Centre of Technology and Science in Beijing, China

Our latest win came in the 2012 competition for the Centre of Technology and Science in Beijing, a project in association with KLM Architects and BIAD. Our project includes expanding an existing lake and placing the centre inside a perfectly circular artificial island, elevated from the water level and connected by a series of pedestrian bridges to the surrounding park. The top of the island is a large plaza from where several translucent structures emerge letting light into the underground functions and large lobbies. Visitors wander through this artificial landscape of gardens and light towards an iconic taller building where the main entrance to the underground functions is located. Around the perimeter of this elevated circular island a curtain of water cascades into the lake and composes its main "façade". The sunken building saves energy for a program that needs no windows; covering part of the roof-plaza with gardens and water is also protects against the hard winters and even harder summers.

We like to think the Centre of Technology and Science as a new link of a chain of projects starting in 1972 with our proposal for the Buenos Aires Auditorium, the first competition that we won. This project offered the opportunity to explore the idea of a public space crossing through a private one without trespassing on the exclusive areas. The Chinese public plaza allowed us to revive exactly the same idea but in a completely different location and program. Twenty years later we won another competition using the idea of the circular plan for the Auditorium of the Argentinian city of Mendoza. In this case the geometry was a way of making the building independent from its surroundings. In the Beijing project, on the other hand, the circle is a reference to abstraction (science and technology) in the middle of nature, but also to a shape frequently present in Chinese traditional architecture. Once again, memory and discovery, nature and abstraction, existing and new landscapes; a program envisioned as a building was made invisible by its transformation into an island.

The model for the Buenos Aires Museum, an inspiration for the competition in China.
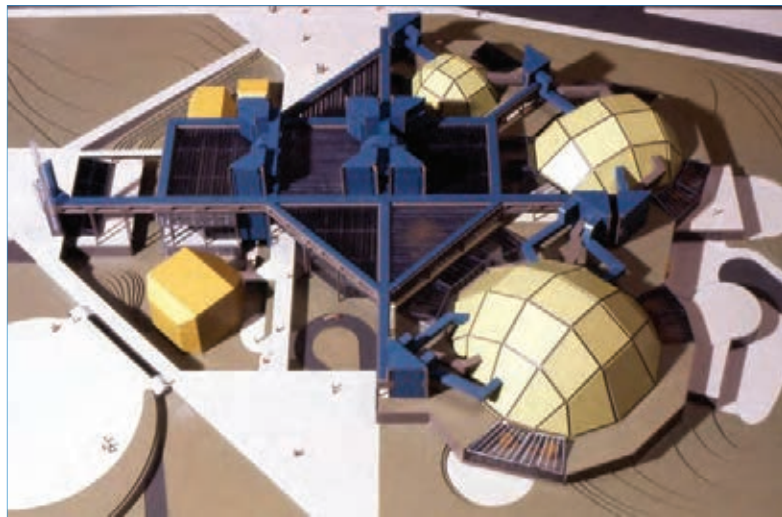
Our firm has won a dozen first prizes, but we have submitted proposals for more than a hundred competitions with varying degrees of success. But in every instance we have tried to find something new, to make architectural and urban design ideas clearer for us, to think about each context, the meaning of design and the possibilities of each material.

The secret is to discover the special conditions of each challenge, even if it is accused of eclecticism by the design intelligentzia. Of course, to participate and be successful in public competitions you will always need a lot of effort, a huge dose of inspiration, and a good team of consultants. And last but not least, you also need a little luck…

Images of the winning entry for the Center of Technology and Science in Beijing, China. The artificial island is connected to the surrounding park by bridges and the building's facade is composed of a waterfall. Skylights illuminated from inside compose the landscaoe design in an engaging atmosphere.

Regional Governance in the San Francisco Bay Area:
The History of the Association of Bay Area Governments

Hing Wong
Senior regional planner;
Association of Bay Area Governments.

The Association of Bay Area Governments (ABAG) is the comprehensive regional planning agency and Council of Governments for nine counties and 101 cities and towns in the San Francisco Bay region. ABAG helps members in governance and decision-making about issues such as land use, sustainability, energy efficiency, hazard mitigation, water resource protection, and hazardous waste management. Hing Wong, a planner with ABAG, writes about its history and its important role in regional planning.

In 1961, the first council of governments was formed in California as elected officials from throughout the region came together to create the Association of Bay Area Governments (ABAG). It is the official comprehensive planning agency for the San Francisco Bay Area.[1] Since the beginning, ABAG has studied regional issues: housing, transportation, economic development, education, and the environment. Its mission is to strengthen cooperation and coordination among local governments. In doing so, ABAG addresses social, environmental, and economic issues that transcend local borders.

The Bay Area is defined as the nine counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. The 101 cities and all nine counties within the Bay Area are voluntary members of ABAG. Building coalitions, task forces, and partnerships within the region and beyond have typified ABAG's problem-solving approach to issues affecting the Bay Area. ABAG's approach also includes research and analysis, education and outreach, and cost-effective member service programs.

An elected official from each member city and county serves as a delegate to ABAG's General Assembly. The General Assembly determines policy biannually, adopts the annual budget and work program, and reviews policy actions of ABAG's Executive Board. Each delegate has one vote, and a majority of city and county votes are required for action. There is also a 38-member Executive Board, assembling locally elected officials based on regional population, which meets bimonthly to make operating decisions, appoint committee members, authorize expenditures, and recommend policy. As an advisory organization, ABAG has limited statutory authority.

Beginnings

Ferry service in the San Francisco Bay Area was plentiful in the 1920s and 1930s. But the opening of both the San Francisco-Oakland Bay Bridge in November 1936 and the Golden Gate Bridge six months later in May 1937 provided the region with greater accessibility and movement. This all played a part in creating favorable conditions for an association of local governments to take its first steps.

Following World War II, the area found itself growing at a record pace. Maritime workers—many from the U.S. South—wanted to stay in the area after the war. GIs and other service men and women who had shipped out from Oakland to fight against Japan also wanted to relocate in the area after the war. For those involved in the war, many got married, moved to the Bay Area, and started families.

At the end of the war, elected officials were concerned about the region's ability to adapt and change from a defense-related to a peacetime economy. Thus, the Bay Area Council was formed in 1945 as a business-sponsored, public policy advocacy organization. One major concern was that the increased smog from traffic might discourage businesses from locating in the region. The council started to become interested in transportation and land-use issues, as the link between them became apparent. This started the formation of other agencies: in 1949, the Regional Water Quality Control Board; in 1955, the Bay Area Air Pollution Control District (now known as the Bay Area Air Quality Management District); and in 1957, the Bay Area Rapid Transit District (BART).

In 1946, the Bay Area Council made a move that had unintended consequences. It resurrected a proposal for a regional agency to acquire, manage, and operate the Bay Area's major airports, seaports, and bridges. Meanwhile, in the California Senate, an

interim committee on Bay Area problems formed and, in the following year, endorsed the Bay Area Council's proposal. The council launched a public relations campaign to build support for the Golden Gate Authority and sponsored a bill in the Legislature, but this proved unsuccessful.

The action alarmed Bay Area local governments. Berkeley City Manager John Phillips researched the subject in 1958 and Berkeley Mayor Claude Hutchison urged the Alameda County Mayors' Conference to convene a meeting of Bay Area mayors. Pacifica Mayor Jean Fassler assisted in a follow-up meeting, and before long there was a movement of city opposition to any metropolitan authority not controlled by local governments.

Wes McClure.

In 1960, with the advice of Berkeley Councilmember (and UC Berkeley Planning Professor) Jack Kent and assistance from Phillips and San Leandro City Manager Wes McClure, as well as the League of California Cities, an alternative proposal was drafted. The initial proposal recommended a voluntary metropolitan council of cities (counties were soon added). By summer, the proposed bylaws were drafted by the League's Executive Director and General Counsel Richard Carpenter and Bill MacDougall, the general manager of the County Supervisors Association of California (now known as the California State Association of Counties).

The term "metropolitan council" had been used provisionally as it was used in other parts of the country, but the counties disliked it because it felt too "big-citified". Early one morning, Mayor Hutchison came up with an alternative, the Association of Bay Area Governments.

The Early Years

To activate the association, the proposal required membership of a majority of both cities and counties. These jurisdictions would all execute the joint powers agreement drawn up under the provisions of Title 1, Division 7, Chapter 5 of the California Government Code. By January 12, 1961, the majority of cities and counties agreed to join the association. The first meeting of ABAG's General Assembly was held in February, and the members elected Mayor Hutchison to be the first president. ABAG became the first council of governments in California, following the efforts of Detroit, Michigan (1954), Salem, Oregon (1957) and Washington, DC (1957).

The Association's first office was situated in the Claremont Hotel, a building that was legally in Oakland but used a Berkeley postal address. The hotel already housed the Institute for Local Self-Government and the League of California Cities office. By May 1, Wilber E. Smith, former San Rafael city manager, left his

position as assistant director of the National League of Cities to become ABAG's first executive director.

During the first decade, ABAG did an impressive job of producing an open space plan, an ocean coastline plan, and an airport systems plan. However, three things occurred that attracted public attention and significantly diminished ABAG's regional oversight for years.

The San Francisco Bay Conservation and Development Commission (BCDC) was created in 1965 on an interim basis, but was made permanent four years later. Local jurisdictions had argued that responsibility for protecting the bay should reside within those communities adjacent to the waters, while ABAG felt that it could execute that role in a responsible manner. The prevailing opinion in the Legislature was that it was local government that had allowed the deterioration of the once-pristine shoreline. Thus, the state Legislature formed BCDC as another single-purpose district, yet giving ABAG the ability to at least appoint city representatives onto the commission.

The second incident happened in 1968 when Tom Truax, assistant to Executive Director Warren Schmid, had systematically embezzled approximately half a million dollars. Although ABAG was far from a wealthy organization, large sums of money did funnel through since it was acting as a legal conduit for BART to obtain federal planning funds. The dramatic and tragic embezzlement landed Truax a four-year prison term, ruined the executive director's career, and diminished ABAG's regional clout.

After the Truax incident, ABAG had to concentrate on staying solvent and retaining its membership. A great deal of dedicated work by several leaders—including San Francisco

A historic photo, the ABAG group in 1964.

An example of a report from ABAG's first decade.

Chief Administration Officer Thomas Mellon, Alameda County Supervisor (and Attorney) Joseph Bort, and Legal Counsel (and former Berkeley Councilmember) Arthur Harris—resulted in the recovery of almost all of the embezzled money.

The third event was the Legislature's 1970 creation of yet another single purpose agency, the Metropolitan Transportation Commission (MTC). By 1972, MTC was federally designated as the Bay Area's regional transportation planning agency. It received subsequent designation by the U.S. Department of Transportation to receive substantial annual funds. This narrowed ABAG's role to primarily land use, with less involvement with transportation issues.

State Senator John Foran of San Francisco, author of the MTC legislation, would have preferred to see a truly comprehensive agency. His bill included a provision for MTC to include all types of planning should the agencies merge. It was in this spirit that Supervisor Bort as MTC's first chair decided to rely on ABAG for the Bay Area's general land-use planning which federal authorities required as the basis for regional transportation planning.

Even through some of the turmoil, in 1970, ABAG published the Regional Plan, 1970-1990. As the Bay Area's first comprehensive regional plan, it outlined the first regional open space plan, provided support for regional information systems and technology, provided support for criminal justice and training, formed water policy and waste collection procedures, and included planning for earthquake hazards.

Comprehensive Planning

The notion of a more inclusive form of regional governance has been around for many years. Groups that have championed regional planning include the Commonwealth Club, the Bay Area Council, the League of Women Voters, and the Sierra Club. Elected official have also embraced this type of regionalism, including two former members of the State Assembly: Republican William Bagley of Marin County and Democrat John "Jack" Knox of Richmond.

Knox is the legislator most closely associated with attempts to produce a strong and essential regional planning agency. Knox's bills on regional issues always succeeded in the Assembly, but had a tough time in the Senate. The two main reasons were the fear of Southern California conservatives that Los Angeles might dominate its suburban neighbors, and the unwillingness of Bay Area groups to compromise on the composition of a regional governing board (selected by local government appointees, directly elected regional representatives, or a combination of both).

On the one hand, Knox was known as a compromiser, as was evident in his previous work concerning ABAG and the Bay Area Council. On the other hand, the Sierra Club and the statewide Planning and Conservation League would not budge from their complete distrust of local government appointees. While the idea of a strong regional government enjoyed consistent support, it always fell a few votes short of passage due to disagreement over its governance structure. This push was over by 1976 and lay dormant for thirteen years.

The Bay Vision 2020 Commission was created in 1989. This commission was chaired by former U.C. Berkeley chancellor Michael Heyman. The Bay Vision 2020 report and subsequent legislation (two years later) also failed to gain enough support in the State Senate. Many believe that had the Bay Area created a truly comprehensive regional planning agency in the 1960s and 1970s, there would have been fewer urban sprawl problems in the 1980s and 1990s.

Regional Planning

In 1967, ABAG received a key designation to review local and regional applications for a vast array of federal grants and loans through the Demonstration Cities and Metropolitan Development Act of 1966. Projects included airports, health facilities, highways, housing, libraries, open space, water treatment, etc. Although not a right to veto, these A-95 reviews (named after the Office of Management and Budget circular establishing the procedures) were intended to be influential in giving federal funding agencies a better idea of regional priorities and making neighboring jurisdictions aware of potential impacts from local projects.

In 1974, ABAG established an early warning review panel system because of concerns about potential adverse effects on the Regional Plan from major development projects. Such matters would be discussed before the Regional Planning Committee (RPC) whose chair would appoint a three-person hearing panel to advise whether a full-scale review should be undertaken. Any RPC review would result in a final decision by the Executive Board.

It was unfortunate that within a few years, the A-95 system lay dormant as a victim of both Proposition 13 and massive cutbacks of federal funds. Although the system continued

after 1980, it was relegated by the federal government to a less significant role. This was diminished further by a severe reduction in the number of grant programs.

Environmental Planning

The Water Pollution Control Act Amendments of 1972 included an innovative approach to the problem of nonpoint source pollution (from urban runoff, agricultural waste, etc.). Congressional intent indicated a preference for regional planning agencies to take responsibility for finding solutions. The federal Environmental Protection Agency (EPA) coordinated with state water quality agencies in designating appropriate regional agencies.

In 1975, ABAG replaced the Bay Area Sewage Services Agency, which did not have a strong track record, as the regionally designated agency for studying and monitoring the region's water quality, water supply, and solid waste. Not too long afterward, EPA awarded ABAG a $4.3 million grant to carry out the work, which the agency merged with the air quality monitoring work it was already carrying out for the Clean Air Act.

Similar to many metropolitan areas in the United States, the Bay Area was a very long way from attaining the air quality standards mandated by federal and state law. It became clear that the most difficult part of the plan would be the air quality element. When the first draft emerged in 1977, the news media paid little attention to the work of the Task Force and focused only on controversial words. For example, the use of emission control devices on power lawnmowers brought headlines such as "ABAG Threatens Lawnmower Ban." This atmosphere encouraged the building industry to attack compact growth recommendations, such as higher density around BART stations, infill development, and reduced development on steep slopes.

As part of its work with the EPA, ABAG prepared the Bay Area's Environmental Management Plan, which not only met federal requirements but received national recognition and was hailed by the EPA regional administrator as "the most sophisticated plan [of its kind] in the country."

Difficult Times

During the late 1970s and early 1980s, California local governments and ABAG, in particular, faced a time of financial constraint. Proposition 13 was approved by voters in 1978 and had immediate financial effects for ABAG, while other large councils of governments in California were less affected, as they received relatively large federal funds for transportation planning. MTC's support of ABAG's regional planning work through federal Department of Transportation and state gas tax funds was appreciated and needed, but these funds were much less than if ABAG had been directly funded.

When Proposition 13 passed, ABAG had to respond quickly.

The ABAG annual dues for many jurisdictions were small enough not to be a serious item in their budget revisions. However, for more populous cities and for counties, the dues might equal (or be more than) the salary of a nurse, firefighter, or police officer. A 70 percent dues reduction was agreed to by the ABAG Finance Committee and Executive Board, following a staff recommendation, to keep its members. Except for an occasional temporary withdrawal, no jurisdiction dropped out. With the effects of Proposition 13, the completion of the Environmental Management Plan grant, and the winding down of the large annual planning grants from the Department of Housing and Urban Development, funding was scarce. One-third of ABAG's staff was laid off and those who remained took a voluntary cut in their salaries. Even with the reduction of the work force, sometimes meeting the reduced payroll turned out to be daunting. On several occasions, MTC made up the difference by advancing the funds for work ABAG was performing under the two agencies' contract.

On April 23, 1984, ABAG relocated to its new Oakland headquarters from the Claremont Hotel. The MetroCenter was jointly built and owned by MTC, BART, and ABAG. In 1987, the MetroCenter was renamed the "Joseph P. Bort MetroCenter" in honor of longtime Bay Area politician and regionalist Joseph Bort, who was a founding board member of ABAG and MTC.

Expanding Roles

ABAG readjusted its role from mainly a regional planning organization to more of a service agency for local jurisdictions, which helped restore a measure of financial security to the agency. Since the early 1970s, it has engaged in a number of service-oriented projects including seismic safety research and planning, pooling local credit risk to save local agencies money, launching a series of innovative service programs to finance economic development, and aiding regional energy conservation efforts.

The MetroCenter ground breaking, 1987.

In 1983, ABAG launched credit pooling, its first financial services program. The idea first started in Sonoma County, where a group of cities joined together to borrow money collectively to save on issuance costs. ABAG, seizing on this idea, was able to provide this service with less hassle as it was already a joint powers authority. With more than 100 jurisdictions in the Bay Area as members, ABAG was in many ways the ideal partner for cities and counties as they contemplated capital funding. The agency's initial $4 million issuance enabled four cities to purchase vehicles, buildings, and communication systems.

The success of the credit pooling is evident as today's borrowers include not only cities and counties, but special districts, hospitals, universities, schools, nonprofit housing and housing partnerships, health care organizations, and private businesses. More than $1 billion has been provided in tax-exempt financing, including loans for the construction of the University of California's system-wide headquarters in Downtown Oakland.

In 1986, to respond to the local need for insurance, ABAG established the Pooled Liability Assurance Network (PLAN). For over a quarter-century, ABAG PLAN has provided comprehensive, general and automobile liability coverage for bodily injury, property damage, personal injury, and political risk. The program manages both risk and claims, and specializes in training. Since its inception, ABAG PLAN has returned more than $20 million to its members in annual rebates, while increasing both coverage and the pool's financial stability.

Since the 1970s, ABAG has offered training on various environmental programs, including hazardous materials and waste treatment, to employees of member governments. In exchange, employees receive OSHA certification as well as continuing education credits. ABAG's expanding environmental and education work resulted in the creation of its HAZMACON conference series (Hazardous Material Management conference and trade show). The first HAZMACON in 1984 drew 1,500 attendees. and by 1990 the conference was attracting more than 7,000 attendees.

In the 1990s, ABAG became the first council of governments to post documents on the "World Wide Web" and the second public agency in California to be "online." abagOnline began providing public agencies with web hosting and Internet access and assistance. ABAG's specialized training center moved from the "in person" classroom to the successful Internet-based HazMat School.[2]
Green projects and energy programs have also become a part of ABAG. In 1995, the foundation for ABAG POWER (ABAG Publicly OWned Energy Resources) was laid. This led to a natural gas purchasing pool the following year and an electricity purchasing pool in 1997. Even before California's post-deregulation crisis,

power supply is an area characterized by frequent changes in federal and state laws and regulations. ABAG POWER is a separate joint powers agency formed to take advantage of the new energy regulatory environment. ABAG POWER's primary goal is to conduct pooled purchasing of natural gas and electricity on behalf of local governments and special districts that voluntarily join the pool. Pooled purchasing enables local governments to achieve more competitive pricing from suppliers who are interested in larger and more attractive combined loads. At this time, ABAG POWER is principally interested in aggregating local government loads only.

In 1996, the Bay Area Green Business Program was launched as a voluntary program that certifies small to midsize businesses in best environmental practices. The program is a partnership of local environmental agencies and utilities which assists businesses, offers them incentives to participate, and verifies that participating businesses are in fact conserving energy and water, minimizing waste, preventing pollution, and shrinking their carbon footprints. The Bay Area Green Business Program is a founding member of the California Green Business Program, which rewards small businesses for protecting, preserving, and sustaining the environment.

Following the 1989 Loma Prieta Earthquake, ABAG's work on earthquake preparedness and hazard mitigation took on a bigger role. While the Bay Area earthquake research program has traditionally been focused on earthquake liability issues of local governments and businesses, it has since evolved to encompass earthquake preparation and mitigation efforts. The program has published several reports, maps, and videos, and conducted analysis on the economic and social impacts of a powerful earthquake in the Bay Area.

Regional Planning for the Present and the Future

The successful service programs have kept ABAG afloat as a voluntary member organization. Nevertheless, the planning programs are still at the core of ABAG's work, despite a reduction in planning staff over the decades and decreased federal funding.

ABAG has been producing the biannual Projections series that forecast population, households, and employment over a 25-year period. These long-term forecasts are used by public agencies and private groups alike, including MTC, for their planning work. The Projections forecasts present a realistic assessment of growth in the region, while recognizing market and demographic trends, and analyzing the effects of local policies that promote more compact infill and transit-oriented development.

Another important program is the Regional Housing Need Allocation (RHNA). This state- mandated process determines how many housing units, including affordable units, each community must plan to accommodate. The California Department of Housing and Community Development

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[2] Available at <http://www.abag.ca.gov/training/abouthazmatschool.html>

determines the total housing need for a region, and it is ABAG's responsibility to distribute this need among local governments. Working with local governments, ABAG developed an allocation methodology for assigning units by income category to each city and county in the Bay Area. This allocation of need shows local governments the total number of housing units, by affordability, for which they must plan in their housing elements.

Additionally, ABAG has been planning to improve the Bay Area's quality of life. Senate Bill 100, authored by then State Senator (now California Treasurer) Bill Lockyer of Alameda County and passed into law in 1987, directed ABAG to develop a plan for a recreational "ring around the Bay" that would circle the perimeter of San Francisco and San Pablo bays. The Bay Trail Plan, adopted by ABAG in July 1989, includes a continuous 500-mile network of bicycling and hiking trails; a set of policies to guide the future selection, design, and implementation of routes; and strategies for the trail's implementation and financing. Since its inception, the Bay Trail Plan has enjoyed widespread support in the Bay Area. A majority of the jurisdictions along the Bay Trail alignment have passed resolutions in support of the Bay Trail and have incorporated it into their general plans.

In the early 1990s, the political climate did not favor a top-down regional planning approach. In July 1990, the Executive Board adopted a policy framework for the purpose of guiding future land-use decision-making in the Bay Area. It respected the need for strong local control while recognizing the importance of regional comprehensive planning for items of regional significance. It was possible with the patient cooperation of many local elected officials and staff to piece together agreements for more sensitive development of various sub-regions within the Bay Area. Sub-regional planning projects were formed for the five Tri-Valley cities along with the counties of Alameda and Contra Costa; the cities and county of Sonoma; Oakland and San Leandro; the San Mateo County coastside communities; Napa County and its southern cities; and the cities and county of Solano.

In the late 1990s, the gradual convergence of the Bay Area and the Central Valley (San Joaquin Valley) was being played out on the freeways connecting the two regions, which produced many long-distance commuters into the job-rich Bay Area. The Inter-Regional Partnership was comprised of three councils of governments, five counties, and ten cities. The goal was to achieve a more equitable jobs/housing balance, improve transportation and air quality, establish more sustainable methods of moving people between their homes and jobs, and pursue inter-regional economic development opportunities.

ABAG's logo symbolizes collaboration between parts.

In 1999, ABAG joined the Bay Area Air Quality Management District, BCDC, MTC, and the Regional Water Quality Control Board to discuss how to nurture "smart growth" across the Bay Area's nine counties and 101 cities. As part of their work, this group sought to identify and obtain the regulatory changes and incentives that would be needed to implement a new growth vision in the Bay Area. Meanwhile, the Bay Area Alliance for Sustainable Development (also known as the Bay Area Alliance for Sustainable Communities) embarked on an ambitious public participation exercise to reach consensus on, and generate support for, a "regional livability footprint" – a preferred land-use pattern to suggest how the Bay Area could grow in a smarter and more sustainable way.

Although the two efforts represent diverse interests, they share a common, urgent goal: to address the region's mounting traffic congestion, housing affordability crisis, and shrinking open space. In 2000, they merged their respective efforts in the Bay Area Smart Growth Strategy/Regional Livability Footprint Project. The joint project sought to engage locally elected officials and their staffs, private developers, stakeholder group representatives, and the public at large throughout the nine-county Bay Area to create a smart growth land-use vision for the Bay Area. The plan envisions minimizing sprawl, providing adequate and affordable housing, improving mobility, protecting environmental quality, and preserving open space. Additionally, the project aims to identify and obtain the regulatory changes and incentives needed to implement this vision, and to develop 20-year land-use and transportation projections that factor in the likely impact of the new incentives. These projections, in turn, guide the infrastructure investments of MTC and other regional partners. The Bay Area Alliance for Sustainable Communities concluded its work in 2008.

In 2006, a forum was held to gather feedback from regional stakeholders on issues of regionwide concern. This forum resulted in FOCUS – a regional development and conservation strategy that promotes a more compact land-use pattern for the Bay Area. It united the efforts of four regional agencies (ABAG, BAAQMD, BCDC, and MTC) into a single program that links land use and transportation by encouraging the development of complete, livable communities in areas served by transit, and promotes conservation of the region's most significant resource lands. The program worked in partnership with congestion management agencies, transit providers, and local governments throughout the Bay Area. It is partially funded by a Blueprint Grant from the State of California Business, Transportation, and Housing Agency.
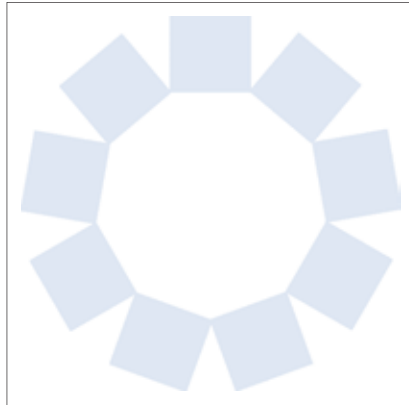
Through FOCUS, regional agencies support local governments' commitment to these goals by working to direct existing and future incentives to Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs). PDAs are locally identified, infill development opportunity areas near transit. PCAs are regionally significant open spaces for which there exists a broad consensus for long-term protection. These areas have been identified based on criteria that are consistent with the Bay Area's regional goals.

The FOCUS program is about working together: regional agencies, local governments and communities collaborating to protect and improve the quality of life in the Bay Area. Local governments in the Bay Area are essential partners, since they are responsible for making decisions about land use and future development in their communities. FOCUS has sought willing local government partners who share the goals of encouraging more compact development that offers a range of housing and transportation choices. The FOCUS program is also working to build partnerships with local and regional stakeholder groups that represent affordable housing, economic development, transportation/mobility, the environment, and social equity.

In 2008, regional planning underwent another set of significant changes when California enacted Senate Bill 375. The bill requires all regions in California to complete a Sustainable Communities Strategy (SCS) as part of a Regional Transportation Plan (RTP) and builds on much of the Bay Area's previous smart growth and sustainability work with FOCUS. SB 375 requires California's eighteen metro areas to integrate transportation, land use, and housing as part of an SCS to reduce greenhouse gas emissions from cars and light-duty trucks. In the Bay Area, this requires the MTC and ABAG to adopt an SCS that meets greenhouse gas reduction targets adopted by the California Air Resources Board.

These efforts have resulted in the Plan Bay Area, a state-mandated, integrated long-range transportation, land-use, and housing plan that will support a growing economy, provide more housing and transportation choices and reduce transportation-related pollution in the nine-county San Francisco Bay Area. The Plan Bay Area was adopted on July 18, 2013.[3] It builds on earlier efforts to develop an efficient transportation network and grow in a financially and environmentally responsible way. It is a work in progress that will be updated every four years to reflect new priorities. By planning now, the Bay Area will continue to be a great place to live, work, and play for generations to come.

Plan Bay Area, adopted July 18, 2013.

[3] The Bay Area Plan is available at

Building for Life:
A Recent British Attempt to Raise the Quality of Housing

Ivor Samuels

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In Britain, there has been a recent effort by the government in partnership with the building industry to set national standards for good quality housing, not unlike the LEED system in the US. Noting how housing is always a political issue and the undeniable need to encourage its quality, Ivor Samuels discusses this attempt, its influence in subsidized housing, and some it is shortfalls.

An attempt to systemise the delivery of better quality housing has recently been occurring in England. As well as shelter being one of the most fundamental of human needs, in land use terms housing occupies the greatest part of our towns—so it has an enormous impact on the quality of the urban environment . Housing is always a major political issue, as will be briefly touched on below, and it is fundamental to our economies as The Guardian newspaper of 26 November 2008 observed:

> "This financial crisis began with housing, and any hope of its ending must lie with housing."

Yet it is arguable that the design of housing is one of the most neglected fields of professional endeavor for architects. Those "starchitects" who dominate the pages of the architectural journals, the Hadids and Fosters, very rarely venture into the field of housing. If they do, it is to execute exceptional schemes like Richard Rogers' recent Hyde Park flats in London, where one apartment is reported to have been sold to a Russian oligarch for 223 million dollars[1]. The same situation no doubt pertains in the US.

While these architects are, for the main part, modernists, their neglect of housing represents a betrayal of the Modern Movement, which was born out of aspiration to provide good housing for the masses of the industrial revolution—first of all through Garden Cities and then the post war New Towns and housing estates. This neglect, and some notable failures of modernist housing schemes (Britain has its own Pruit Igoes) have left the field free for the New Urbanists and the practitioners of the neo-vernacular style. Poundbury is the prime British example of this style, but it has also been enthusiastically taken up in a degraded form by the volume house-builders—with depressing results (Figures 1 & 2).

This neglect of housing starts in our architectural schools. In the last school where this author taught, one of the largest in the UK, it was possible to go through a five-year studio-based training without ever designing housing, as opposed to single special houses—the legendary house for a musician on a cliff-top may be an exaggeration, but is not far off the sort of projects offered. As this paper was being written, the following appeared from Maritz Van den Berg, former technical editor of the Architectural Press in the Building Design, the most widely read architects' weekly:

> "…current teaching lavishes attention on standalone icons, experimental designs or whimsical fantasies. On planet earth meanwhile volume house builders will soon be designing the 5,000,000 or more new dwellings projected to be built in England over the next decade. They will be doing this with little helpful input from young architects, whose training never gave any sustained attention to affordable mass housing of a kind that will appeal to buyers. And if these streets and neighbourhoods turn out to be mediocre or worse, the blame will be placed on everyone except the true culprits—the heads of our schools of architecture" (Vandenberg, 2013: 7.)

Figure 1: The fashion for neovernacular style can be an excuse for poor quality housing – it is cheaper to provide small windows.

[1] See <http://www.onehydepark.com/media-centre>; access on 06/12/2013. the ABAG wesite at < http://www.abag.ca.gov/>

Figure 2: Another neovernacular housing scheme with depressing results and low urban design quality.

The role of planning through the relevant, according to the context, system of plans, codes, and the granting of permits is therefore of fundamental importance for achieving quality in new housing developments. However, the urban design capacity of planners varies, and with cutbacks in planning departments under the austerity regime in the UK at present it is precisely this design capacity of planning departments which is being reduced. Priority and therefore resources are being given to the statutory development control functions, which are often performed by planning officers who have limited urban design skills but who are proficient in the legal aspects of the planning system.

The Commission for Built Environment (CABE) and Building for Life (BfL)

From 1999 to 2011 CABE was the British government's advisor on architecture, urban design and public space. It undertook studies and published an impressive range of advice on topics such as design review, urban design coding, design rationales and strategic urban design and it seconded advisors to local authorities for specific projects under a programme which was called enabling. That activity is now history since CABE was emasculated by the new government in 2011 and in a greatly reduced size became part of the Design Council where it would no longer receive government subsidy but become self funded through design review activity.[2]

In 2001 CABE launched Building for Life in partnership with the building industry through the House Builders Federation and the Civic Trust (CABE 2001) It was promoted as providing the national standard for well designed homes and neighbourhoods. In its own words:

[2] CABE's publications are still relevant and can be found in the national archives at: http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/timeline

"Good quality housing design can improve social wellbeing and quality of life by reducing crime, improving public health, easing transport problems and increasing property values. Building for Life promotes design excellence and celebrates best practice in the house building industry." (CABE, 2001: 6)

It celebrated best practice in housing by making annual awards and from 2009, for a short period until the government changed in 2010, all local authorities were required to assess schemes over 10 units according to Building for Life criteria and include the results in their annual monitoring reports.

For the evaluations, which were undertaken by CABE's own assessors or those trained by CABE through a programme of workshops, twenty criteria were proposed. These were based on widely accepted urban design principles such as those set out in government publications such as *By Design: Urban Design in the Planning System Towards Better Practice* (DETR 2000).

Projects, whether implemented or in the design stage, were interrogated and scored according to the following twenty questions which were grouped under four headings. Each question could be awarded 1 point although later this was modified to enable the award of 0.5 points to schemes which partially satisfied one of the criteria. Thus the maximum award could be 20/20. The questions were:

Environment and community

   1. Does the development provide (or is it close to) community facilities, such as a school, parks, play areas, shops, pubs or cafes?

   2. Is there an accommodation mix that reflects the needs and aspirations of the local community?

   3. Is there a tenure mix that reflects the needs of the local community?

   4. Does the development have easy access to public transport?

   5. Does the development have any features that reduce its environmental impact?

Character

   6. Is the design specific to the scheme?

   7. Does the scheme exploit existing buildings, landscape or topography?

   8. Does the scheme feel like a place with distinctive character?

   9. Do the buildings and layout make it easy to find your way around?

   10. Are streets defined by a well-structured building layout?

Streets, parking and pedestrianisation

   11. Does the building layout take priority over the streets and car parking, so that the highways do not dominate?

12. Is the car parking well integrated and situated so it supports the street scene?

13. Are the streets pedestrian, cycle and vehicle friendly?

14. Does the scheme integrate with existing streets, paths and surrounding development?

15. Are public spaces and pedestrian routes overlooked and do they feel safe?

<u>Design and construction</u>

16. Is public space well designed and does it have suitable management arrangements in place?

17. Do the buildings exhibit architectural quality?

18. Do internal spaces and layout allow for adaptation, conversion or extension?

19. Has the scheme made use of advances in construction or technology that enhance its performance, quality and attractiveness?

20. Do buildings or spaces outperform statutory minima, such as building regulations?

Certainly there are a number of ambiguities or repetitions in the above questions. For example, there is an overlap between criteria 10 and 11 that treat the relation between built form and the public space system and some criteria, such as 17 dealing with architectural quality, could be considered as subjective. However if the assessor has to give justification for the assessment, then the danger of subjectivity, if not removed, is considerably reduced.

A worked example of the evaluation of an implemented housing scheme is given in Appendix 1. With a score of 14.5/20 it was a highly rated project capable of being given an award. Whatever the criticisms that can be levelled at the criteria they did give basis for making a comparison between built schemes and a rational for rejecting proposals of poor quality. CABE used this opportunity to undertake regional housing quality audits. These had a great potential to measure the change, over time, in housing quality.

The diagram represented in Figure 2 allows the comparison of two housing quality audits carried out in 2005 and shows the difference between the affluent South of England and the North – the English equivalent of the rust belt. While nearly 94% in the North are average or poor as against 83% in these categories in the South, there are only 6% good or very good n the north as against 17% in these two categories in the south.

Kickstart and Building for Life

In 2009, in the depths of the financial crisis, the then Labour government introduced a programme of public subsidy in attempt to get the housing market moving again. The Kickstart Housing Delivery Programme gave government subsidies to housing schemes which had stalled because of financial difficulties. The requirements were that they should
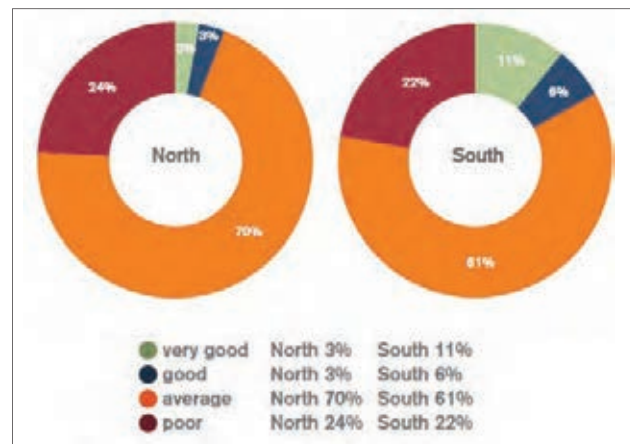
Figure 3: A comparison of housing quality in two English regions. (Source, CABE 2010: 10)

be a minimum of fifty units, meet locally identified needs and priorities, be completed by March 20011, and most important for the argument of this paper, have received detailed planning permission by September 2009. In the first round a total of 156 units were approved, twenty of which were conditional approvals subject to revision.

The first disclosure of selected projects caused an uproar because of the poor quality of some of the schemes, to the extent that questions were asked in the Houses of Parliament. It must be noted that they had all been passed by the local planning authorities although not necessarily subject to a BfL evaluation.

The Homes and Communities agency review of the first phase of Kickstart (HACA 2009 gives an indication of the scores achieved but it does not identify specific schemes because of "commercial sensitivity"). The average BfL score on approved schemes was 9.3. The groupings are as follows:

- 16/20 or more: 11 schemes
- 14 to 16/20: 12 schemes
- 12 to 14/20: 19 schemes
- 9 to 12/20: 27 schemes
- Less than 9/20: 67 schemes

This officially published information shows that nearly half the schemes approved for funding scored less than 9/20. It does not reveal just how bad some approved for design schemes were. It was only after a cross party group of Members of Parliament had demanded more details. The weekly Building Design (Hurst, W. 2010) revealed that twenty-seven of the funded projects had scored 5/20 or less with two projects achieving only 1.5/20 (Figures 4, 5 and 6).

A Political Postscript

It has already been noted that CABE was virtually abolished by the new coalition government that came into power in 2010.

Figure 4: A Kickstart proposal (in red) for a new housing area with no pedestrian or cycle connection, except via a high speed traffic highway, to the local settlement and its facilities. (Author's archive)

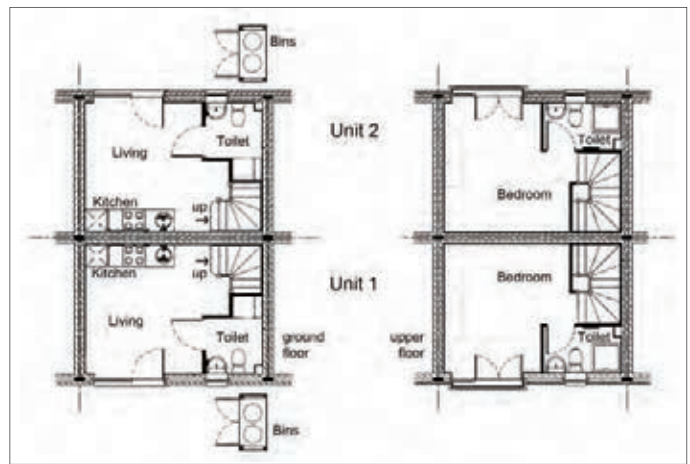*Figure 6: Kickstart single bedroom two story back to back houses, each with one external wall, which scored 4/20 BfL. This project seeks to revive a form of housing associated with the nineteenth century industrial revolution. (Author's archive)*

Figure 5: Plan of a Kickstart project that was evaluated with BfL and scored 1.5/20 BfL. Although the scheme was defective in many ways, this shows the large open parking areas which are notoriously insecure. (Author's archive)

This government claimed that the whole planning system was a hindrance to economic recovery after the worst recession since the 1930s development and to a resolution of the crisis in housing in particular. The whole town planning profession became a useful scapegoat for the nation's inability to resume economic growth. The previous planning system was ditched and with it all attempts to plan rationally the city regions across which most people live their lives in favour of what was termed localisms. This author has previously commented on these policies in Focus (Samuels 2012) .

Building for Life became one victim of this systematic process of deregulation. The house builders re-established their involvement through the agency of Design for Homes, a small organisation which had been involved initially in the establishment of Building for Life but whose influence had been minimised by the contribution of CABE with its greater resources and influence.

A new Building for Life set of criteria entitled BfL 12 was devised (Birkbeck et al, 2012). This certainly has removed some of the ambiguities and duplications in the earlier scheme and instead of points new and proposed projects will be awarded green, amber or red lights:

> "Schemes that are considered to have achieved 12 'greens' will be eligible for 'Building for Life Diamond' status as exemplars" (Birkbeck et al 2012, p.3)

The major change however is the omission of any opportunity to comment on the internal arrangements of the dwellings, the introduction of modern methods of construction and the use of measures which can reduce the environmental impact of a development. The first omission is particularly important since new British homes have consistently been much smaller than those in other European countries – not to mention the US where space standards are so much more generous (Table 1).

This is borne out by the following table taken from a publication of the right wing free market think tank The Policy Exchange –certainly no advocate of greater regulation. Note that the average new British house is only half the area of the average new Danish house and that Britain is one of the few countries where new house sizes are smaller than the average of all dwellings – one reason why we prefer old houses with all their disadvantages of high maintenance costs and poor energy performance (Samuels, 2004).

Table 1: A comparison of dwelling sizes in fifteen European countries (Evans and Hartwich, 2005)

A: floor space (m²)
B: number of rooms
C: room size (m²)

	All dwellings			Newly built dwellings		
	A	B	C	A	B	C
UK	85	5.2	16.3	76	4.8	15.8
Italy	90.3	4.1	22	81.5	3.8	21.4
Portugal	83	4.3	19.3	82.2	4.7	17.5
Sweden	89.8	4.3	20.9	83	4	20.8
Finland	76.5	3.6	21.3	87.1	4	21.8
Ireland	88.3	5.3	16.7	87.7	5.2	16.9
Austria	90.6	3.4	26.6	96	3.7	25.9
Spain	85.3	4.8	17.8	96.6	5.1	18.9
Luxemburg	125	5.5	22.7	104.1	5.1	20.4
Germany	86.7	4.4	19.7	109.2	5.1	21.4
France	88	3.9	22.6	112.8	4.2	26.9
Netherlands	98	4.2	23.3	115.5	4.1	28.2
Belgium	86.3	4.3	20.1	119	5.8	20.5
Greece	79.6	3.8	20.9	126.4	3.2	39.5
Denmark	108.9	3.7	29.4	137	3.5	39.1

Worst of all, this new system removes the opportunity to measure the improvement or the deterioration of housing standards over time. Because a different scheme of evaluation is being implemented it renders the considerable amount of data previously acquired on projects useless for comparative purposes. It is thus very easy for house builders to obscure any reduction in quality and standards even though they may switch on lots of green lights.

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Appendix 1: The final table of a worked example of a Building for Life assessment undertaken by the author.

Building for Life Evaluation	Upper Redhill	Ivor Samuels	
This is an urban design project which can provide a framework for a development of the highest standards. However at present there is not enough architectural detail for it to achieve a higher rating than that awarded. Its success will depend on the codes which are to be prepared and the rigour with which they are implemented. In particular issues of feasibility (the ambitious range of facilities and the amount of single loaded streets, p151) are of concern.		Environment and Community	1.0
		Character	3.5
		Streets Parking and Pedestrianisation	3.5
		Design and Construction	1.5
			9.5

	Criteria	Evaluation	Evidence	Score
	Environment and community			
1	Does the development provide (or is it close to) community facilities, such as a school, parks, play areas, shops, pubs or cafés?	There is the intention to provide schools, a local centre and corner shops but the target no of dwellings at 3,000 is below that which the Submission CSS (4000-6000) considers to be needed to achieve a sustainable balance of homes, jobs and local services . More detail is needed on how much support is expected from the existing population catchment. There is no management or funding plan for the retail facilities some of which are expected to be built as a part of the first phase.	page 16,74,171	0.5
2	Is there an accommodation mix that reflects the needs and aspirations of the local community?	A mix is proposed although is no indication that this matches local needs	p74	0.0
3	Is there a tenure mix that reflects the needs of the local community?	Half the affordable housing will be proved off site which reduces the tenure mix in the new development	p74	0.0
4	Does the development have easy access to public transport?	Public transport is intended to be viable but no indication is given as to how it will be provided nor how feasible it will be , nor how existing networks might be extended	p123	0.0
5	Does the development have any features that reduce its environmental impact?	Green infrastructure elements are integrated with landscape features, habitats are protected, solar gain optimised by orientation of dwellings. However no CSH level is specified for the dwellings.Water conservation, alternative power generation methods etc. are discussed but not specified at this stage of the design	p78,p116-118	0.5
				1.0
	Character			
6	Is the design specific to the scheme?	Although the landscape proposals acknowledge the characteristics of the site and the intention is to make the place distinctive the buildings shown have been taken from a number of other schemes and until more detailed designs are produced this question cannot be answered satisfactorily	p138-142	0.5
7	Does the scheme exploit existing buildings, landscape or topography?	Existing topography and watercourses have been exploited to form a landscape structure to the development.	p80-84	1.0
8	Does the scheme feel like a place with a distinctive character?	Three character areas are defined with different colour, texture and landscape treatments. However, the examples shown are not specific to the site so there is no assurance they would lead to a disitinctive character for either the whole or the parts.	p141	0.0
9	Do the buildings and layout make it easy to find your way around?	Heights of buildings relate to importance of streets; character areas and densities are graded across site from core to edge . Long view corridors are retained to give orientation.	fig 52	1.0
10	Are streets defined by a coherent and well structured building layout?	The different street types are all defined by the buildings of the perimeter blocks	p102	1.0
				3.5
	Streets, parking and pedestrianisation			
11	Does the building layout take priority over the streets and car-parking, so that the highways do not dominate?	A range of street types is proposed which fixes building height and set back in relation to each type (but see below for reservations on some parking arrangements)	p131	1.0
12	Is the car parking well integrated and situated so as to support the street scene?	In two of the character areas the car parking seems well integrated but in the highest density (Lower Redhill) the street scene seems dominated by car parking .	p142,159	0.5
13	Are the streets pedestrian, cycle and vehicle friendly?	Space between buildings shared by different modes	p124	1.0
14	Does the scheme integrate with existing Streets, paths and surrounding development?	Roads link to existing network south of site but the pedestrian link across a major road is less satisfactory and this is important to ensure a viable local centre in the new development .	p125,126	0.5
15	Are public spaces and pedestrian routes overlooked and do they feel safe?	The street types suggest that all would be overlooked by buildings . However at Middle Redhill there are some car parking areas which may not to be overlooked although the level of detail shown makes this difficult to ascertain	p131, 140	0.5
				3.5
	Design and Construction			
16	Is public space well designed and does it have suitable management arrangements in place?	The extensive range of open spaces are particularly well designed and it is proposed to set up trust to manage them. Streets are intended for adoption	p 79-85, 155,174	1.0
17	Do buildings exhibit architectural quality?	The types chosen to illustrate the project intentions exhibit quality but there do not yet seem to be rules in place which would guarantee buildings of the same quality in the design as realised.	eg142	0.5
18	Do internal spaces and layout allow for adaptation, conversion or extension?	no information available		0.0
19	Has the scheme made use of advances in construction or technology that enhance its performance, quality, and attractiveness?	no information available		0.0
20	Do buildings or spaces outperform statutory minima, such as Building Regulations?	no information available		0.0
				1.5

Slum Upgrading:
A Challenge as Big as the City of São Paulo, Brazil

Elisabete França
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Municipal Social Housing Secretary, City of São Paulo (2005-2012).

Eleven million people live in the city of São Paulo, Brazil, 50 percent of them in what is considered "sub-normal" housing—squatter settlements, slums, and illegal land subdivisions. They suffer from overcrowding, unhealthy buildings, unsafe environments, lack of basic infrastructure and amenities, and costly public transportation. Elisabete França, São Paulo's deputy secretary for social housing from 2005 to 2012, discusses the city's successful new approaches in public housing and slum upgrading.

When I started my job as the city of São Paulo's deputy secretary of public housing1 in 2005, I faced a major challenge: how to organize the city's social housing policy. To address such a challenge I realized that we had to rely on the lessons from previous experiences from collaborations with international development agencies such as the World Bank, the Inter-American Development Bank, and UN-Habitat. These experiences had mainly taught us the importance of training the permanent technical staff of the public agencies. After all, they are the ones who, over several successive government administrations, keep the programs alive and, in the case of the city of São Paulo's Social Housing Department (SEHAB), know the city's reality and its housing problems.

We had also learned that information management and the access to that information—in a simple and user-friendly way—are what really ensure a democratic leadership of programs and projects proposed by the government. Information transparency keeps away government's patronage, and only easy access to and transparency of information can allow society to participate responsibly in the various forums for democratic debate and participation that our administration transformed into a fundamental part of the construction of the municipal housing policy. Because public policies presuppose choices that in a context of scarce resources can only be made from clear criteria in order to prioritize investments, information systematization is essential.

Two other important decisions adopted in 2005 also mark the production of São Paulo's current housing policy. The first decision was to invest in design quality. Good architecture and urban design, as well as the best of engineering techniques, enabled SEHAB projects to have a bigger impact and become well regarded by the public. Public architecture, in the housing field, is a fundamental element in building the city.

The second important decision was to recognize local cultures and pre-existences, particularly respecting the incremental investments that families living in favelas (slums or squatter settlements)2 had made over decades through self- or mutual-help processes. This led to projects for the upgrading of several favelas and transforming them into normal neighborhoods, integrating them into the formal city and generating great gains in the quality of life for those communities.

The successful public projects and the new housing units built over the past eight years in São Paulo have proved the new housing policy to be a feasible alternative approach to common past practices: cheap cookie-cutter and bureaucratic public housing located in the city outskirts far from jobs and amenities, and lacking environmental and design concerns besides cutting down costs.

Social Housing in Brazil

Housing production in Brazil has always suffered from the lack of a national housing policy that could reduce the effects of the uneven development and rapid urbanization that started to leave deep marks in the country in the 1950s.3 Created in 1964, the National Housing Bank (BNH) and the Housing Financing System (SFH) proved to be unable to meet the ever-increasing

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[1] The management structure of cities in Brazil includes secretarias or secretaries that are the equivalent to city departments in the U.S. However, as the head of a city's executive branch, once elected a mayor appoints all his secretarios (heads of the secretarias) and controls all management positions that, therefore, generally depend on his political commitments and alliances.

[2] In this article the words favela, slum, and squatter settlement are used interchangeably to mean a community occupying land to which it has no legal title, in precarious homes (shacks or self-help built), and lacking basic infrastructure and public services.

[3] For the formation of the contemporary city in Brazil, see Rio, V. and Siembieda, W. (eds) Contemporary Urbanism in Brazil: Beyond Brasilia (Gainesville: University of Florida Press, 2010).
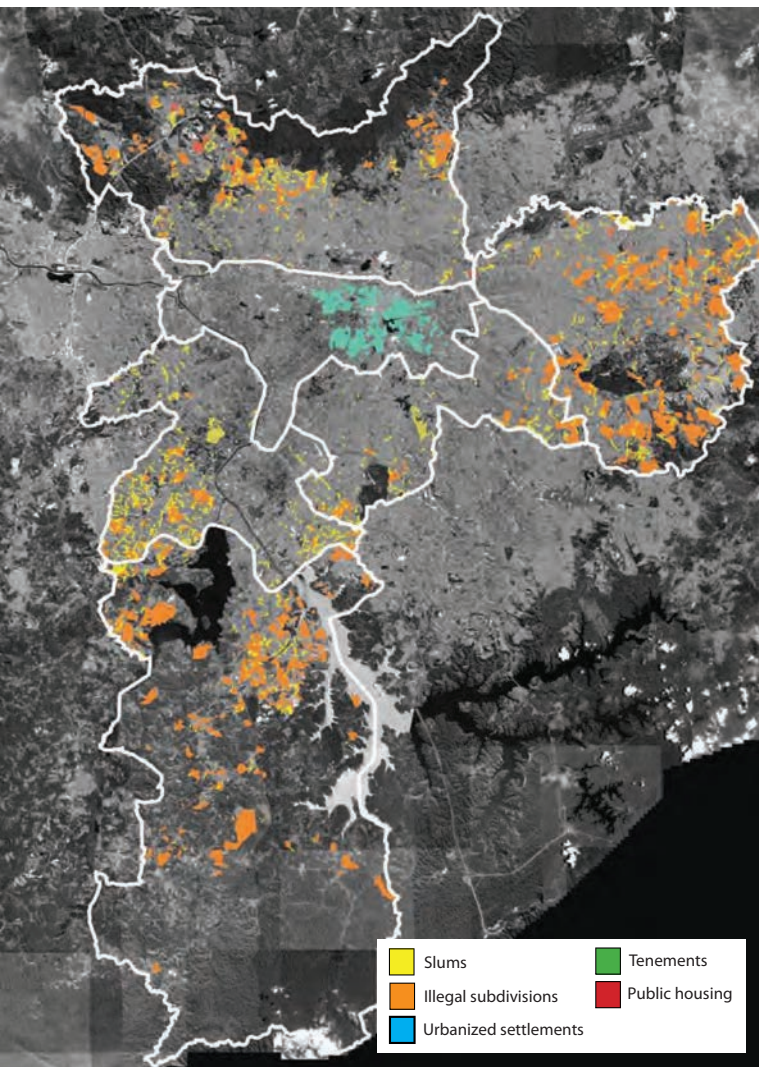
*Figure 1: Sub-standard housing in the City of Sao Paulo.
(source: Municipal Housing Plan 2009-2014; http://www.habisp.
inf.br/doc/category/pmh)*

needs of the lower-income population. The policy adopted by SFH/BNH focused mainly on the construction of large housing projects, generally located in areas far from the consolidated city due to the cheaper cost of land. Disconnected from the job market, disconnected from decent public transportation and from urban facilities, devoid of proper social infrastructure, and based on the technocratic implementation of a handful of models, the majority of these programs were failures resulting in high vacancy rates and structures that deteriorated easily with time.

In the 1980s and running parallel to the official governmental model, a few isolated slum upgrading projects were carried out in Rio de Janeiro, where slums are a much more prominent problem than in any other Brazilian city.[4] These projects kept the families in their original housing, but provided the community with drinking water, sewage and drainage

networks, better accessibility either by new roads or by providing pedestrian alleys, and public services. During the same period, international funding agencies, particularly the World Bank and the Inter-American Development Bank, started paying attention to examples of slum upgrading initiatives and to value them over those promoting the "bulldozer approach" and the eviction of the existing communities. In the 1980s the economic crisis, together with the re-democratization that ousted the military process, culminated with the extinction of the National Housing Bank (BNH) in 1986, interrupting its housing programs and further punishing the population that lacked the economic means to access the real-estate free market systems.

In the city of São Paulo, urbanization became part of the housing policy's agenda in the beginning of the 1980s, but always through isolated projects—although the number of slums and squatter settlements had increased significantly. By the end of the 1980s, the São Paulo State Government, with the support of the Municipal Government, applied for a World Bank loan for tackling the environmental degradation of Guarapiranga's water basin. The basin covers 160,000 acres in seven municipalities, including São Paulo itself where 450,000 people lived at the start of the program. With 6,600 acres, the Guarapiranga reservoir is an important source of potable water for the metropolitan area, supplying 20 percent of its needs.

One of the main components of Guarapiranga's environmental program was the upgrading of slums and other precarious settlements located in the basin that housed 27,000 families, 90 percent of which were living within São Paulo's municipal boundaries. Because of the severe environmental impacts caused by uncontrolled development in the slums and their lack of proper infrastructure and sanitation, upgrading projects made up a significant portion of the Guarapiranga basin recovery plan and resource allocation. Regarded as the first large-scale slum upgrading program in the city of São Paulo, the Guarapiranga Program served almost 100 slums and became an example to be followed, providing one of our most important lessons.

The positive results of Brazil's first slum upgrading projects suggested a new direction for future interventions and public policies. We learned the importance of respecting the social and economic investments that the communities and residents had made over the years, of restructuring their physical space in a responsive and respectful manner, and of promoting the integration between the slum communities and the city around them through design in a sustainable and environmentally responsible manner.

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[4] In 2010, Rio had 763 *favelas* (squatter settlements) with around 1.3 million residents—22 percent of the city's total population (2010 national census). That same year there were 1,020 favelas with at least 1.3 million residents in the city of São Paulo, representing 10 percent of its population. Meanwhile, São Paulo metropolitan area's population was approximately 19 million people.

Slum Upgrading—Main Concepts

Slum upgrading is regarded as an important component of the strategies to fight poverty, because investments made in basic infrastructure and services contribute significantly toward reducing the inequalities faced by the families living in these informal settlements. The investments also have a significant impact on the wellbeing and quality of life of the communities. Slum upgrading became a pivotal part of the housing policy, because it promotes actions that contribute directly to improving the stock of housing solutions accessible to low-income families that otherwise would not be able to access credit and the formal private market.

This process of change in the housing policy models led to the approval of an international action plan centered on social development and the eradication of poverty during the United Nations' Second Conference on Human Settlements (Habitat II) in Istanbul, Turkey, in 1996. This plan was a historical landmark for the setting of the new values and concepts that today form the basic framework of Brazil's public policies, especially housing policies at the federal, state, and municipal levels.

The main purpose of slum upgrading is to overcome shortages of infrastructure, accessibility, and availability of social facilities and public services, as well as the provision of new suitable housing for families whose homes are affected by the public works. The main goal is to respect the existing community and to keep the majority of the families in their locales, assuring the continuity of the investments they have made in building their homes over time.

The second main goal in slum upgrading is the "qualification" of public space; that is, not only to increase the social and recreational quality of public spaces, but also to recognize these spaces as important elements that can promote the physical integration of the community with the neighboring areas and improve their recognition as part of the formal city. Thus, besides solving problems such as sanitation, drainage, accessibility, land stability, and environmental risk factors, these projects face the challenge of providing quality, well-equipped public spaces, considering their potential for promoting social encounters and public life.

Projects have to deal with daunting soil and topographic conditions, local existing urban and architectural morphologies, and the availability of land in order to generate a well-articulated final environment—an environment where all residents have access to basic infrastructure and public spaces, services, and facilities, allowing their population to exercise neighborliness and reach full citizenship. Considering that slums are determined by historical, morphological, social, and local conditions (flood zones, hillsides, river banks, railroad rights-of-way, etc.), upgrading projects must be peculiar to each situation and are therefore necessarily different from one another. In addition, projects need to be widely discussed with the residents; cultural diversity is a relevant factor in defining architectural solutions.

In slum upgrading, a paved road system is designed to allow vehicular access for public services (ambulances, police, mail, waste collection) as well as for the installation of drinking water, sewage, and drainage systems. Dwellings in environmentally sensitive areas—such as flood zones and steep hillsides—are relocated, fragile slopes subject to landslides are contained, and streams are protected or channelized. Public equipment and spaces for parks, leisure, and recreation are defined as community centers, and guarantee the full development of activities that strengthen community relations.

Taking the city itself as a source of solutions, slum upgrading is mainly aimed at building quality public spaces that respect environmental and cultural pre-existences and that, above all, dilute the urban and symbolic boundaries between the formal city and its informally developed and marginalized areas. Slum upgrading and the integration of slums into the city by the provision of proper public infrastructure, facilities, and services multiply the residents' accessibility to work, education, and health, and encourage them to invest in improvements to their homes. Slum upgrading is a fundamental step toward contemporary urban life and full citizenship.

São Paulo's Experience in Slum Upgrading

The housing problem in São Paulo has been a challenge for decades. The city alone has almost 11 million inhabitants and 2,000 favelas where 800,000 families live, according to the 2010 Census. To face this huge challenge, the Municipality of São Paulo through the Municipal Housing Secretariat started one of Brazil's largest slum upgrading programs in 2005, with the understanding that such a program can alleviate poverty significantly, as noted above.

The program seeks to provide a better quality of life for those living in unsuitable areas and in slums across the city by basically overcoming a series of deficits related to infrastructure, accessibility, and availability of social amenities and public services, as well as the construction of new decent housing units. The municipal government respects and builds upon the great socioeconomic efforts made by these populations in building their dwellings, and works on restoring the quality of the space of each household and especially the quality of public space and its relation to each dwelling, and the formation of new neighborhoods and their integration to the city.

São Paulo's slum upgrading program can be regarded as a response to the 1988 Federal Constitution and the 2001 Statute of the City, which consolidated all citizens' right to the city and to decent housing, the social function of property, and the promotion of an equitable and just city through urban development. Public expenditures directed toward slum upgrading provide evidence of the Municipality's commitment to reverse the high level of social exclusion and to promote an inclusive process of sustainable urban growth.

Precarious housing—favelas or squatter settlements, slums,

irregular subdivisions, and tenement houses—have been part of the urban landscape for a very long time. These are the only options available for families making less than three minimum wages per month—a sizeable segment of the population—since their purchasing power is almost never compatible with the formal housing market. They can afford neither a dwelling unit nor a plot with proper infrastructure to build incrementally through self-help processes. The high price of development is mainly due to the lack of well-located land at compatible prices.

Another factor that helps exclude poor families from the formal market is the strict requirements created by zoning and building norms, which impose infrastructure, construction, and service standards that increase real-estate values significantly—pushing the low-income population even farther into the city's informal areas. Lacking capacity to access the formal housing market, the poor are left with no other alternative than to squat on public land—such as margins of rivers and railroad rights-of-way—and land of low commercial value that is usually disregarded by the formal development sector, such as areas in flood zones or subject to environmental risks—flooding, mud slides, contaminated soils, and landfills—or sites that are vacant due to judicial battles, such as lots with no heirs or that belong to religious orders.

The informal settlements are also a source of a great number of health problems, particularly those related to the lack of basic infrastructure, and social problems generated by this population's vulnerability, such as job informality, school evasion, early pregnancy, domestic violence, and drug trafficking.

In view of the complexity and dimension of this reality, elaborating a housing policy for the city is a very difficult task. It is necessary to know, in detail, all the problems to be faced, and to seek to quantify and to qualify the real needs that will guide the most consequential actions. Since 2005, the Municipality's housing policy has been committed right from the start to the search for the most adequate solutions; consequently, one of the first actions was to quantify and qualify the real needs, which guide ongoing actions. The policy seeks to understand each one of the low-income occupancies in its entirety, but also in its specificities, be it a slum, an irregular subdivision, a tenement house, or a deteriorated housing estate.

It is also necessary to evaluate the resources required to invest in each one of the housing programs, and to choose those that allow the optimization of public investment and benefit the largest number of people among the most needy who require housing solutions. There are neither magical solutions nor easy discourses; the housing issue is impacted by facts and statistics, and therefore requires a continuous, serious, and long-term policy. Due to the dimension of the housing problem, it is necessary to count on partnerships with state and federal governments, if only because suitable housing for all is a concurrent attribution of the three levels of government, as defined in the Brazilian Constitution (1988).

The actions of the administration are governed by the Federal Constitution that protects the individual's dwelling (Article 5, Item XI) and regards habitation as one of the individual's basic needs (Article 7, Item IV), as is the right to education and health care. The Constitution also recognizes the competence of the Union, State, and Municipal governments respective to implementing housing policies and programs (Article 23, Item IX). Most importantly, it defines that a property's social function is above the individual's right to use it as he/she pleases.

Figures 2 & 3: Favela Paraisopolis, with an estimated population between 80,000 and 100,000 people; one of the settlements that benefited from the city's new housing programs. Floods were common before upgrading and the new infrastructure.

Figure 4: The sharp contrast between Paraisopolis and the luxury gated communities around it. (photo by Tuca Vieira; source: http://www.tucavieira.com.br/A-foto-da-favela-de-Paraisopolis)

Moreover, in regulating the constitutional provisions regarding urban development, the Statute of the City, a Federal law of 2001, defines several new land-use and development control mechanisms that can be used by municipal governments to fulfill these provisions, particularly in regard to observing the social function of property.

São Paulo's housing policy complies with the city's 2002 Strategic Master Plan (PDE; Law 13.430, Article 79) that ratifies the Federal Constitution and recognizes the right to suitable housing as a social right. In the Strategic Master Plan, suitable housing is that which not only guarantees the resident's safety within it but also "provides adequate sanitary facilities, that guarantee the conditions of habitability, and that is met by essential public services, among them: water, sewage, electric power, public lighting, waste collection, pavements and public transport, with access to basic social equipment" (Strategic Master Plan, Article 79).

As a signatory of the Millennium Development Goals set by the United Nations, São Paulo seeks to attain a series of objectives established therein by the year 2020, especially in regard to increasing the number of families that have access to drinking water and other basic infrastructural needs, and to improving the general quality of life of families living in slums. The challenge is that the construction of the city must be based on the understanding and management of differences, in the search for social inclusion and the pro-active involvement of the communities in institutions at all government levels, and in civil society. This is how a democratic city should be constructed.

Based on the principles discussed above, São Paulo's city administration defined its housing policy and developed the largest slum upgrading program undertaken in the country: 130,000 families were benefited by works in progress or already concluded, with the final phase being providing the

families with a deed to their land through granting a special use concession for living purposes. These slums became new neighborhoods added to the city, and families obtained an important part of their citizenship.

In addition to the upgrading—or "urbanization" in Portuguese—projects, including putting in the infrastructure to raise the health standard, 10,000 housing units are being built in order to replace dwellings located in risk areas. Among ongoing works and infrastructure installation contracted from 2005 to 2012, investments by the program totaled US$ 3 billion. In order to continue this set of actions, funds from the municipal budget for housing were increased, augmented by funds from the State and Federal governments.

A Brief Account of the Upgrading Process

Design

A detailed diagnosis of each area is carried out prior to the execution of each project. Considering the highly "organic" and informal characteristics of these squatter settlements, project design has to adapt to each peculiar situation: Topographical conditions, the existing urban and architectural morphology, and the availability of land are fundamental factors. The elimination of risk is also a priority in upgrading squatter settlements, since many of them are prone to disasters because they occupy steep slopes subject to landslides, banks of creeks and flood zones, or other types of environmental factors.

Design solutions are based on the identification of a community's characteristics, their demands and expectations, and are widely discussed with residents. In all projects, a paved street network is designed to allow for vehicular traffic and access for public services, water supply, piped sewage, and drainage systems. Projects also have to respond to the lack of spaces for public amenities and social interaction. Public amenities and spaces for parks, leisure, and recreation are seen as strategic areas in the design because they strengthen social relations in the community. The new streets together with the new public spaces help create an articulated whole, making these settlements more accessible, coherent, and legible.

Implementation

One of the particularities in working with a process toward the upgrading of squatter settlements is the fact that it occurs in densely populated areas with precarious and difficult access. In many cases, normal construction equipment and machinery simply cannot be used, and low-cost solutions have not always been adopted since they are not always the most appropriate solution for each particular case. Professionals responsible for design and project implementation must be creative and find alternative solutions, adapting methods and standards to reality.

On the other hand, priority has to be given to works in areas of geological risk and difficult access, as well as to the construction of new housing for the families that will have moved from these

areas. Therefore, social workers and other support staff have to not only carry out a well-detailed cadastral survey, but also to work closely with those families during the whole process, including providing temporary rentals paid for by the city.

Social Work

The Slum Upgrading Program adopted guidelines to help social workers deal with community meetings and workshops by standardizing procedures during project phases, from the initial social surveys to design approval, implementation and, finally, the post-upgrading stage. In the initial phase of a project, social work is carried out at two complementary levels: general community surveys and, importantly, the registration of each household, which reveal the community organizational and socioeconomic data. These two levels require different methodologies and are generally concurrent in practice.

Social work must ensure that all residents have access to information concerning the available social support as well as their right to participate in the planning and implementation process and the way to do that. It also contributes to the residents' organization and participation in the planned actions, as well as raising their awareness of organizing, managing, and maintaining the improved areas of the settlement. At the same time, social work must educate residents about their rights, the existing public policies, and how to get access to public services, social amenities, and educational opportunities.

Through local conselhos gestores, the community participates in project development and implementation, including maintenance. These councils, organized for every slum that is scheduled for intervention, are composed of equal numbers of public officials and elected community members to approve the plan and monitor implementation. In addition, work-front committees are created, with the mission to inform, discuss, and locally approve the operations.

Figure 5: New public housing in Paraisopolis at the fridge with surrounding negihborhoods.

After the completion of infrastructure and construction works and occupancy of housing projects (when applicable), social work continues for a period of time called post-urbanization. Then the focus is two-fold. On one side, the focus is to educate the community about sustainability and how to care for and maintain the improvements to their physical and environmental settings. On the other side, social work focuses on educating the community about citizenship, how to promote community development, and how to improve their own lives. It is important to note that the control and use of public areas are still the biggest challenges for post-urbanization social work.

Regularization of Land Tenure

Since most of these communities are squatting on public or private land, regularization of land tenure is a fundamental ingredient of any upgrading project. Having a formal land title not only frees a family from the ghost of eviction, but also gives them the right to public services, provides them with an official street address (helping with obtaining bank accounts, credit, and financing, for instance), and enables them to fully exercise their citizenship. The city can speed up land tenure regularization when the community is located on parcels that belong to the city.

The first step in an upgrading project is to check whether the land that the community occupies is adequate for housing from a technical point of view—safe soils, areas not object to natural hazards, etc. In the case of our program and in order to comply with the law, we needed to know whether: a) the squatters settled prior to June 30, 1996; b) the settlement was located on land belonging to the city; and c) the land was clear from a legal point of view. By the end of project implementation, all families would receive a deed to their land or housing unit, whichever the case was, and full tenure.

São Paulo's Municipal Housing Plan (2009 – 2024)

In 2006, São Paulo's Municipal Social Housing Secretary created the Habisp—Sistema de Informações para Habitação Social, a municipal information system for social housing.[5] The system's web interface is designed to facilitate the interaction between city residents and the government regarding public housing, and to make governmental plans and decisions transparent. It provides all sorts of online information on the city's housing policies, programs, plans, design guidelines, news, and publications, plus an interface between a geographic information system and the different variables on public housing.

The system has information on the most precarious houses and operates a set of rules to automatically define the service priorities of each program. Habisp enables the control of information in the intervention areas—both on the construction

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[5] For São Paulo's information system for social housing, see <www.habisp.inf.br>

and the settlement processes—and the management of data on housing units and households. The mechanism is enriched with GIS tools that increase possibilities for interpreting the data. The slums are characterized by identification data, occupation conditions, and urban, social, and legal infrastructure. From a base map, the system automatically calculates new data based on information from other registered maps; for instance, geographical indicators of occupation and the conditions of the urban infrastructure, using maps of the road network, hydrology, and sanitation.

In 2009 the system was improved through the application of a new integrated intervention model by hydrographic sub-basins, allowing us—in an unprecedented manner—to establish priorities based on the level of socio-environmental risk indicators of each sub-basin. This work resulted in a new map of the city of São Paulo, revealing the environmental factors and risk levels in all its territory for the first time. This map follows the water basins, going beyond the official municipal and state administrative boundaries that traditionally impeded tackling environmental issues comprehensively. Indeed, only when we treat the territory seamlessly can we obtain real environmental sustainability indexes, reflecting what the world's major cities have embraced through the C40 Cities Climate Leadership Group and the Millennium Development Goals.[6] At that time we also began preparing the Municipal Housing Plan's long-term goals, which were distributed over four four-year periods (2009 to 2024), considered the period of time necessary to achieve a minimum reduction in the rates of insecurity from environmental threats in the city of São Paulo.[7]

We also prepared the Regional Action Plans (RAPs) based on the limits set by the hydrographic sub-basins, the amount of precarious settlements in each and their population, and the homes that were settled in risk areas. Inside the RAPs, the Perimeters of Integrated Action (PAIs) were defined and adopted as planning units to guide interventions by SEHAB (Secretary of Social Housing). Each PAI congregates a series of slums within a single perimeter, so that interventions can be planned not in isolation but in an integrated manner; the number of new housing units needed as well as all the costs in each intervention can be better predicted and quantified.

In March 2010, during the United Nation's 4th World Urban Forum in Rio de Janeiro, after five years of uninterrupted work involving SEHAB's entire team—supported by a set of specific studies prepared by consultants—the City of São Paulo's Municipal Housing Plan was presented to the public.[8] The plan

Figures 6 & 7: Public facilities in Paraisopolis. A community center built in a valley (above) and a recreational facility in left-over spaces (below).

is based on the implementation of five general principles: a) the right to decent housing; b) social justice; c) environmental sustainability as a right in the city; d) democratic governance; and e) efficient management of public resources. It recognizes the Habisp information system as a guide to prioritize interventions as well as the need for a comprehensive territorial approach, and describes eight housing programs for different housing problems and types of communities for the attainment of specific goals.

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[6] The C40 Cities Climate Leadership Group (C40) is a network of the world's megacities committed to addressing climate change. See <www.c40cities.org>

[7] The four-year periods coincide with political mandates at the municipal level.

[8] Both English and Portuguese versions of São Paulo's Municipal Housing Plan are available for downloading from <http://www. habisp.inf.br/doc/category/pmh >

[9] For details on the competition and the winning projects, see <http://renovasp.habisp.inf.br/concurso/info/apresentacao>

Just to briefly mention some of the results obtained: in the four largest favelas, as a result of the Slum Upgrading Program, all households are now served by piped drinking water and sewage collection serves 80 percent of them, 3,000 new residential units were built for families who were exposed to risk, creeks were channelized, and recreational and public facilities such as schools, daycare centers, and health units were built and are fully operational.

The new policies guided SEHAB in preparing projects to upgrade larger settlements. So far, plans have been made for Jardim São Francisco, Heliópolis, Paraisópolis (Figures 2 to 7), and for the PAIs of the Cabuçu Basin, and soon will be expanded to the Serra da Cantareira region and the Pirajussara Basin. These plans' first stage was the construction of pilot neighborhoods, on a scale that allowed the population to express their concerns—pointing out the problems, and making proposals for specific interventions related to infrastructure, deployment of equipment, recreation areas, and vehicular connections, among others. Note that a special emphasis must be given to the establishment of forums for leaders and their participation in the development and revision of the plans and projects.

We learned that a master plan is an essential part of the development of projects for the PAIs, since it allows a comprehensive view of an area, the integration with other disciplines and city sectors, and the building of scenarios ranging from the highest priority actions under the Municipal Social Housing Secretary to those that fall under joint responsibility with other city agencies and secretaries.

In 2011 the city signed a partnership with the Institute of Architects of Brazil (IAB-DN) for the Renova SP Program, based on a national public competition for urban and architectural projects for twenty-two PAIs that resulted in contracts with seventeen design firms.[9] All projects follow the municipal housing policies and approach, respecting preexistences, the life history of residents, the investments they have made in building their homes and the community infrastructure and, most importantly, the existing social networks. Renova SP's biggest challenge lies in its universe of 80,000 households, meaning that the designers have to involve the participation of each PAI in the process, making sure they meet community expectations, demands, opinions, and desire to see their settlement transformed into a real neighborhood and become an integral part of "formal" São Paulo.

In 2012 SEHAB published a set of very complete urban planning and design guidelines, organized around strategies at the street, neighborhood, and city levels. These principles deal with, for example, "active street-fronts and to avoid walls", "closing gaps between buildings and active streetscape", "put

pedestrians first with comfortable sidewalks", "reorganize street network to facilitate traffic flow but prioritize walking", "reducing urban heat islands", "storm water detention", "bury infrastructure", "shared streets and traffic calming", etc.[10]

Final Remarks

The completion of Renova SP was an important step in implementing São Paulo's Municipal Housing Policy (MHP). As we saw above, the MHP incorporated SEHAB's new approach to public policies and design, based on the ability of public officials and on incorporating the lessons from several experiments, such as the UN Habitat's best practices. The world today allows for easy and rapid sharing of ideas, contributing to the advancement of human knowledge.

Also, over the past few years, SEHAB developed a series of partnerships with educational institutions, specialists, and architecture firms, as well as local and international professional and research groups. These collaborations contributed to SEHAB's work, which consequently grew and expanded—becoming a world reference for countries and cities facing similar problems. A recognition of this success was the Scroll of Honours Award received by the Slum Upgrading Program from the United Nations Habitat during the 5th World Urban Forum, in September 2012.

Another recent recognition was the recent award given to the project for Parque Cantinho do Céu, a slum with 10,000 families located in the margins of the Billings water reservoir.[11] Part of the Guarapiranga water basin environmental program mentioned above, this project is an excellent example of an urban design solution that is perfectly integrated with environmental upgrading (Figures 8 and 9). It was appointed as one of ten projects to represent Brazil in the 2013 Latin-American Architectural Biennial in Pamplona, Spain.

It is always important to remember that our object of concern is the city and its new neighborhoods that are being built every day; precariously, devoid of proper infrastructure, and with extremely low levels of environmental quality. We no longer conceive of the existence of a formal city that is legal, and another that is informal and built outside the law. We can no longer see slums as sub-normal buildings that need to be evicted, but as communities that have invested their lives and savings in securing a space in the city, in the only locations to which they had access. Their social networks have allowed them to survive the hardships of their daily lives and represent the greatest wealth of their settlements. These communities are building the true contemporary city, albeit lacking the mechanisms to access proper land tenure, housing, public facilities, and educational and economic opportunities.

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[10] See SEHAB's "From Plan to Projects: New Neighborhoods and Social Housing in Sao Paulo", available from <http://www.habisp.inf.br/doc/category/pmh >

[11] Project by Boldarini Arquitetura e Urbanismo. See <http://www.arcoweb.com.br/arquitetura/boldarini-arquitetura-urbanismo-parque-publico-19-01-2011.html>

Gradually São Paulo's government began reassessing priorities, focusing on the real housing problems, and responding to the demands of communities that are better organized. In recent years SEHAB has worked hard with these neighborhoods and their residents. The work culminated in the completion of the Municipal Housing Plan, the Renova SP Competition, and the Urban Planning and Project Guidelines. In 2005 when we started

reorganizing SEHAB and working on the housing policies, we envisaged some paths and outcomes. Today it is possible to say that São Paulo's municipal housing policy is a source of pride for those who worked on it. Above all, it is a legacy that should be seen as a best practice in public policy.

Figures 8 & 9: Aerial view and site plan of Parque Cantinho do Céu, in the margins of Billings water reservoir. Integration of environmental planning, physicial upgrading, and urban design. By Boldarini Arquitects, São Paulo.

Figures 10, 11 & 12: Scenes of the public open spaces and the revaluing of the waterfront in Cantinho do Céu. Above right, one of the free community activities promoted by the municipal government.

FOCUS 10

Faculty and Student Work

Cal Poly Wins Again:
Bank of America/Merrill Lynch Low Income Housing Challange

Andrew Levin
Senior, BCRP, Cal Poly.

In 2013, for the third time in a row, a Cal Poly team took first place in the Bank of America/Merrill Lynch Low Income Housing Challenge. Andrew Levin, one of the undergraduates in the winning team, writes about this interdisciplinary opportunity to contribute to one of America's pressing problems.

Cal Poly has a long history of competing in the Bank of America Low Income Housing Challenge, and 2013 is the third consecutive year that a team from Cal Poly took first place against other highly ranked colleges in California. The Bank of America Low Income Housing Challenge is an annual interdisciplinary competition open to both undergraduate and graduate students that provides the unique opportunity for collaboration between different majors to design sustainable affordable housing.

Conceived in 1992 by the Community Development Banking Group of Bank of America Merrill Lynch, the competition provides students a rare opportunity to be immersed into the field of affordable housing development on a professional level, and can yield valuable insight into the financial, legal, and design challenges associated with providing sustainable affordable housing in California.

The competition lasts two quarters, and culminates in Spring quarter when teams from colleges around California meet at the Bank of America headquarters in San Francisco where they present their project to a panel of professional architects, planners, and financiers who are experts in the field of affordable housing.

The Competition Process

The first half of the competition takes place during Winter Quarter at Cal Poly, when interdisciplinary student teams are formed and then briefed on the background and current state of affordable housing in California. Groups must then find a "developer partner;" a developer with either experience or interest in affordable housing that can mentor and guide the group using their real-world experience in finance and design as a foundation for the group's hypothetical project. Developer partners and student groups either work together to find a site for the project or use one pre-selected by the developer.

Once a site has been selected, teams begin researching green-building techniques, design concepts, case studies, affordability needs analyses, and public outreach plans so that project begins to take shape on a conceptual level. By the end of Winter Quarter, teams submit a ten page conceptual proposal that includes basic financial information, zoning information, design schematics and site layouts. The competition's panel of expert judges then reviews this document and voices any feedback or concerns that they have about that particular project as well as outlining particular aspects of the project they would like teams to emphasize in the final proposal.

With the beginning of Spring Quarter teams use the feedback from the panel of judges to refine and improve their projects, and the final proposals begin to take shape. Generally during this time student teams will visit their site at least once to get a feel for the site's context and physical features that may not have been obvious during the research process. Site visits help teams create a proposal that speaks to the character and needs of their city and is best suited for their particular site.

As Spring Quarter draws to a close, the competition truly is defined by the interdisciplinary nature of the teams. Students from different areas of study learn to utilize the strengths of each other's fields and work cooperatively in ways that are otherwise unavailable in a normal classroom environment. Business and Construction Management majors, who are responsible for creating the development timeline and managing the finances of the team, learn about the design process and how finances can be integrated into that process to more easily create a cost-efficient design. Similarly, architects and planners can learn from finance majors about keeping costs down while ultimately creating a sustainable and attractive final product and a place where people would be proud to live.

Perhaps the most valuable aspect of the competition is the experience gained simply by learning from one another in a setting with professional expectations. Successful teams

are composed of students who are willing to heed the expertise of their peers and professors and work together using the tools of effort and compromise to achieve a high quality and competitive final product.

Cal Poly Teams in the 2013 Competition

The continuous success of Cal Poly's teams in the Low-Income Housing Challenge reflects their ability to effectively analyze site conditions and community needs while developing sustainable, cost-efficient, and feasible design solutions. This year Cal Poly had three teams competing, supervised by CRP professor Hemalata Dandekar and Menka Sethi from the College of Business. Their proposals were as follows.

Terra Housing Studio

Winner of the 2013 Low-Income Housing Challenge

Graduate students Brian Harrington (CRP) and Smita Naik (Architecture), and undergraduate students Cameron Anvari (Business) and Emily Gerger, Tim McGarvy, Nuri Cho and Andrew Levins (CRP).

The Terra Housing Studio team prepared an affordable housing project proposal for Cambria, a small coastal town north of San Luis Obispo, backed by developer partner People's Self-Help Housing. Cambria's economy relies heavily on tourism that requires low-wage service workers. Due to the high price of housing these workers are forced to live in more affordable areas of the county or to crowd multiple families in single-family homes. Among the several factors that reflect on housing costs is Cambria's location by the sea, a moratorium on new development because of the water shortage, and the lack of diverse housing types.

The Cambria Pines is an affordable forty-unit apartment complex proposed by the Terra Housing Studio to meet these needs. Based on community input, its financially realistic and sustainable design integrates seamlessly into the community. Making use of a series of green-building techniques and environmental-friendly urban design solutions, the project reduces the overall environmental footprint and will help tenants save money. These techniques include simple appropriate site design, a laundry-to-landscape greywater recycling system to irrigate the community gardens, integrating rain barrels for landscape irrigation, and an architecture design that provides maximum solar efficiency for passive heating and cooling. Besides reducing day-to-day costs the green solutions encourage community environmental awareness and promote a more sustainable life. A trail and bike path runs through Cambria Pines, providing for interior connectivity and linking it to Cambria's downtown and the middle school.

During the research process, the team conducted outreach with community organizations, local leaders and other stakeholders, such as the Santa Lucia Middle School. The participatory approach led to the inclusion of a community center in the proposal, including a free daycare for children under the age of five living in the complex, as well as multipurpose rooms for services to the Cambria community at large, such as basic medical and dental, educational programs promoting healthy lifestyles, parenting education, mental health services, GED and ESL classes, relationship/marriage education, and emergency crisis intervention. Space for a LINK family advocate will also be provided for free counseling and support services to families of the middle school besides families residing in Cambria Pines.

Cal Poly Affordable Communities

Kelly Cheung, Dianne Acevedo and Malia Fa'asua (CRP), Raymond Chen (Finance, minor in Statistics), David Nguyen (Construction Management).

The Cal Poly Affordable Communities (CPAC) interdisciplinary team worked closely with People's Self-Help Housing, the nonprofit development partner, to contribute towards responding to a critical demand for affordable units in the City

Figure 1: The winning entry, Cambria Pines in Cambria.

Figure 2 & 3: The Cambria Pines main entrance and a view of the interior community courtyard.

of Santa Barbara. Located between the Santa Ynez Mountains and the coast at approximately a 1.5 hour-drive north of Los Angeles, and enjoying a Mediterranean-like climate, Santa Barbara is a popular tourist and resort destination. Nicknamed the "American Riviera", it is one of the most exclusive and expensive communities in California.

Monte Vista, a 40-unit community, provides affordable, attractive, and sustainable housing for both the homeless population and low-income working families. The project offers a mix of studios, two-bedroom, and three-bedroom units complemented by recreational and social services facilities. Occupying a previously vacant parcel, Monte Vista is a thoughtfully well-planned community that offers opportunity and safety. It complements the local neighborhood, responds to city needs, and its design focuses on creating an environment that is nurturing, stabilizing, and unifying.

reGEN Housing Initiative

Bailey Randall, Thomas Vogt and Nick Wong (CRP), Daire Heneghan and Brian Randlett (MArch).

The reGEN Housing Initiative focused on delivering the best possible opportunities for our client-city, the city of Mountain View in the Silicon Valley, where affordable housing is a strong need. Our project, Spectrum, is located only two blocks away from a Caltrain commuter train station in downtown Mountain View, and it was planned for the service and lower-echelon workers of the technology giants in the area such as Google and the Mozilla Foundation. The design of the Spectrum complex takes advantage of its location and fits well into its surroundings by mixing comfortable, affordable, and modern living units with active street-level uses such as a cafe and an art gallery space.

Figure 4: Monte Vista, the project proposal for Santa Barbara.

Figure 5: Spectrum, the project proposal for Mountain View.

Planning and Design for Templeton

Emily Gerger
Senior, BCRP, Cal Poly.

Concept plans for the whole town of Templeton, CA as well as for the Ramada Drive and the Downtown areas were developed by the two-quarter-long senior-year planning studio. Emily Gerger, one of the students in the studio, describes the class work which included intensive surveys and public workshops. Working under the leadership of instructor Zeljka Howard, their client was the San Luis Obispo County Planning Department.

In September 2012, the fourth year Community Planning Lab partnered with the San Luis Obispo County Planning and Building Department to prepare planning and design studies for Templeton, California. The class of 20 students conducted extensive background research and community outreach, and prepared proposals for future development for the overall community and three opportunity areas. The information and recommendations contained in the final reports are intended to assist the county's Planning Department in the process of updating the Templeton Community Plan.

The purpose of the class efforts was to identify, develop, and share a planning vision for the future of the Templeton community. The three opportunity areas that were more closely analyzed included the Downtown, the Ramada Drive, and an expansion area outside the Urban Reserve Line. The selection of these opportunity areas, as well as the final concept plans for them, resulted from extensive community outreach conducted by the class: two community workshops, one workshop with high school students, online and on-site surveys, stakeholder interviews, and a focus group workshop. The final products consisted of four reports: concept proposals and development strategies for future development in each opportunity area and a public outreach report detailing community engagement.

Project Location

Templeton, California, is a rural unincorporated community of 7,574 residents located in northern San Luis Obispo County, in the heart of the wine country. As the site of the last stop on the Southern Pacific Railroad expansion, the town has a rich cultural history and a downtown shaped by its historical character, with numerous historic buildings, including the monumental Templeton Feed and Grain silo building in the main street downtown.

The town also has a regional medical center with facilities that attract people from around the county, with a strong potential for expansion. Although the town is a

major regional attraction, there are several vacant and underutilized parcels that provide opportunities for infill development and allow for the conservation of the open space around the community. Challenges for our class included: hesitation from the community toward diversifying housing options, high impact fees for development along Ramada Drive, and traffic along Vineyard Drive, Main Street and Las Tablas Road that impedes bicycle and pedestrian safety.

The Planning Process

Existing Conditions

The class began by compiling primary and secondary data and reviewing relevant studies, research, and reports by the County of San Luis Obispo. Detailed background information regarding the following five topics was gathered: population and housing, land use, environmental resources, circulation and noise, and community facilities. The students used site visits, discussions with County staff, community workshops, and relevant County documents to thoroughly address each topic; and to better understand opportunities and challenges for development in Templeton, the public's concerns, and their vision for their community.

Public Outreach

Besides on-street surveys and interviews, several community outreach events were held in order to guide the planning and design efforts. All meetings and interviews were conducted in Downtown Templeton at the Templeton Community Center. In the first Community Workshop 35 participants identified opportunities and challenges for development and generated an overall vision for the future of Templeton. The workshop was followed by a series of stakeholder interviews and a focus group meeting with local business owners, representatives from the Medical District, Peoples' Self-Help Housing, Templeton Community Service District, and the Templeton Chamber of Commerce to ensure a variety of public opinions. A workshop was also held at Templeton

High School in order to understand the younger population's perceptions and wishes. Approximately 190 students participated in mapping exercises and opinion surveys.

Community opinion surveys were conducted by the students in various locations: at the Farmers Market, in the Downtown area, and in the Medical District. These surveys were made available online at the San Luis Obispo County website. The information collected from the surveys includes demographics, place of work, mode of transportation, and shopping and recreation practices.

The students reported findings from the opinion surveys and the previous meetings to forty attendees at the second community meeting, held at the Templeton Community Center. The overall Templeton concept plan and two alternative concept plans for Downtown and Ramada Drive were presented and reviewed through discussions and follow-up questionnaires. A final poster session at Cal Poly, attended by stakeholders and County staff members, showcased the final concept plans for overall Templeton, Downtown, Ramada Drive, and the expansion area. The Public Outreach Report details the community engagement efforts and summarizes the information collected at each event.

Envision Templeton

Based on strategic growth principles, healthy community strategies, case studies, and feedback from the public and County staff members, the class formulated a vision for future development in Templeton. The vision focused on promoting the community values expressed through the public outreach efforts by directing development to underutilized properties, encouraging Accessory Development Units, intensifying housing development in the Medical District, enhancing

Downtown's Main Street as a historic and active commercial core, and revitalizing the Ramada Drive area to become an essential economic driver of the North County. Circulation improvements were proposed, including pedestrian and bicycle trails to connect the community to the Downtown core.
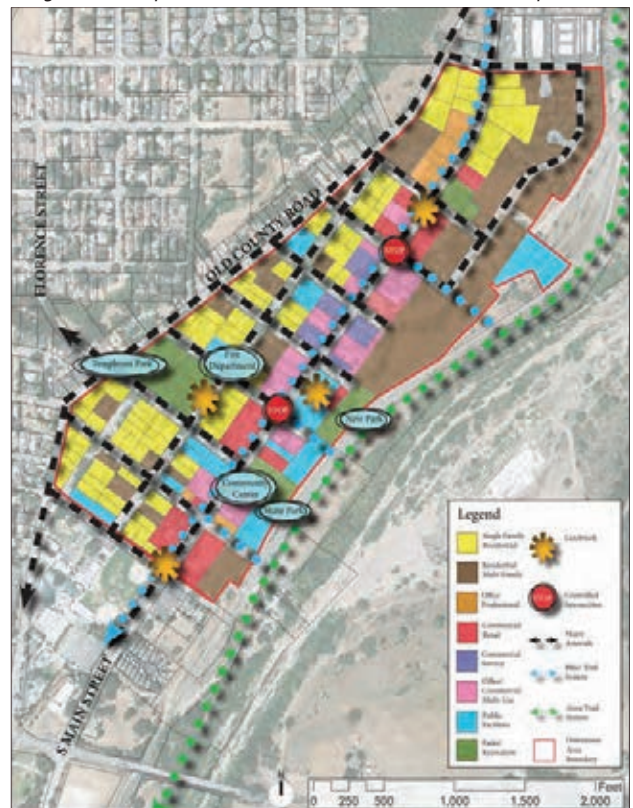
Opportunity Areas

Based on the vision for future development in Templeton and comments received from the community, the class prepared concept plans and development recommendations for three opportunity areas: a) Downtown, b) Ramada Drive, and c) the Expansion Area.

The Downtown concept plan proposes increased opportunities for commercial, retail, and office spaces along Main Street, increased variety of housing types, the highlighting of historic resources, and the implementation of multimodal transportation options. The plan focuses on defining the Downtown core as a unique place in Templeton through a Western-themed entrance archway and way-finding signage. The concept plan emphasizes the charming Templeton Park and proposes a trailhead connecting the town to other areas in the region.

The Ramada Drive concept plan proposes a new gateway into the corridor to define it as a distinct commercial and

Figure 1: A busy community workshop in Templeton, with participants discussing alternative growth visions.

Figure 2: Final prefered alternative for the Downtown Concept Plan.

industrial area and to provide continuity throughout the town. Commercial service use will be concentrated along Ramada Drive to capitalize on the freeway frontage off US Highway 101. The majority of this district is designated as two industrial categories: industrial with limitations, and industrial without limitations. Industrial with limitations is proposed behind commercial service use, while industrial without limitations is proposed on the east side of the area.

To identify an area suitable for the town's growth, the class conducted multiple studies addressing natural hazards, flooding and environmentally sensitive areas around Templeton, zooming in on a 380-acre area that was appropriate for development. Named the Vineyard Creek, the proposal provides spaces for a school expansion area, community center, transit center, gateway, trails and pedestrian paths. The concept focuses on mixed-use development and affordable housing, as well as large-lot homes overlooking a proposed golf course.

Final Remarks

The Templeton Community Planning Lab gave the students a new perspective on planning in rural towns. This experience exemplifies Cal Poly's "Learn by Doing" motto, allowing students to work collaboratively with community members to create a vision for the future of Templeton. Throughout the planning process, students were challenged to think outside the box and find innovative solutions for community concerns. The students' work successfully addresses the needs of the community and is a significant step toward updating the Templeton Community Plan.

Figure 3: Final preferred alternative for the Ramada Drive Area Concept Plan.

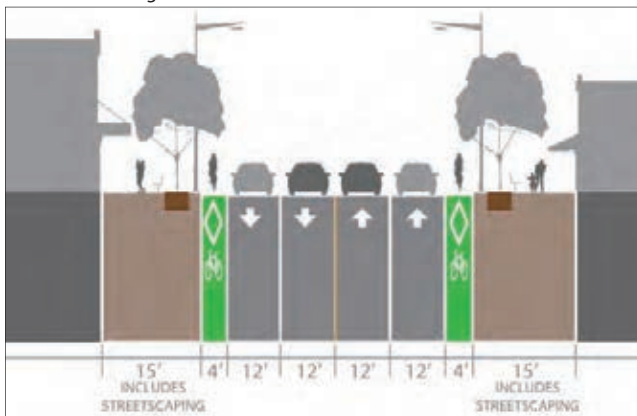Figure 4: Ramada Drive street section.

Figure 5: The class in front of the community building where the visioning workshop was held.

Mumbai Port and City:
Planning for Symbiosis

Hemalata Dandekar
*PhD.; professor and head of
Cal Poly's CRP Department.*

Sulakshana Mahajan
*Urban planner, Mumbai
Transportation Support Unit.*

Globalization, private sector and community pressures, and the need for capturing new revenues are the major factors directing port cities around the world towards redeveloping their old ports and waterfronts. Dandekar and Mahajan discuss the opportunities and challenges faced by Mumbai, one of India's major port cities, in planning for such changes and responding to the need of all stakeholders.

Mumbai Port has declined in the face of competition from a new port located directly across the water within Mumbai Harbor. Its 1,100 acres of prime waterfront land, now under-utilized, edge Mumbai City's eastern shore. Slum encroachment and illegal underworld activities permeate under-utilized port lands that are coveted by Mumbai, a city that is starved for suitable development sites. However, port lands are controlled by the Mumbai Port Trust (MbPT), not by the city.

Both Mumbai City and Mumbai Port are losing their regional and national dominance. A new city-port synergy, as has been attained in other major port cities of the world, is needed. Pragmatic intra-government negotiations and planning processes which include private and third sector stakeholders are called for if Mumbai's port and city are to reach a new and productive equilibrium. Creative planning intent and processes to achieve it are needed.

Mumbai

The evolution of Mumbai (formerly Bombay) City is intricately intertwined with its location on the western coast of India and its significant geographical asset—a sheltered port. As with other British colonial port cities, Mumbai's growth and development during British colonial expansion period were intrinsically related to its ties with trade, commerce, and economy, as well as its administrative connections with London. The dendritic transportation and communication infrastructure that the British financed and built emanated from Mumbai City into the productive agricultural, labor-rich hinterland of the Deccan Plateau. The regional connections enabled economic growth not just from trade, but also by helping to fuel industrial production in the core of the colonial city. The growth and viability of Mumbai today continue to be linked with trade and finance, but are no longer dependent on the old port. Transportation infrastructure—primarily rail, road, and more recently a highway network—has been a key factor that facilitated strong regional and national connections. Mumbai City aspires to become a significant global city and to continue to play a leading role in the economy and development of India. But congestion, a declining quality of life, and lack of amenities are causing it to lose ground. Access to port lands is perceived to be a key opportunity for remediation.

Colonial Mumbai

Seven islands constitute present-day Mumbai. The potential of these islands to serve as a center of trade and commerce that could compete with other ports was recognized by the British. Incentives they offered to skilled workers attracted a diverse and multicultural work force to the city. These workers form the basis of the skilled business community and the multicultural society of today's Mumbai. The British invested in extensive public works, and over some sixty years the seven islands of Bombay were merged into a single land mass. The construction of the Mumbai docks was part of this substantial investment in major infrastructure. The city had the leading port, railway headquarters, textile industries, and the financial sector of the country. Population growth of Mumbai was supported by the growth and diversification of the economy, making the city the land of opportunity. Mumbai's population growth accelerated following independence and the partition of the country into India and Pakistan. Between 1941 and 1951 the city grew at a rate of more than 5%, due to an influx of refugees from Pakistan and in-migration from other parts of India for jobs. In 1951, with a population of 4.6 million, Mumbai was the second largest city in independent India (after Calcutta).

Post-Independence

During colonial rule all public authorities operated under a common and singular goal of maximizing economic benefits. After independence in 1947, development strategies of the port, railways, textile mills, and finance and banking sectors

started to develop in different directions as they sought an economic competitive edge in new, emerging sectors of the economy. Post-independence economic benefits were seen as secondary to non-economic public interests such as attaining social equity. In addition, diverse agendas were operative at different levels of government—central, state, and local or municipal. Even though all the public sector authorities operating in Mumbai are mandated to serve the "larger Public interests", the understanding of public interests varies greatly as defined by national, state, or local governments. Agencies are insulated from each other and they vary in their understanding of, and accountability to, local priorities. Various governmental agencies also control the diverse sectors that must coordinate and collaborate to bring about changes in key port activity. Mumbai Port Trust (MbPT) is housed under the central government's Ministry of Shipping, and there is no single coordinating authority with power to act across sectors to bring about synergy between the city and the port.

Post-Independence City Growth

Between 1951 and 1981 the greater Bombay region grew an average of 3.5% annually, mostly in the northern suburban areas of the city where the growth rate was almost 8%. The long, narrow land mass of the peninsula made for increasing congestion, traffic jams, and long commute times from dormitory suburbs to downtown jobs. By 1991 two-thirds of the Greater Bombay population lived off the island in the suburbs. Most new industrial development was directed away from Bombay across the harbor, where a new twin city—Navi (new) Mumbai—was planned to help decongest the city.

Mumbai Port Expansion

The expansion of Mumbai's port continued after Indian independence in 1947 well into the 1970s. In Mumbai

Port, Jawahar Dweep was created to handle crude and petroleum while the Pirpau Jetty was constructed to handle liquid chemicals and petroleum products. Four oil berths capable of handling large tankers, a modern jetty, and a number of new upgraded pipelines were added from Pirpau to Jawahar Dweep between 1988 and 1996. Most of the expansion was designed to handle imported petroleum and chemical products that were used by petrochemical industries on the shores of Mumbai as well as Navi Mumbai. Mumbai Port had a total of 63 anchorage points and was the largest port in India, handling the highest amount of cargo. It provided employment to some 40,000 workers directly and many more indirectly.

A new institutional framework for major ports in India was established by the Central Government Act of 1966 that stipulated that each port would be administered by a Board of Trustees (a majority of whom were appointed by the Government of India) and operated under policy directives from the Central Government. Port Trusts were expected to serve the public interest—not to maximize profits or revenues or optimize the deployment of their assets such as land. Port activities also needed to conform to the Dock Workers (Regulation and Employment) Act of 1948 that protected the interests of dock workers; it established rules of service, standards of work and welfare, and, more significantly, assured dock workers complete job security. Port Trusts were also affected by the Merchant Shipping Act of 1958 and the Environment Protection Act of 1968, that had the effect of restricting the expansion and modernization of old ports like Mumbai. But the acts also enabled the creation of new ports by the public sector. Nhava Sheva Port established across the bay was declared a "Major Port" and its name was changed to Jawaharlal Nehru Port (JNPT) when it started its operations in 1989. The new port enjoyed significant transportation and locational advantages and lower land costs.

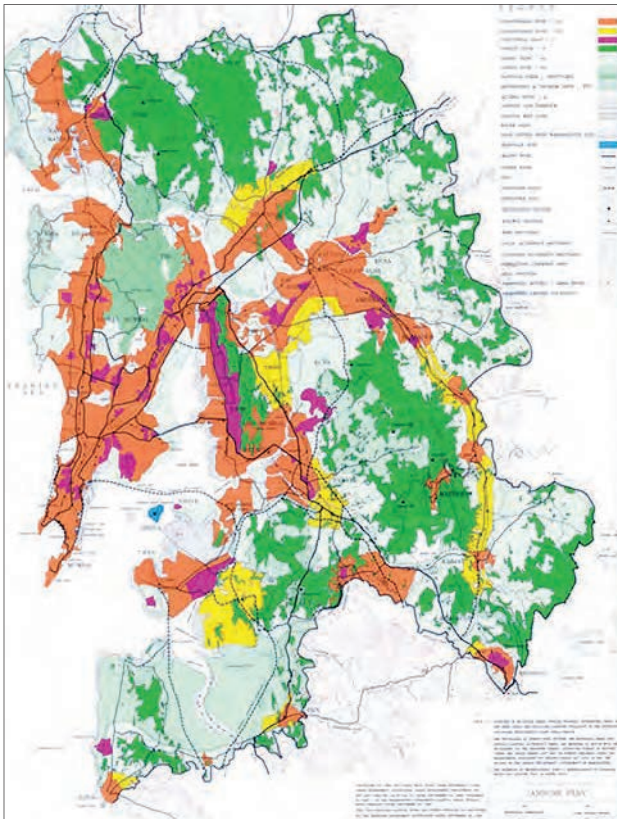*Figure 1: View of the southern tip of Mumbai, showing part of the port (left) and the Colaba and Cuffe Parade residential districts. (from http://www.enjoyindiantrip.com; access 10/30/13)*

Figure 2: Concept Plan for the Mumbai Metropolitan Region.
(from http://www.visionmumbai.com; access 10/30/13)

<u>New Industries</u>

The first integrated petrochemical industry, which also included fertilizers and pesticides, started functioning at Trombay, Navi Mumbai in 1966. It depended on imported petroleum products handled by Mumbai Port. Large engineering, pharmaceutical, printing, auto, as well ancillary medium and small industries expanded from 1960 to 1990 in Mumbai suburban areas to the north and along the eastern and western railway corridors. These industries attracted migrants to the Mumbai region and resulted in the growth of regional cities. The government and public sector industries, such as telecommunications, metal, and engineering, also added to the employment in suburban areas of Mumbai. Following nationalization of many private banks in the late 1960s, banking and finance operations also expanded substantially in Mumbai while heavy industries declined. Thus in the decades after independence, the foundation of a service economy was established in Mumbai.

Post-Liberalization Globalization

The new policy of globalization, privatization, and liberalization charted by the Central Government in the 1990s created major challenges for Mumbai City and

Mumbai Port. The traditional industries that had flourished within the city declined, and financial and other services grew both within the city and in the region. A private sector group, Bombay (Mumbai) First, advocated for public-private partnerships in creating a Bombay that would be a competitive player in the global economy and reinvent its base economy through a variety of transformations of industry and product.

Their 2010 Concept Plan for Mumbai Metropolitan Region (Figure 2) visualizes ambitious plans for the development of the physical infrastructure of the city-region, including large-scale land reclamation and creation of new islands in Mumbai Harbor. It envisions a shift in the city economy to tertiary services (from 71% in 2008 to 76% by 2052) with a high emphasis on skilled human capital, and a high rate of growth in business services and 24% employment in the secondary sector.[1] These projections and the State Government's initiatives to grow IT services had the effect of drawing attention away from the old economy of manufacturing, chemicals, and trade for which the port was key infrastructure. The growth of the new service economy largely rested on the city's ability to provide high-end financial and IT services and cater to other high-skilled service sectors such as diamond cutting and trade, and on facilitating construction of infrastructure. In this new economy, the need to develop a symbiotic relationship between the port and the city has now emerged with greater urgency.

<u>Mumbai and Navi Mumbai Port Relationship</u>

As trade was expanding under neo-liberalization policies so was the need for port infrastructure. The new port policy undermined the identity of Mumbai as a port city connected to its manufacturing hinterland. Infrastructure in the Mumbai dockyards was underused and some of the port activities started to decline even though the petroleum product handling increased. The Port Trust's workforce declined by 50% from 1990 to 2005, with the introduction of the Voluntary Retirement Scheme (VRS). With this decline in numbers the political strength of the dockworkers' union also declined. From 2003 to 2006 investments in fixed assets and capital expenditure by Mumbai Port declined while expenditure went up substantially due to contributions

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[1] See pg. 6 of the 2010 Concept Plan power point at http://www.mumbaifirst.org. Bombay First "drew inspiration from the emergence of London First, which assumed the role of facilitating the restructuring of London through various Public Private Partnership initiatives. As the big business houses in London came together to form London First, the major industries and business houses in Mumbai came together to create Bombay First. Bombay First has been formed largely as a think tank of the city, and also to assume a more specific role of fostering partnerships between various major stakeholders. Big business houses and financial institutions have made contributions to create a corpus for the functioning of Bombay First. It uses the means of researching, catalyzing, advocating, and networking to fulfill this role mission. Bombay First today has become one of the most successful examples of Public Private Partnership."

that had to be made to the Pension Fund Trust. Though operating profit had increased, net profit after tax became zero in 2005-06.[2]

This decline of Mumbai Port was in sharp contrast to the growth of other major ports on the western coast of India, including JNPT. The growth of JNPT across the harbor in Navi Mumbai has been especially significant as the port was able to increase its capacity to handle liquid products with innovative policies. After the reforms, JNPT, which was mainly entrusted to handle container traffic, was able to expand and diversify its operations with innovative methods. As Ray (2004: 18) notes, "JNPT contracted with two major public sector oil companies, Bharat Petroleum Corporation Ltd. (BPCL) and Indian Oil Corporation Ltd. (IOCL) to develop a new dedicated state-of-the-art liquid cargo handling facility … with the objective of shifting the entire handling of POL (petroleum-oil-lubricant) products and other liquid cargo to this terminal."

JNPT was also equipped with a modern IT-based communication system, vessel management system, and electronic data interchange facilities, which allowed for efficient communication between the port and port users and customs. It was also well connected to its hinterland and the rest of India by national highways and the Konkan Railway. An important dedicated high-speed rail project—Delhi Mumbai Freight Corridor (DMFC)—is now underway; this would link JNPT with North India. These new developments are likely to further undermine Mumbai Port in the future, making it difficult to revitalize its traditional activities.

Repurposing Mumbai Port Lands

In Mumbai land for housing, service provision, and commerce is in acutely short supply. The under-utilization of the Mumbai Port lands is documented and mapped in great detail in Mehrotra et. al.'s A Study on the Eastern Waterfront of Mumbai (see particularly page 12—sub-optimal port use—and page 25—potentials of real estate). This spatial mapping and analysis of the eastern waterfront highlights the fact that the MbPT land, infrastructure, and waterfront offers an opportunity to "mend" or enhance the urban fabric of downtown Mumbai, and improve the amenities and quality of life in Mumbai City.

Mumbai's eastern waterfront is a tremendous asset, which can become a key element in creating the type of environment that is attractive to the financial, banking, corporate, and entertainment sectors that are the engines of Mumbai's economy today. The eastern waterfront has been effectively locked away and made inaccessible to most civilian activities for the last century. It has been an area

basically "walled off" from the daily life and hustle and bustle of Mumbai city life and its commercial economy. Commuters on the Harbor Railway which edges the docklands obtained only tantalizing glimpses of the dilapidated, discarded buildings, warehouses, and infrastructure that occupy the port area. To the working Mumbaite commuting to work downtown, the eastern dock area had been a mysterious no-entry land. However, although the pressure to turn over port land has been successfully resisted so far by the MbPT, it has had to concede to a demand for land for infrastructure. Thus a new, 10-mile-long Eastern Freeway, running above the existing main port road parallel to the Harbor Railway, has recently been completed. The elevated road provides much clearer views of the dichotomy between the dense city fabric of Mumbai City to the west and the underutilized Mumbai Port lands to the east. Mumbai City has been pressing MbPT to open up the eastern waterfront for the benefit of the city.

The port lands represent an asset that is highly contested, due to its geography, history, and strategic location edging a congested and dense island city. Suggestions for its use range from amenity-based, high-end leisure activity to those offered by the Mumbai Port Trust for increasing port activity at strategic sites along the eastern waterfront. Numerous constituencies have a stake in the outcomes of these land development decisions. Industrial facilities, the dock infrastructure, related storage and processing areas and buildings, the illegal squatter settlements, and underworld activities have infiltrated these areas and occupy the land resource.

In 2002 eleven government, seventeen private, five NGOs, and ten labor groups were stakeholders in this area (Mehrotra et al., 2005: 8). These stakeholders hold contradictory positions on how the scarce resource of Mumbai's eastern waterfront docklands, industrial infrastructure, buildings, and utilities need to be repurposed to optimize their economic, social, or civic usefulness in the global economy of the 21st century. They range from refurbishing the old port infrastructure and striving to return the area to its primary purpose as an entry port for goods and people (as suggested by proposals from the MbPT) to NGO claims on lands, some already occupied by squatter settlements, to create social housing needed by the poor.

All have legitimacy and rationality that is consistent within their internal frameworks. But lost in this contestation is the issue of what is needed in the new global economy to jump-start and support the heart of a city that is in economic transition. The east dockland waterfront successfully serviced the city and maintained its competitive edge during the industrial period. It is poised to be able to play a similar role in the new knowledge and service economy of the 21st century—if processes can be aligned to enable this role.

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[2] Mumbai Port Business Plan, final report, volume I.

Repurposing Mumbai Port for Synergy with the City

The potential of the eastern waterfront to play a key role in integrating Mumbai Region with growth nodes of economic activity, people, manufacturing, and transportation infrastructure is clearly illustrated in many concept designs for the region. The successes of San Francisco and Silicon Valley in the South Bay Area, Lisbon's modern transit center and revamping of port land into new urban facilities and amenities, Rotterdam's expansion of new container port infrastructure onto reclaimed land into the sea, Baltimore's amenity-laden, recreational tourism- based revitalization, and New York's resilience in repurposing port areas are immediately evoked. London's dock area, particularly the now well-known case of the Canary Docks area and India Docks—the main receiving point of bulk goods from Mumbai during colonial times— now transformed to office, commercial, service, and housing usage, is referenced.

Reviewing the current literature on what these cities have achieved and are proposing with repurposed port land is instructive. It reveals what may be possible. Although case study comparisons are enlightening, they have limited direct utility. These successes are based on the technical, spatial, geographic parameters, resource base, and overall configuration of the particular landscape and what it logically allows. Most case studies do not explicate the fact that making changes in key infrastructure is a politicized, power-based activity in which technical rationality plays a role, but does not usually determine decisions. Long-standing interests, timing, and political clout are important signifiers, varying greatly depending on the point in history and the specific context.

Peterson and Thawakar (2013: 15) describe the value of government-owned land in the Mumbai Port area, underscoring the possibilities inherent in converting the value of just some of this land to provide the finance capital needed for infrastructure and other investments to bring about redevelopment in the city and the port areas. They argue:

> "200 hectares can be managed, over the long run, according to economic and urban development principles. Given recent land pricing in Mumbai, this patrimony would have a value of roughly 125,000 crore Rupees, or in the range of US$25 billion. The financial value of Port land need not dictate decisions about land use. It does justify managing Port land as a coherent estate, where genuinely surplus land is identified, and land values can be converted from time to time into critical infrastructure investments."

They go on to note that the key landholder, the MbPT, does not support transformation of land use from port-related uses to other kinds of occupancy.

An important component of reinventing traditional port city cores around the world has involved the preservation and adaptive reuse of the historic, cultural, and architectural fabric, and developing the historic narrative of the old city and port. Attention to this patrimony has enabled successful economic redevelopment strategies centered on tourism, such as in the pioneer cases of Boston and Baltimore. Preservation of the historic city core to stimulate tourism as an economic catalyst has been part of the underpinning of many successfully revitalized city cores that are proximate to a historic port and docks. The fact that revitalized downtowns and adaptively reused historic buildings provide a cachet and legitimacy to multinational industries that appropriate these sites for their facilities has been noted in a variety of contexts. The process is evident in the Ballard Estate area of Mumbai adjoining the entryway to MbPT lands (Mehrotra, 1998).

Peterson and Thawakar's discussion of land values of property under ownership of the government underscores the fact that capital needed to finance investments in critical infrastructure and to create the environment and synergy that would allow private investment capital to flow into the city and improve the physical fabric is at hand— or underfoot—for cash- starved government entities in Mumbai. The complexity and challenge lies in creating the vision and the approach that will work in a society that is a functioning democracy, one in which economic revival which results in gentrification, takings, and removal and relocation is constrained and tempered by laws that protect slum residents' right to land tenure and access to shelter. It is a society in which there are stakeholders that demand a development that meets the needs of the working class and the middle class, and, the government must, at some level, listen.

Generating Alternative Redevelopment Futures

To attain an outcome that is considered a win-win by a majority of the many stakeholders, the MbPT docklands need to be utilized and repurposed so that the service they enable can capitalize on the resources of Mumbai City and help revitalize its physical, cultural, and social fabric. The options delineated by various architect and planning groups over the last decade or two have visualized many strategies in a compelling way. Examples include:

a) Mumbai First suggestions present a rich visualization of cruise-ships-driven, entertainment- and recreation-centered development by repurposing the dock area near Cotton Green railway station to create an entertainment and recreation zone that would benefit residents and tourists alike. It outlines bridge and water connections across the bay to network the area into a whole. Such cross-bay connections might serve to make the port a complementary and synergetic, if not integral, part of Mumbai City as well as regionally integrate waterfront and port-related activities around Mumbai's Thane Creek, including the JNPT port.

b) A concept plan by Singapore-based consultants Surbana addresses a regional solution that involves the development of Mumbai-Navi Mumbai to take advantage of the safety of the Mumbai Harbor. It involves systematically building activities around the harbor (Figures 3 to 4) and links them with transport connections consisting of highways and metro and suburban trains. The comprehensive transportation plan has a goal that commuting from "anywhere to anywhere in MMR is not to be more than one hour"– a radical and transformative ideal for a city beleaguered by extremely long and exhausting commuting patterns. The long-term plan envisions the creation of more waterfront with islands of reclaimed land in the middle of the harbor providing recreational beaches, green parks on the waterfront, and sites for entertainment and tourism. These are interlinked with regional sea transport launched from the historic refurbished dock named Bhaucha Dhakka. The plan calls for shifting the functions of Mumbai Port and the existing international and domestic airport at Santa Cruz in Mumbai's western suburbs to the city of Alibaug. It envisions connections to this airport through a rapid transit coastal train and a new highway to navigate the approximately 31-mile distance.

New service economies are evolving to be the leading sectors of Mumbai's post-liberalization economy. So far, plans for the MbPT docklands have offered little concrete suggestions for ways to help provide necessary housing, services, support industries, and amenity environments for the skilled and knowledge workers they need. The Surbana plan proposes high-end housing, hotels, restaurants, and parks in waterfront-facing land, and middle-end and affordable housing behind on the MbPT land and also on reclaimed islands. Support industries would be located in suburban as well as the new Mumbai area rather than in the heart of the city.

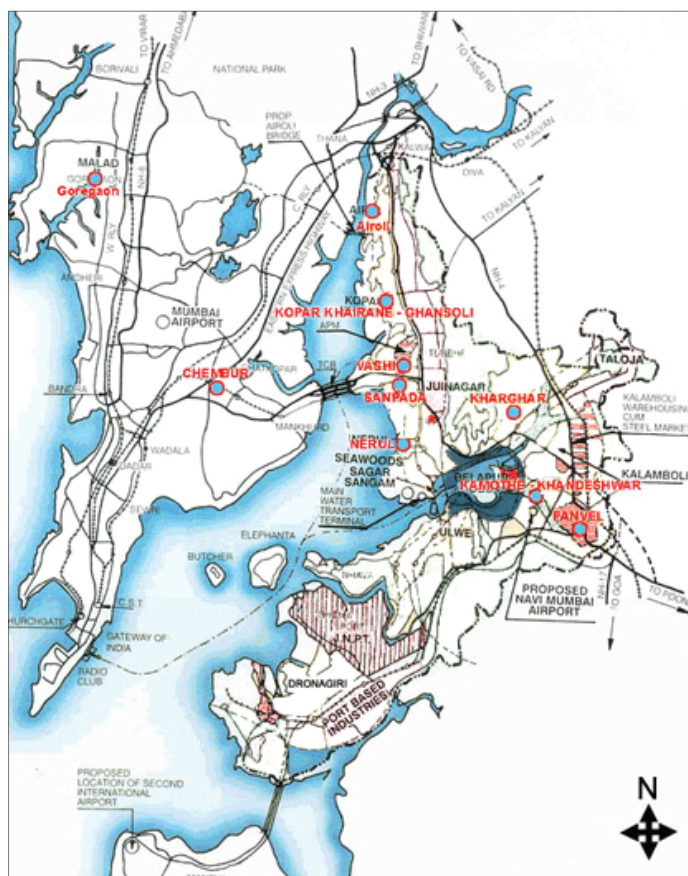*Figure 3: A view of the plan for Mumbai Region and the Navi New Town, by Surbana Consultants. (from http://www.surbana.com; access 10/30/13)*

Figure 4: An analytic sketch showing the proposed new uses taking the areas originally dedicated to the port.

Figures 5 & 6: "A Waterfront City Centre… a Gateway to India"; redevelopment scenario proposed for the Mumbai Port Area, from Surbana International Consultant's concept plan. (from http://www. worldbuildingsdirectory.com/project.cfm?id=4239; access 10/30/13)

The plan concentrates tourism efforts in the heart of the city in South Mumbai to capitalize on the area's history, shopping, high-end recreation/restaurants, museums, culture, and historical built form. It creates a heritage district that features and highlights the tourist attractions—museum and art galleries, theaters, and shopping—that have long existed in this area of the city. The Surbana plan suggests creating a new Central Business District for finances and a stock exchange in the Colaba area, linked with an underground Metro and highway link (Figure 5). Enhancing passenger traffic and cruise line traffic in the MbPT area continues a long tradition of the Mumbai docks serving the passenger traffic of generations of travelers, particularly those during the colonial period who left India to travel to England. In the 1950s, boats of the P &O line would leave from Ballard Estate for England and return passengers there. New opportunities for such arrivals and departures would create a contemporary face and opportunity for this historic connection.

Although IT incubator spaces that allow amenity workers opportunities to live on the waterfront and enjoy a quality of life have been used as revitalization catalysts in cities such as Barcelona, the concept plans for Mumbai suggest that there is not much scope for this on Mumbai island. However, media-related IT services are becoming concentrated in Mumbai's western suburbs around film city and Malad. IT is growing in the Navi Mumbai area through the conversion of old, large petrochemical industries into IT parks, data centers, processing units, etc. Some IT companies are relocating on the borders of Thane Creek in Navi Mumbai. Although a few back office functions may continue in the region there has been little innovation, except in and around IIT Powai.

A key issue that needs to be addressed is the role and opportunity for creating social housing in the redevelopment agenda. This is a huge challenge for a city where 65% of the population is estimated to live in slum settlements. Some slum redevelopment involving construction of 300,000 or so units and rented cessed buildings in Mumbai has occurred, but in a very disorganized manner.[3] For instance, the Slum Rehabilitation Authority (SRA) and Maharashtra Housing and Area Development Authority (MHADA) have constructed a large number of tenements (around 50,000) for people who had informally occupied land earmarked for infrastructure projects (such as railways, highways etc.) and who are provided with houses at other locations with funds from the project.[4]

In the democratic structure of Indian politics and the multicultural, variegated (differentiated by castes and also class) society and culture of Mumbai City, an approach to redevelopment of the historic docklands and port must involve a strategy in which a majority of the parties recognize that they have a stake and some share of the benefits.

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[3] Cessed buildings are those maintained by the Mumbai Repair and Reconstruction Board, a public authority, that collects a special cess from the tenants, a tax commonly referred to as the "repair fund".

[4] The task of providing social housing in the city of Mumbai is formidable and daunting. The two agencies charged with addressing this task, Slum Rehabilitation Authority (SRA) (see http://www.sra. gov.in/) and Maharashtra Housing and Area Development Authority (MHADA (see http://mhada.maharashtra.gov.in/?q=home), have been active in creating new opportunities for building units, usually in the lower-land-value areas in the suburbs. The Maharashtra Housing and Area Development Act, 1976 (MHADA) makes special provisions for repairs and reconstruction of "cessed" buildings.

Plans and visions for reconfiguring the region have been presented for at least the last fifty years.[5] Some of their aspects (the concept of a twin city for instance, that is New Mumbai or Navi Mumbai across the harbor) were actualized, but not as strategically and not in the linear and efficient manner that was envisioned. For instance, rail and road infrastructure links did not get built before the construction of the city, but came up afterward and even today are not yet as planned. Clearly none of the current plans will ever be directly adopted on the basis of their technical rationality and worth. Given the economic impact of planning actions in the public domain, such adoption would be unrealistic. Political pressures on the process and the decision makers will be tremendous. Decisive action is needed; this requires that an extremely strong political will emerges within the leadership in Mumbai (as it has in cities such as Hyderabad and Ahmedabad), leadership which convinces, cajoles, or defies all other authorities with its strong vision and power to force cooperation.

A more realistic outcome for the Mumbai context is probably one that involves compromise and accommodation, as well as a somewhat ad-hoc, neo-liberal set of somewhat piecemeal actions within an overall development concept that is generally acquiesced to. A good planning process that is inclusive is needed. In addition, a vision and its various strategies and objectives must explore and reflect the competitive advantages of being at the historic core of the city.

Suggestions for Mumbai port lands need to fit with the economic direction and movement of the city economy and city needs. They must augment and be in synchrony with the overall economic direction of the metropolitan region. Careful consideration must be given to identifying the kinds of activities and functions that might best be located on the eastern waterfront so as to draw on and strengthen the traditional city center and create a "city heart" which also embraces the port and the eastern dockyard area as a key element of the city past and the city present. Lastly, a planning process is needed that is inclusive of, and able to mediate between, the desires of the diversity of stakeholders who have claims rights on the city.

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[5] See, for instance: Correa, Charles; Pravina Mehta, and Shirish Patel "Planning for Bombay – Patterns of Growth, The Twin City, Current Proposals" (in MARG # 3, June 1965, pp. 29-56). This was a special issue of MARG on the development of Bombay, highlighting its colonial history and city development and dedicated, according to its editorial, to help solve a problem "on which will depend, literally the life or death of seven million people." The stakes are even higher today, as the Mumbai region now has a population of 17 million.

Portland-Milwaukie Light Rail Transit Project:
Managing Growth Sustainably through Transit Alternatives

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Schmidt and Gordon discuss the Portland-Milwaukie Light Rail Transit Project which will connect previously underserved areas to Portland's downtown core. Unique in its citizen-driven planning process it will stimulate the regional economy and enhance the quality of life through environmentally-conscious development.

EcoMobility aims to enhance transportation options in order to reduce resource use and promote public health for a better quality of life. As communities grow, there is potential for that growth to occur in a variety of ways. EcoMobility principles ensure that sustainability and equity are included in the planning process.

The Portland metropolitan region's South Corridor is expected to add one million residents and 100,000 jobs by 2030, putting stress on an already-burdened transportation infrastructure. To alleviate congestion, add transit alternatives and promote sustainable development, Tri-Met has initiated the Portland-Milwaukie Light Rail Transit Project. Driven by citizen engagement and defined by innovative design features, this project will allow growth to occur in a manageable way throughout the region, while supporting the local economy and increasing transit access to previously underserved communities.

By incorporating active and public transportation routes and restricting access of private vehicles on the bridge, Portland has demonstrated how its innovative transportation policy can lead the way for cities across the globe.

The City Context: Portland

The City of Portland is located in the northern portion of the State of Oregon, in the United States. It is the largest city and county seat of Multnomah County. Renowned for its bicycle- and pedestrian-friendly infrastructure and progressive land-use policies, the city is the 28th largest in the United States with an estimated population of 603,106

residents, as of 2012. It is urban in nature, with 1,689 people per square kilometer, ranking 14th out of American metropolitan areas in density.

The Tri-County Metropolitan Transportation District of Oregon (Tri-Met) is the public agency that operates the light and commuter rail and bus system in the metropolitan area. The light rail system, known as the MAX, carries approximately 127,000 people daily across five lines and is one of the most heavily used light rail lines in the U.S. As a whole, Tri-Met's offerings carry more people than any other transportation system of its size in the country.

The Portland Bureau of Transportation (PBOT) is also an actor in the city's transportation environment. PBOT operates the SmartTrips program aimed at encouraging all citizens to utilize alternative forms of personal and recreational transit. Select initiatives include Senior Strolls and Women on Bikes. The agency is also responsible for the bicycle infrastructure in the city.

The City of Milwaukie, located south of Portland, serves as a suburb with approximately 20,000 residents. The downtown is currently undergoing a revival, as new housing and commercial developments are under construction or planned, spurred in part by news of the new transit connection to Portland.

The Light Rail Expansion in Portland

In 1999, the City of Portland partnered with Tri-Met and other organizations to study transportation options in the South Corridor of the metropolitan area. A congested thoroughfare, McLoughlin Boulevard, currently dominates this corridor, which mostly carries commuters from Milwaukie and south Portland to and from downtown Portland. The initial proposals included river transit, high occupancy vehicle lanes, toll lanes, bus rapid transit and a commuter rail line. Light Rail was initially not considered as an alternative but due to active community participation in

the impacted neighborhoods, it was eventually selected as the Locally Preferred Alternative.

The first phase of the project in the South Corridor was completed in 2009 and provided light rail service from suburban Clackamas in the southeast of the region to Portland State University via the MAX Green Line. The Portland-Milwaukie Light Rail (PMLR) Transit Project comprises phase two of the project and will link downtown Portland to northern Clackamas County in the south of the region, traversing Portland State University, the Oregon Health & Science University, downtown Milwaukie and a new bridge to be used exclusively for active and public transportation. This will create the new Orange line in the MAX system.

The expansion of transportation in Portland is intended to increase livability and economic development throughout the metropolitan region. The South Corridor is expected to add one million people and 100,000 jobs by 2030. This project will allow development of the area to occur in a sustainable way and serve communities previously neglected by alternative transit options. Speaking to the crowd at the formal dedication ceremony of FTA funding approval, administrator Peter Rogoff posed a question: "Is Portland going to plan for its growth, or be overwhelmed by it?" This project is an opportunity to plan for the region's growth.

Sustainability is a major focus of this project, and protecting species and restoring wildlife and riparian habitat in the project area is critical to the mission. Public art installations associated with the project are meant to focus on low-impact development principles and contribute sensitivity as well as creativity to the public realm. A unique feature, referred to as an "eco-track," will bring European-style vegetated rail tracks to Portland for the first time at the Lincoln Street/SW 3rd Avenue station and further beautify the right-of-way while providing ecological benefits.

As with any large infrastructure project, challenges were inherent in the planning stage of the PMLR. In the summer of 2010, Federal Transit Administration funding was reduced from 60 to 5 percent, leaving Tri-Met approximately $140 million short of funding. In order to stay within the new budget, the scope of the project had to be reduced.

Two important decisions had to be made regarding the orientation of the light rail path. First was the placement of the bridge. To facilitate this decision, the Willamette River Crossing Partnership Committee was created and consisted of former Portland Mayor Vera Katz and project partners and institutions, businesses and neighborhood representatives from both sides of the river. In May 2008, the committee recommended the current alignment, which begins at OHSU's future South Waterfront campus and then crosses the river to the east bank to SE Sherman Avenue near the Portland Opera rehearsal and administrative space.

Figure 1: The Eco-Track at Lincoln and SW 3rd Avenue may resemble this track in Belgium. (source: http://citytransport.info/Digi/P1090720a.jpg.)

Figure 2: The Portland-Milwaukie Light Rail Project. Route map from the Locally Prefered Alternative. (source: http://trimet.org/pdfs/pm/LPA_Map.pdf)
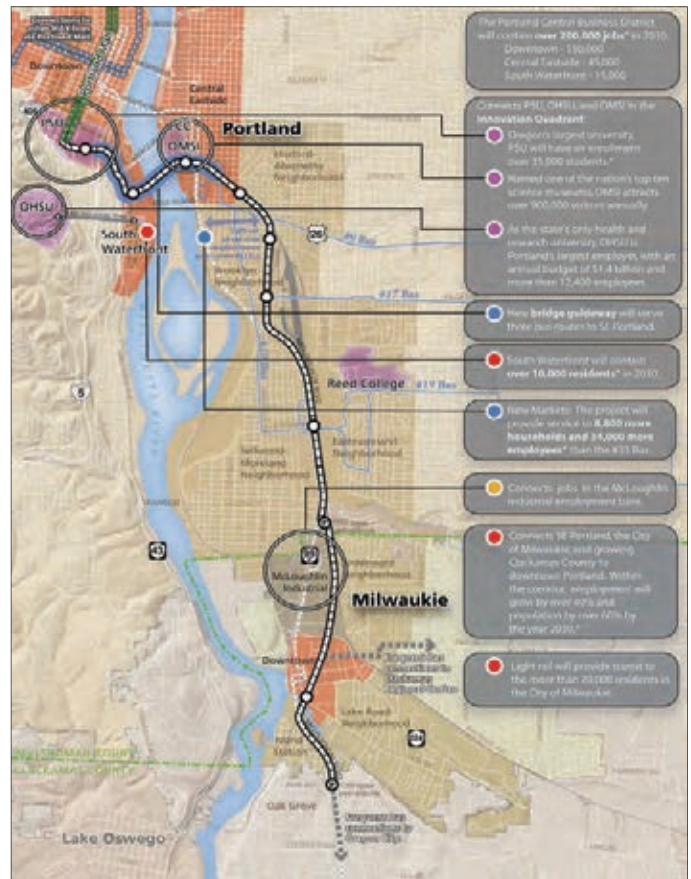
The second was the placement of the tracks, which ended up alongside existing rail lines for part of the route. This decision added to the cost due to land acquisition and limits the re-development potential. Alternatives could have placed the line down the center of McLoughlin Boulevard but this was not chosen, likely because it would have reduced automobile capacity on an already congested route.

Many partners were involved in the planning and funding: Federal Transit Administration; Clackamas County; Metro, a regional government body; City of Milwaukie; Multnomah County; City of Oregon City; Oregon Department of Transportation; Portland Development Commission; Tri-Met; and the City of Portland.

Results

The Locally Preferred Alternative, adopted in 2008, included a two-phase project, with the first including an expansion of the light rail system to Portland's South Corridor. The second phase will connect Milwaukie and northern Clackamas County to greater Portland and be completed in 2015. A Locally Preferred Alternative, according to the Federal Transit Administration, is the outcome of an analysis that evaluates the mode and alignment options for a particular corridor in a community with respect to benefits, costs and impacts therein.

The long-term goal of the PMLR is to "implement a major transit improvement in the South Corridor that maintains livability in the metropolitan region, supports land use goals, optimizes the transportation system, is environmentally sensitive, respects community values, and is fiscally responsible." The 7.3-mile light rail line is projected to carry up to 22,765 daily riders by 2030. It is projected that the light rail train will increase work commutes from the southern corridor to downtown Portland by 20%, and

reduce more than 60,000 vehicle miles traveled during peak highway congestion hours. As of April 2013, 40% of the construction schedule had elapsed with only 37% of the construction costs incurred ($549.4 of $1.49 billion) and 40% of the physical construction completed.

The Portland-Milwaukie Light Rail Transit Project will be essential to support the growth of more than 100,000 projected new jobs and more than one million new residents along this corridor by 2030. So far, 375 firms have been, or are currently working on the project, and over 3,451 direct jobs have been created. New development along the project line will provide various employment opportunities, encourage walking and cycling, and enhance livability. The project is actively working with several partners to incorporate sustainable elements and improve the surrounding habitat, including efforts to restore shallow water habitats, utilize recycled building materials, protect native bird species, and plant over 3,000 trees along the line. The PMLR will ultimately increase the livability and economic vitality of the entire region by connecting neighborhoods, encouraging healthier lifestyles and creating sustainable, inclusive, and well-designed public spaces.

Budget and Financing

The total capital budget for the project is US$1.495 billion. The Federal Transit Administration, via a Full Funding Grant Agreement (FFGA), is providing 50 percent of the funding, conditional upon the project staying on budget and completing on time. Part of that funding comes from the Federal Highway Administration, which is providing US$109.75 million as part of the Flexible Funds program, which allows highway funds to be spent on alternative transportation projects. The Oregon Department of Transportation is providing US$250 million via proceeds from the state's lottery fund. More than US$42.4 million of the budget comes from in-kind contributions.

Replication

Regions that have the need and capacity for increased public transit options, and a public who is willing to support such endeavors, can benefit immensely from projects such as the PMLR. Although light rail was ultimately decided upon as the Locally Preferred Alternative, a variety of transit options are available to other communities—including bus way expansion, bus rapid transit, river transit, high occupancy vehicles lanes, and high occupancy toll lanes. Any proposed transit project should be evaluated for its efficiency of operation, quality of service provided, level of expected ridership, projected economic benefit, and alignment with the community's land use plans. Cities looking to expand existing light rail services to previously underserved areas, create new customer bases for their downtown core, reduce traffic congestion for commuters, and stimulate their local economy should consider a project similar to the PMLR.

Figure 3: Artistic rendering of the future PMLR bridge across the Willamette River. (source: http://archpaper. com/uploads/west_coast_rail_)

Lessons Learned

Many of the major decisions made for the PMLR involved a flexible and interactive process with the citizen advisory committee, technical advisory committee, steering committees, a safety and security task force, and the project management group. These groups were comprised of local residents, business leaders, representatives from public institutions and community groups, and various professional staff members. Throughout the project development, the various committees learned about and toured the proposed alignments, participated in public meetings, and reviewed the technical findings. The steering committee, comprised of elected officials from the partner agencies, made all final policy decisions regarding the project. The local communities also stayed informed throughout the decision-making process through open houses, community presentations, newsletters, ads, website updates, Citizen Advisory Committee meetings, and Station Area Planning meetings.

Throughout the project, there was significant controversy over the $1.495 billion price tag for the project, making it the most expensive surface-running rail project in the country. This controversy deepened when the federal funding match was reduced from 60% to 50% of the project's total cost, and Tri-Met had to ultimately reduce the scope of the project. Many people believed the construction of the PMLR project was contributing to Tri-Met's financial crisis; however, Tri-Met's share of the entire project is less than 5% of the total project budget. Most of the construction and operating costs are funded by a passed payroll tax rate increase from 2005, which are funds dedicated specifically to new transit services. Accurate and timely public notification of such funding decisions is essential for a successful transit project.

An active and early public involvement process ensured that the PMLR project was the right project, in the right place, for the right price. Other regions looking to explore similar options should make sure to consider all routing options and locations before starting the project, and involve all affected communities as part of a regional collaboration process.

The successful outcomes of the PMLR are the result of an extensive public involvement process, which began during the initial phases of the project development. In 1999, a series of public meetings resulted in strong support for transit alternatives to relieve traffic congestion in the South Corridor. In 2002, neighborhoods along the corridor insisted upon the addition of light rail as an option, and in 2003 the steering committee selected light rail as the Locally Preferred Alternative after extensive public testimony and technical recommendations from the Environmental Impact Statement.

In 2011, the project's Environmental Impact Statement won FTA's 2011 "Outstanding Achievement Award for Excellence in Environmental Document Presentation", which is given to agencies that provide "truly useful" information to the public about a project, and that display the benefits, impacts and costs of the overall project in a way that is easily understood by all stakeholders and the public.

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Preparing a Local Hazard Mitigation Plan:
A Case Study in Watsonville, CA

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*Centered just twelve miles outside the City of Watsonville, the 7.1 magnitude Loma Prieta earthquake hit Santa
Cruz County in 1989, causing extensive damage. Community vulnerability to natural disasters can be reduced
by incorporating hazard mitigation into mainstream land use planning processes. In this article, Emily Lipoma
discusses her professional project for her MCRP in 2012, a Local Hazard Mitigation Plan for Watsonville.*

From October 26th to November 8th, 2012, Hurricane Sandy impacted millions of people as the hurricane caused flooding and power outages through 16 states. Approximately 380,000 homes were destroyed or damaged and the cost of recovery is estimated at over $70 billion. From June 5th to June 16th, 2004, wildfire tore through 7,500 acres of Santa Barbara County, threatening two oil refineries and 200 homes. These disasters and many others like them can cause deaths and devastate a town, region, or state in minutes or even seconds and take years of rebuilding.

The severity of the impact is not only related to the intensity of the event (the magnitude of the event or the geographic extent of the affected area), but it is also related to the vulnerability of the community it affects. Complete protection from every potential natural or human-caused hazard is unlikely, but measures can be taken to prepare a community to respond and recover from a hazardous event and reduce the severity of future hazard impacts. Several authors suggest that community vulnerability to disaster can be reduced through appropriate land use management and by incorporating hazard mitigation into mainstream land use planning processes. In this context, mitigation is commonly defined as taking sustained actions in community planning to reduce long-term risks to populations and property from hazards (Schwab 2010, Schwab et al 1998).

Hazard mitigation for a community can be undertaken by a number of different parties, although it is commonplace for planning departments to develop Hazard Mitigation Plans, either through incorporation into a General Plan or other long-range community guiding document, or as a stand-alone Hazard Mitigation Plan. Developing a Local Hazard Mitigation Plan allows communities and stakeholders to identify and incorporate appropriate strategies to reduce the vulnerability of a locality. Objectives of such a plan include identifying vulnerable buildings and infrastructure,

programming needed improvements into government budget priorities, and persuading private property owners to undertake similar commitments (Schwab et al 1998). Additionally, cities with completed Local Hazard Mitigation Plans are eligible to receive additional federal and state funding to rebuild affected areas.

In 1988 the federal government established the Stafford Act, which established an emergency response and preparedness system: individuals and households can receive basic disaster relief, and jurisdictions can receive post-disaster infrastructure restoration grants and hazard mitigation grants to prevent repetitive losses. As time went on, it was found that programs encouraging mitigation reduced the amount of federal relief and recovery funds paid to states and localities after a disaster event: for every $1 invested in mitigation, $4 of disaster losses are avoided. The Disaster Mitigation Act of 2000 (DMA 2000) further worked toward the goal of reducing risk before an event; the program is intended to reduce preventable, repetitive losses from disasters.

However, eligibility for DMA 2000 grants requires a Multi-Hazard Mitigation Plan as a precondition for federal mitigation project grants. DMA 2000 encourages state and local mitigation projects through financial incentives and competitive applications. Through incentives to encourage better development and planning decisions at the state and local levels, hazards can be mitigated before a hazard event (Topping 2011).

The City

The City of Watsonville is located in Santa Cruz County within coastal California and has a population of 51,199 (2010 Census). The city is approximately 6.6 square miles and includes a prominent slough system within the city limits. The area has a strong agriculture-based economy and the city economy is closely associated with

the agricultural activities of the larger area. In 1989, a 7.1 magnitude earthquake hit Santa Cruz County at 5:07 p.m. on October 17. The Loma Prieta Earthquake, centered 12 miles outside of Watsonville, caused extensive damage throughout the county from the initial earthquake and from the 7,500 subsequent aftershocks which ranged from 1.0 to 5.4 magnitude over the next two years. There were 63 earthquake-related deaths (5 of which were in Santa Cruz County), and more than 3,700 injuries.

Although the Loma Prieta earthquake affected a large region, based on the damage Santa Cruz County was clearly the hardest-hit area. Of the 988 homes destroyed, 744 were in Santa Cruz County, and of the 23,408 homes damaged, 13,329 were in Santa Cruz County. Of the 366 businesses destroyed and 3,495 businesses damaged due to the earthquake, 310 businesses and 1,615 businesses respectively were in Santa Cruz County (Schwab, et al 1998).

In addition to the pure number of homes and businesses affected, "damage was particularly acute for the cities of Santa Cruz and Watsonville because the damage was con-centrated in the downtown areas vital to the commercial, residential, and social/cultural identity of the communities" (Schwab, et al 1998). Watsonville sustained an estimated $200,000 to $250,000 in sales tax losses in the years di-rectly following the earthquake. In downtown Watsonville, 22 buildings were demolished, creating a loss of almost 700,000 sq ft of retail space. Approximately 90% of the dam-age in the city was due to unreinforced masonry buildings and wood-frame structures that were not properly fastened to their foundation. Watsonville is built on soils that have a moderate to high potential for liquefaction, lateral spread-ing, and subsidence; and is built on areas with a potential for landslides. Most of the Loma Prieta Earthquake dam-age in the city was at locations where the soils liquefied.

After the initial earthquake, aftershocks in Watsonville brought the possibility of additional damage. Tremors hit the primarily Latino residential areas near downtown

particularly severely and 550 residences were yellow-tagged (damage-limited entry) and 406 were red-tagged (major damage). An initial 1,500 people were homeless and many refused to enter buildings (including officially designated shelters) because of knowledge of the significant casualties caused by aftershocks in the earlier Mexico City earthquake. Language barriers further complicated relief and recovery efforts (Schwab, et al 1998).

The initial temblor destabilized many buildings, ruptured natural gas lines, and disrupted water supply infrastructure. Subsequently, fires broke out from natural gas leaks, and the inaccessible water supply paralyzed the effort to put out the fires. This synergistic effect of a multi-hazard event underscores the necessity of not only addressing individual hazards, but what could happen if other hazards were triggered at the same time. The Loma Prieta Earthquake also damaged the levees that protect the city from flooding. Had this major earthquake occurred later in the season when the water level was higher, significant flooding could have occurred as well, further damaging the city and hindering emergency response and recovery efforts.

In addition to being located in a seismically active area, flooding and human-made hazards are also a risk to the City of Watsonville. Watsonville is bordered to the north and east by the Corralitos and Salsipuedes creeks and the Pajaro River, and there are substantial slough areas throughout the city. There are currently 11.5 miles of levees along the Pajaro River and 3 miles of levees along the Salsipuedes Creek protecting the city from flooding. The existing channel and levee system along the Pajaro River has approximately a 15-year storm capacity. The Corralitos and Salsipuedes Creeks have five- and seven-year storm capacities respectively. Substantial flooding has occurred most recently along these waterways in 1995 and 1998.

In 1995 the Pajaro River and Corralitos Creek overflowed and flooded 3,280 acres. Agricultural crop damages

Figure 1: Damage to St. Patrick's Church in downtown Watsonville after the Loma Prieta Earthquake. (Robert A. Eplett/ CAL EMA)

Figure 2: Damage to Highway 1 near Watsonville after the Loma Prieta Earthquake. Extensive damage to this critical roadway severely impacted earthquake recovery. (J.C. Tinsley, United States Geological Survey)

were estimated at $67 million and in the unincorporated town of Pajaro in Monterey (across the Pajaro River from Watsonville), damages were estimated at $28 million. In 1998, 1,100 acres were flooded and approximately $1.7 million in agricultural crop damages and $ 0.4 million in non-crop damages occurred. These agricultural damages are considered to be low, because 800 of the 1,100 flooded acres were in the preparation phase and without established plantings.

In addition to the risk of economic loss around the city, several critical facilities within the City of Watsonville are within the 100-year floodplain. These facilities include the civic plaza, police headquarters, and a fire station, as well as several water pumping facilities. If shallow flooding does not exclude use of these facilities, it may impact their use and hinder city operations and emergency response.

Levees protecting Watsonville are owned by the City, but are managed by the County. The inter-jurisdictional nature of the Pajaro River (it establishes the county line between Santa Cruz and Monterey counties and is a part of a watershed that extends into San Benito and Santa Clara counties) requires many stakeholders in the decision-making process regarding the Pajaro River and its levees. The City has undertaken minor channel maintenance activities and levee studies, and the County and watershed joint agency have initiated studies and plans for major levee improvements and flood control projects. However, funding for the completion of the projects is lacking, and the City is not the primary decision-maker for major levee projects to increase the flood protection for the city.

The city is surrounded by farmland, and within the city there are many cold storage and pesticide facilities that require the use of hazardous materials. Currently, approximately 95% of the acutely or extremely hazardous material locations in the county are in Watsonville (County of Santa Cruz, 2009). During the Loma Prieta Earthquake there were a number of significant hazardous material spills, although they were primarily incidents where smaller amounts of materials were released and mixed. Larger amounts of hazardous materials were properly secured. The amount of hazardous materials in the city presents a continuing risk and previous releases underscore the potential for future events.

Watsonville is also at risk of several other hazards: Although wildfire risk has decreased with urban development, the severity of urban fires is increased due to older building stock and a dense population. Two of the past seven significant urban fire events in the city have occurred in structures that house vulnerable populations: The Wall Street Inn fire in 2005 displaced 50 elderly residents when a 94-year-old residential hotel caught fire, and the Stag Hotel fire in 2012 displaced 50 low-income residents from an 85-year-old residential hotel. These buildings and populations are equally vulnerable to an earthquake.

Figure 3: Repeated flooding of the sloughs has reclaimed Harkins Slough Road. (Emily Lipoma)

The Project

The City of Watsonville was approached in the fall of 2011 to be the subject for a Local Hazard Mitigation Plan for a masters professional project at Cal Poly San Luis Obispo (Lipoma, 2012). Watsonville was identified as a suitable city because the city did not have a LHMP nor immediate plans to create one. There had initially been plans for a joint-LHMP between the county and the four cities within the county; however, it was not completed. There are several City-owned facilities that are non-contiguous to the main city limits: the wastewater treatment plant, city landfill, Pinto Lake (a city park), and water facilities. Additionally, the city water district and emergency response facilities serve county residents outside of the city and infrastructure for these city facilities extends outside of the City's jurisdiction.

Initial response to the project proposal was supportive, yet skeptical. There were several aspects which allowed a student to undertake the project in coordination with the City. A Local Hazard Mitigation Plan had been on the drawing board for several years, but no funding had been allocated, and no action had been taken to initiate it. Thus key city staff had already recognized that such a plan would be beneficial to the city, but because such a plan had not yet been undertaken, the proposed project would not interfere with existing city projects. Furthermore, any progress that the proposed project made toward a Local Hazard Mitigation Plan would not require city funding. The final, and the most compelling, selling point to the city was that adopting an LHMP would make the City eligible for both mitigation and recovery grants for which they were not already eligible.

Local Hazard Mitigation Plans are commonly integrated into the Safety Element of a locality's General Plan, and there are state funding incentives to do so. However, the 2005 City of Watsonville General Plan update was

complicated by a lawsuit brought against the city by the Watsonville Pilots Association, a community group, and the Sierra Club. Subsequent court decisions found that the General Plan had not adequately discussed airport safety, among other issues. Because the Safety Element was specifically challenged, it was determined that a Local Hazard Mitigation Plan would not be incorporated into the city's General Plan at this time. However, language specifying that an LHMP will be completed, adopted, and updated every 5 years was included as an implementation item in the Safety Element.

Although LHMPs are commonly undertaken by planning departments, the Watsonville LHMP was developed through cooperation with the Fire Department and the Public Works Department. This project would not have been possible without the support and cooperation of the City Fire Department and Fire Chief Mark Bisbee, and the Public Works Department and Tom Sharp. By having a champion for the plan within the city staff, city resources such as expertise and data were available. Key city staff members were able to be channeled toward the project and develop interdepartmental support for the project. Completion of the LHMP would have been very difficult, if not highly unlikely, without this support.

The project was undertaken with the understanding that it was infeasible to complete necessary components of the plan within the timeframe allowed for the academic project. Thus the intent of the project was to complete the technical evaluation of risks so that the City could proceed with completion of a Local Hazard Mitigation Plan.

The technical evaluation included the identification of hazards and the development of a mitigation strategy. The risk assessment included an evaluation of development trends and goals, a review of past and potential hazardous events, and a vulnerability assessment of the types, potential locations and severity of hazardous events. The mitigation strategy would incorporate stakeholder input

Figure 4: Downtown Watsonville Plaza. (Emily Lipoma)

to determine mitigation goals, objectives, and strategies to prevent significant loss. If time permitted, a qualitative cost analysis would provide a foundation for mitigation prioritization and implementation guidance. Guidance on development of an implementation and monitoring plan would be provided to the City to ensure identified strategies are incorporated into appropriate city plans.

The risk and vulnerability assessment was directed by the Hazard Mitigation Advisory Team (HMAT). This team was composed of representatives from several city departments (including the Fire Department, Parks and Recreation, GIS and Public Works departments). At an initial meeting, the HMAT identified and prioritized natural and human-caused hazards which posed a risk to the city. DMA 2000 grants are only applicable to natural hazards, and FEMA only reviews LHMPs for analysis of natural hazards; however, the Watsonville LHMP examined both natural and human-caused hazards because there were several human-caused risks to the city, and additional information regarding these risks could only assist the city. Overall, the HMAT identified 17 hazards to be examined in the LHMP: earthquakes, fire, flooding, hazardous materials, liquefaction and lateral spreading, land subsidence, landslides, unreinforced masonry structures, aircraft collision, civil disturbance/terrorism, dam failure, drought, expansive soils, natural gas pipeline failure, vehicle collision, tornados, and tsunamis. This was an extensive list of hazards that may occur in the city. Many of these hazards were later determined through research to have a low probability of occurrence or a low probability of having a significant impact, or both.

Each of the identified hazards was analyzed based on previous occurrences in the city, probability of future occurrence, and how severe future events could be. This risk was then examined as to how each hazard could impact critical facilities and vulnerable populations. Critical facilities identified by the HMAT included city operation facilities (police headquarters, fire stations, city hall, hospital, etc.), Red Cross shelters, and critical city infrastructure (levees, bridges, and electricity substations). Vulnerable populations included schools and special population centers (elderly care facilities, day care facilities, the women's shelter, and residential hotels for parolees and people recovering from drug and alcohol addiction). Historic buildings were also included for reference and in case the city decided in the future to specifically pursue hazard mitigation for historic buildings. The multi-hazard summary then showed all of the hazards to which the facility or population was vulnerable. This information was based on City GIS data and publicly available GIS data.

Once the risk and vulnerability assessment was completed, the project transitioned into development of the mitigation strategy. While risk assessment relied on availability of data, development of a mitigation strategy was dependent

upon the expertise of the assembled Hazard Mitigation Advisory Team. Unfortunately, the team was not ready to develop mitigation actions for the identified risks within the timeline for completing the academic project. The project scope was then modified to exclude completion of the mitigation strategy, and steps and actions were identified for the City to consider when developing a mitigation strategy independent of the academic project.

Once the academic objective of the project was completed, the City decided to complete the project while there was still momentum to do so. The Public Works Department is overseeing and funding the completion of the project, which requires the completion of a mitigation and implementation strategy, a cost analysis, public review, and adoption of the plan by the City Council.

Completing the Project

Completion of the project is underway. Mitigation measures are being developed by small groups of city staff members who are most knowledgeable about the hazard and who have control regarding implementation of the actions. Descriptions of each mitigation action include: whether the action is a very high, high, or an important priority; whether the action has a high, medium, or low cost and benefit; which lead department will be responsible for implementation; what the timeline of the action is; what resources are required for implementation; where any funding will be derived from; and how each action will be incorporated into city operation. This additional information will inform the implementation strategy.

Most of the mitigation actions in the mitigation strategy are being developed specifically by the city staff members who will be carrying the actions out. In this way, the mitigation actions are for the LHMP but initiative for their completion will be from the departments responsible for their implementation. It is likely that mitigation actions identified for the LHMP will be implemented as a department action rather than specifically as something that is for the LHMP.

While developing the mitigation strategy, it was found that there were several simple actions that could be done to reduce the vulnerability of the city—essentially low-hanging fruit (Lipoma, 2012). The risk assessment identified and examined risk to the extent possible, but to further understand hazards such as urban fire, subsidence, and aircraft collisions to a greater depth, more data is required. For instance, loss of life in urban fires can be reduced by identifying high-risk structures and particularly vulnerable populations (such as senior care and high-occupancy facilities) and ensuring they are equipped with fire alarms and fire suppression equipment.

In other cases additional communication and cooperation between different agencies is needed. Hazardous materials are regulated by Santa Cruz County; communication and cooperation between the County and City on the location, amount, and type of hazardous materials within the city are critical for guiding city-specific hazardous materials safety requirements. These actions require little additional funding and can be completed with existing staff resources, can have a large benefit, and can initiate momentum for completing larger and more costly mitigation projects.

Once all aspects of the plan are complete an administrative draft will be reviewed by city departments, neighboring communities, other government agencies, and the Red Cross. Action Pajaro Valley, a community action organization, will be invited to review the administrative draft as well. Any edits or comments will be incorporated into the draft before a final draft is presented to the City Council for adoption. Once the plan is either adopted or adopted with the condition of approval, it will be sent to the State and FEMA for review.

Implementation of the Watsonville Local Hazard Mitigation Plan will depend on a few factors: a champion to ensure implementation and incorporation of the identified mitigation measures into city department plans. Charles Eadie writes that "hazard mitigation works best as a policy objective of local planning when it is so completely integrated into the comprehensive plan that it becomes a normal assumption behind all daily planning activities" (Schwab, et al 1998). While hazard mitigation planning in Watsonville has not likely reached "complete integration" with all normal planning activities, it is certainly much closer to achieving that objective.

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Improving Small Cities in California: Clearlake and Bell
Community Planning III Studio, Spring 2013

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In this article, professor William Siembieda presents some of the individual projects developed by the MCRP students in-lieu of a thesis or a professional abstract. They choose projects that can be helpful to a local jurisdiction. Presented here are four projects developed in the class for the cities of Clearlake and Bell, California.

Most small towns have several unmet planning needs. Helping to meet these needs is a valued outcome of the Community and Regional Planning Studio III (CRP 556), an option for MCRP students who prefer not to pursue a master's thesis or who have not identified their own client for a master's professional project. Following a two-quarter-long studio when a class studies a community and develops a general plan —often through a contract with a local jurisdiction or public entity– in CRP 556 students choose from a list of projects to be developed individually for that same community in one quarter (ten-weeks). These projects have to fulfill a local planning need as identified by the instructors and local jurisdictions.

This article presents work done in the spring of 2013 for the cities of Clearlake and Bell, California. Clearlake is a freestanding rural city in Northern California, while Bell is an urban city in the Los Angeles region. Four of eleven projects are featured in this article while the complete list of projects from this class is presented in Table 1.

Clearlake

Clearlake, an incorporated city of 15,000 people in Lake County, is 80 miles north of San Francisco. This community of 10.8 square miles is located adjacent to Clear Lake, the state's largest fresh water lake. The residents enjoy a rural life style and its economy is dependent on tourism.

Project: Template for EIR

In California, a General Plan Update requires conducting an Environmental Impact Report. This costly, and time-consuming task is assisted by Kathryn Slama's project: a Program EIR Template for the General Plan. A program level EIR evaluates the implications on the environment as a result of adopting a planning document, such as a general plan which provides direction for long-term visioning and broad community goals.

This EIR template is used to assess all elements of the

Table 1: Students' project titles and cities.

	Student Name	Title	City/County
1	Michael Christensen	Accessory Dwelling Unit Ordinance	City of Bell
2	Gabriel Diaz	Transit Oriented Development Design Project	City of Bell
3	Brian Harrington	General Plan Update Economic Element	City of Bell
4	Michael Heater	Rails to Trails	City of Bell
5	Jonathan Hidalgo	Healthy Community Element	City of Bell
6	Abraham Sheppard	LA River Neighborhood Vision Plan	Bell/Los Angeles Cnty
7	Steven Ingoldsby	Air Quality Element	City of Clearlake
8	Lana Russell- Hurd	Transportation Priority List and Grant Proposal	City of Clearlake
9	Emma Schoppe	Olympic Drive Design Guidelines	City of Clearlake
10	Kathryn Slama	GP Update - Draft Environmental Impact Report Template	City of Clearlake
11	Tan Trango	Directional Signage Plan	City of Clearlake

Figure 1: Proposed General Plan for Clearlake.

General Plan Update, such as land use, whose main goals are as follows:

Goal LU-1. Accommodation of future residential growth with a rural character.

Goal LU-2. Concentrated development with heightened activity centers.

Goal LU-3. Compatible land uses.

Goal LU-4. Easy access to daily needs and services.

The template is then used to complete the program EIR based on the General Plan projections such as shown in Figure 1. This city of 15,000 people is expected to grow to nearly 19,000 by 2040. The template provides a basis for adequately assessing the expansion impacts.

Project: Olympic Drive

The main east-west road in Clear Lake is Olympic Drive. Emma Schoppe's project is a collection of circulation, streetscape, building form, landscape, and signage design guidelines for Olympic Drive in Clearlake.

The goal is to incorporate safe and attractive street design to enhance the community's social and economic viability. The Olympic Drive Design Guidelines is a tool to help implement the vision and goals developed in Clearlake's 2040 General Plan Update. Olympic Drive is identified as a major opportunity to focus growth and address the community's social and economic needs in the General Plan Update. Design standards and principles for shaping safe, efficient and active streets are applied to the Community context of Olympic Drive. The SWOT analysis conducted helped address the challenges and takes advantage of the opportunities for positive urban design elements.

The Design Guidelines include sections on: circulation and parking, streetscapes, parks and landscapes, building form and signage and wayfaring. Implementation recommendations for updating the city code, related planning documents, and streetscape improvement projects are included in the project report. Clearlake can begin implementation immediately (Figure 2).

Bell

The City of Bell is an inner-ring Los Angeles suburban town, located eight miles to the southeast of downtown Los Angeles (Figure 4). Its built fabric is primarily composed of well-established residential neighborhoods and arterial commercial corridors. With over 35,000 residents in only 2.81 square miles, Bell has one of the highest population densities of any city west of the Mississippi. The channeled Los Angeles River bisects the industrial areas to the northeast from the southwest residential area.

Project: La Orilla del Rio

Bell Riverfront Vision Plan, developed by Abe Sheppard, provides a strong urban design statement on the potential to develop recreational activities for the city. The project plan envisions a revitalized riverfront that is a desirable place to live, work, learn, shop, and play for an active, diverse community. Bell's eastern border is the Los Angeles River, a concrete flood control channel that provides few assets to its adjoining communities. By joining other river-adjacent communities in a comprehensive approach to river corridor revitalization, Bell can take incremental steps to realize the

Figure 2: Depiction of a possible future for Olympic Drive. (source: http://www.nybc. net/advocacy/complete-streets)

Figure 3: Project La Orilla del Rio, in Bell.
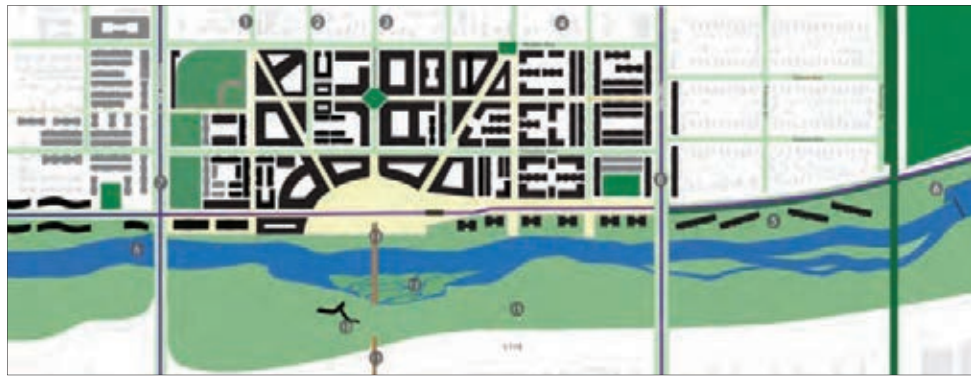
riverfront's potential to become an urban amenity.

Near-term improvements to the channel sides and adjacent land uses can provide recreational amenities in an area that lacks adequate parks and open space. In addition, both near and long term revitalization efforts can be a regenerative force for Bell's neighborhood by La Orilla del Rio – the shores of the river. The plan proposes a three-phased approach for revitalizing the Los Angeles River riverfront and its adjoining neighborhood district.

For the nearer term (5-10 years), the Riverfront Plan envisions new recreational facilities and parks, attractive market-rate and affordable multi-family housing options, and improved river accessibility. This phase incorporates elements that are most likely to be implemented within a ten-year time period. During the mid-term phase (10-20 years), further enhancements are made to the district's circulation network, public infrastructure, and recreational amenities (Figure 3).

Project: Rail to Trail for Bell

Bell has a railroad line through the city (Figure 4). An innovative project proposal developed by Michael Heater is the Randolph Street Rail to Trail Feasibility Study. This project examines the potential possibilities for creating a non-motorized, multi-use trail along the rail corridor. The study provides the preliminary foundation needed to plan, design, and construct a rail to trail corridor.

The project would create an east-west bicycle and pedestrian linkage between the City of Huntington Park neighborhood to the north, the City of Maywood neighborhood to the west, and several neighborhoods in the cities of Bell Gardens and Commerce to the east. The project proposes using the existing ROW between 80-120 feet in width to develop the active trails (Figure 5). Creating this trail responds to the city's need for more parks and open space. This project builds on the national movement of utilizing underutilized Right of Way for multiple use purposes.

Figures 4 & 5: Existing rail's Right of Way in Bell, and an example of the proposed design for rail-trail separation.
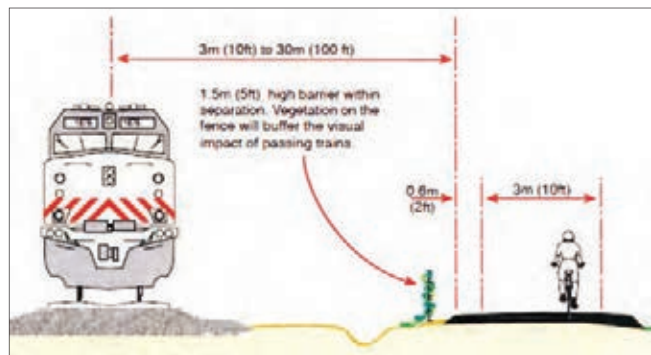
Ian Nairn, Townscape and the Campaign Against Subtopia

Lorenza Pavesi

Designer, MSc in History and Theory (University of São Paulo in São Carlos, Brazil), PhD candidate in Urban Planning (University of São Paulo), and visiting researcher in CRP Cal Poly (2013-14)

The Townscape movement had a strong influence in the British academic and professional circles. Ian Nairn was one of its early and most important advocates, particularly due to his writings for the influencial magazine Architectural Review and his TV shows. In this article based on her master's thesis, Lorenza Pavesi discusses Nairn's importance for planning and urban design. Lorenza is currently a visiting researcher at CPR, studying the diffusion of Townscape principles in the US, Italy, and Brazil towards her PhD with the University of São Paulo, Brazil.

In June 1955, the English periodical The Architectural Review published a special edition called Outrage, authored by young critic Ian Douglas Nairn (1930-1983) and which had a profound impact on the post-war reconstruction debate. This article analyses Ian Nairn's involvement with Townscape, the urban design methodology articulated by the magazine *Architectural Review* -or simply the AR- from 1947. By exploring the historical context of post war Great Britain as well as the specific cultural climate within the magazine, this article aims to assess Nairn's largely underestimated contribution to promote Townscape ideals in Great Britain and other countries.

Figure 1: Ian Nairn, an outraged and outspoken critic of mediocre British planning and design. (source: BBC, London)

As David Harvey (1989: 68-69) notes, the political, economic and social difficulties faced by advanced capitalist countries in the wake of World War II required policies that addressed questions of full employment, decent housing and social provision. While strategies differed in the extent of war-time destruction, the acceptable degree of centralization in political control or the level of commitment to state welfarism, the general trend was to consider the war-time experience of mass production and planning as means to launch a vast program of reconstruction and reorganization in which the renewal and re-shaping of the urban fabric became a crucial element.

In the case of Britain, the solution involved the implementation of a rigorous town and country planning legislation and the adoption of one of the world's largest planning initiatives: the development of new towns inspired by Ebenezer Howard's garden cities.[1] In 1937, Neville Chamberlain (1869-1940), an important advocate of garden cities, became Prime Minister and one of his first initiatives was the formation of the Royal Commission on the Distribution of the Industrial Population to study the causes and effects of the geographical concentration of industries and population in cities, and to prescribe measures to deal with the problems arising from it. Published in 1942, the resulting Barlow Report was the first national survey on the effects of the Industrial Revolution, raised the problem of large cities as a public issue for the first time, recommended the decentralization of congested urban areas, and called for national planning. These early efforts led to the New Towns Act of 1946 and to the Town and Country Planning Act of 1947 that established a land use control system in Britain.

Historiography seems to agree that, in Britain, the Modern Movement involved a political as well as a moral battle against a strong reluctance and skepticism of the general public and the popular press. Alan Powers (2007: 9) reminds us that the British have always been considered cautious, nostalgic and not willing to cast aside pre-modern methods of ordering the built environment. However, during the interwar years, the garden city model, which represented an important British

[1] Howard (1850-1928) authored the influential book *Garden Cities of Tomorrow* (1988) and founded the Garden Cities Association in 1899 to promote those ideals. In 1941 the association became the Town and Country Association (TCPA) and expanded its charter to promote housing, planning, and community development.

contribution, attracted the criticism of those who considered it the cause of suburban sprawl and of an increasing individualism (Powers, 2007: 63-64).

In fact, despite the slow pace of reconstruction, in the 1950s a large part of the British new towns had been developed enough to allow an evaluation and the criticism surfaced mainly in the pages of *AR* which decried their lack of urbanity and "provincial torpor". In July 1953 the AR published the articles "Prairie Planning in the New Towns" by Gordon Cullen and "The failure of the New Towns" by J.M. Richards which both highlighted the impact of a low-density approach. To Ian Nairn (1956: 366) and other Townscape advocates it became clear that low density suburbs and new towns had become over the years the "mainstay of planning policies".

In Britain, the post-war reconstruction debate took place mainly within MARS (Modern Architecture Research Group), in schools of architecture and in several journals. Among these, the AR plays an important role for maintaining during this period, a clearly defined editorial point of view and for stimulating a debate that went beyond the strict interests of the profession. The AR solid support for Modernism was in fact outweighed by other interests and, during the war, the magazine published important articles on the history of architecture, popular taste, the tradition of nineteenth-century utilitarian construction and covered the architectural and urban development in countries not directly affected by the war, such as Brazil or Canada, but also kept a watchful eye on the United States and Sweden (Bullock, 2002: 29-30).

In its search for new solutions, the London based magazine encouraged planners and architects to reconcile Modernism with local traditions. To the editors, the possibility of applying the composition principles of the Picturesque aesthetic ideal led to the revival of an English tradition, and therefore to a British identity in architecture and town planning (Bullock, 2002: 5). It was important for the magazine to try to correct the perception of the Picturesque as a historicist theory and to link it to modernist functionalism, which the editors do by publishing several essays, including "The English Planning Tradition in the City"[2] where the Picturesque is described not as an enemy but as a "close relative".

The first *AR* issue was launched in 1896 and during the 1920s and 1930s the magazine, under the command of Hubert de Cronin Hastings (1902-1986), one of the most iconic personalities in the history of the AR, gave support to many architects and designers who came to Britain. From the end of World War II until 1971, the editorial board was basically composed of Hastings, the German art historian Nikolaus Pevsner (1902-1983) and the critic and historian J.M. Richards (1907-1992). Commentators such as Ian Nairn, complemented the work of the editorial board.
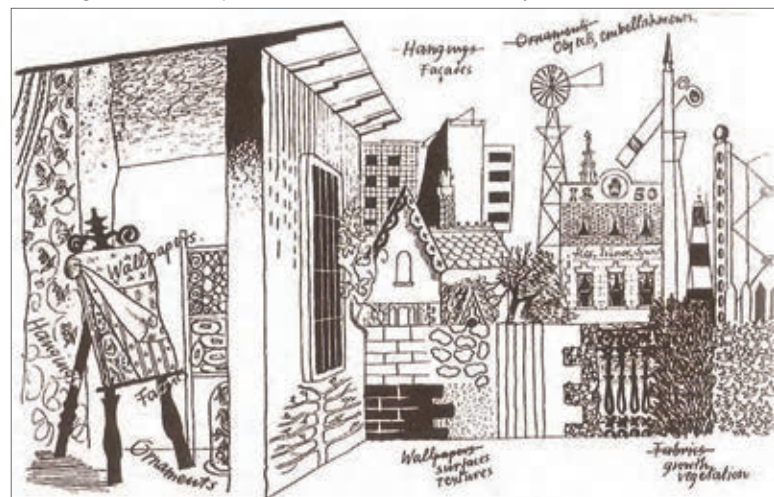
[2] Written by AR's editors, "The English Planning Tradition in the city" was published in <u>The Architectural Review</u> vol. 97, p.165-176, June 1945,

The article "Exterior Furnishing or Sharawaggi: the Art of Making Urban Landscape" by AR's editors (Hastings and Pevsner with, perhaps, the participation of Nairn), published in 1944, is regarded as one of the most important articles that anticipated the launching of Townscape principles (Figure 2). This article defines the Picturesque as the ability to visually reconcile, in any city plan, seemingly incompatible elements. The term Sharawadgi was first used by Sir William Temple (1628-99) in his book *Upon the Gardens of Epicurus* (1685) to describe a way of planting without an apparent order. The term was popularized in 18th England to describe irregularity, asymmetry and surprise through a "graceful disorder".

Both Hastings and Pevsner regaded the Picturesque doctrine as crucial in order to use the English tradition to obtain a more compassionate and human version of Modernism as well as to awake the sensibility of readers and authorities in the post-war rebuilding efforts. As noted by Alan Powers (2007: 10-11), Pevsner believed that the British contribution to urban planning was to be found in the Picturesque due to its foundation on human sensations and its sensitivity to natural processes, and therefore not in formal Modernism.

Hastings' philosophy was adopted by several authors who sought new ways to look at the development of cities and a survey of AR from 1930 to 1980 results in approximately 1,400 articles related to Townscape principles and written by about 200 authors, many of which are absent in the historiography of the period (Macarthur, 2007, p.198).

The principles of the Townscape visual philosophy have their most important demonstration on the occasion of the Festival of Britain, a national exhibition which opened in May 1951 and which aimed to promote quality projects for the reconstruction of cities that were still damaged after the war. Young architect and interior decorator Hugh Casson (1910-1999) was nominated

Figure 2: Illustration from "Exterior Furnishing or Sharawaggi: The Art of Making Urban Landscape", The Architectural Review, January 1944.

Figure 3: Regent's Street from Picadilly Circus: the picturesque London praised by the Townscape movement. (photo: Vicente del Rio)

director of architecture in 1948, and he soon began to put into practice some of Hastings's ideas.[3] The Festival in fact can be considered the epitome of an urban landscape felt and created with Picturesque sensitivity and Casson, loyal supporter of Townscape, described his vision for the South Bank, the Festival venue, explaining that buildings had been clustered around a series of courtyards, each with different colors, shapes and silhouettes, so that the visitor when passing from one to another was exposed to a series of constantly changing views and the total size of the site would be camouflaged by the variety of each separate part.[4]

According to the AR, the results of Picturesque principles applied to urban planning had been a triumph, and in the preface to the South Bank Exhibition special issue the editors stated that the exhibition had played the traditional role of an incubator of ideas at a particularly opportune time since problems presented to designers, especially the small size of the site, reflected many of the problems that confronted architects and planners at the time in Britain: how to provide a feeling of spaciousness while saving space; how to achieve a compact urban character and avoid – visual and real -congestion at the same time; how to weld together ideas from several architects without stifling originality or impose uniformity, how to marry the new with the old in a way that does not harm one another but, rather, that their qualities emphasize each other".[5]

As also noted by historian Erten (2004,: 91), the South Bank project reflected one of the most important decisions arising from the 6th CIAM (International Congress of Modern

Architecture) in Bridgewater, England (1947): the reintegration of Urban Design, art and architecture for the realization of a modern "Gesamtkunstwerk" (total work of art). In fact, the design of the South Bank exhibition was the result of the collaboration of several architects, landscape architects, artists and designers coordinated by Hugh Casson and architect Misha Black. In this connection it is relevant to note that the host of the 6th CIAM was the MARS group led by J.M. Richards, a member of the *AR* editorial committee, whose interest was the relationship between the architect and the "common man" who, according to him, would more easily accept modern architecture if its image was modified to incorporate vernacular cultural references and therefore turning it less abstract (Mumford, 2002: xiii).

Hastings' philosophy was also adopted by architect and skilled draftsman Gordon Cullen (1914-1994) for whom there was an "art of relationship just as there is an art of architecture" (1961: 10). For Cullen, in order to enjoy or develop the urban landscape it is necessary to accept the prerogatives of urbanity which depended on a close and compact relationship between urban elements. Cullen's concepts and methodology reflect a similar approach to that of architect Frederick Gibberd (1908-1984), designer of Harlow New Town (1947) and author of the book *Town Design* (1953). They were all influenced by the work of Camillo Sitte, Raymond Unwin, and Werner Hegemann, and questioned the tradition of civic design with the positions of the Modern Movement.

In 1947, with the editor's article "The Second Half Century"[6], the AR started a series of campaigns, among which *Townscape* (1949), *The Functional Tradition* (1949), *Outrage* (1955), *Counter-Attack against Subtopia* (1956), *The Italian Townscape* (1962), *Manplan* (1969) and *Civilia* (1971). The author of *Outrage* as well as its sequel *Counter-Attack against Subtopia*, published as special editions, was Ian Nairn.

In January 1956, The *Architects' Journal* published its traditional tribute to professionals whose work, according to the editors, had been particularly significant and, alongside personalities such as Nikolaus Pevsner, Frederick Gibberd, Henry-Russell Hitchcock and others was young English critic Ian Nairn. Interviewed, Nairn synthesizes with characteristic eccentricity and irreverence, his own trajectory: he studied Mathematics at the University of Birmingham, "with growing aversion" and trained as a pilot in the University Air Squadron during which he developed a strong interest in topography and maps and where, in his own words, his interest in writing about architecture intensified. A growing frustration with the military career led him to give up and, after several months of unemployment and after submitting countless articles he became AR's assistant production editor.

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[3] Hugh Casson was a member of the *AR* Editorial Committee from 1954 to 1973.

[4] Casson, H. "Adventure of the South Bank". URL: <http://www.sirhugh-casson.com/pages/festivalguide.html>. Accessed: 21 November 2009.

[5] South Bank Exhibition special edition (preface) in The Architectural Review, August 1951, vol. 110, p.74.

[6] In the <u>Architectural Review </u>v.101, January 1947.

Nairn's arrival, who was then only 25 years old, to the magazine's editorial board in 1955 coincides with the peak of *AR* criticism on post-war reconstruction and the state of the urban scene and Nairn found in the AR an environment that favored an architectural approach informed by climate, materials and specific qualities of the *genius loci*, the spirit of place.

AR special edition *Outrage,* published in June 1955, originated from observations made by Gordon Cullen and Ian Nairn during a journey from the city of Southampton in southern England to Scotland border. At the end of this journey, they concluded:

> "the end of Southampton looks like the beginning of Carlisle and the parts in between look like the end of Carlisle or the beginning of Southampton" (Nairn, 1955: 365).

In *Outrage* Nairn advocates for the protection of "characteristic places" as important to the survival of a "characteristic English consciousness" and called the characterless landscape, neither country nor town, Subtopia (Figures 4 & 5). This neologism was used to describe the dilution of landscape types creating what these publications perceived as a hybrid territory generated by planning who despised the individuality of each place. Subtopia, according, to Nairn represented:

> "… a prophecy of doom; the prophecy that if what is called development is allowed to multiply at the present rate, then by the end of the century Great Britain will consist of isolated oases of preserved monuments in a desert of wire, concrete roads, cosy plots and bungalows. There will be no real distinction between town and country […] it is a morbid condition that spreads both ways from suburbia, out into the country, and back into the devitalized hearts of towns…subtopia is the world of universal low-density mess" (Nairn, 1955)

Subtopia represented therefore more than a physical reality but a "mass psychosis rooted in the fantastic acceptance of mediocrity". The planning offensive was started in a mood of idealism which assumed two things: that rules would be used flexibly and intelligently, and that England was of unlimited size. This last, single, radical miscalculation gave rise to the whole philosophy of dispersal – expanded towns, New Towns and every house with a garden, which is now the mainstay of official planning policy: an admirable idea in vacuo, and implemented in perfect good faith, but condemned before it started by our coast-to-coast dimensions (Nairn, 1955: 367).

We remind that five years earlier, in the AR, the article "Man-made America - Chaos or Control?" edited by Christopher Tunnard, at the time Town Planning professor at the University of Yale, described a similar journey through the United States where the uncontrolled development had damaged a large part of the rural scenery along paths that would become later interstate on highways. In *Outrage* Nairn writes:

> "In 1950 the Review traced this rake's progress, both planned and unplanned, in some of its manifestations in
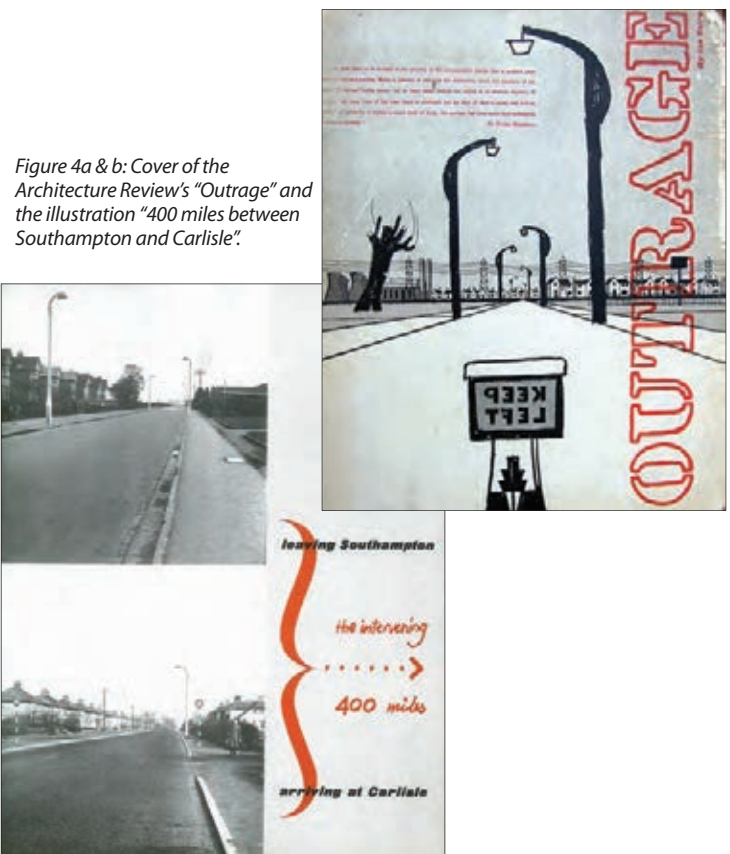

Figure 4a & b: Cover of the Architecture Review's "Outrage" and the illustration "400 miles between Southampton and Carlisle".

the U.S., a piece of research which drew from some of its American readers subdued applause but raised the blood pressure alarmingly in others. Unnecessarily, since the fact that we are all in this thing together, first as the victims and then, in varying degrees, as the offenders, is the first thing we have to know about it. Here the Review (as it promised then) turns the searchlight upon this country" (Nairn, 1955: 368).

The special edition *Outrage*, as well as a special column with the same name published in the *AR*, constituted a serious and important research on the problems that planning could not solve, or even encouraged, and on the damage caused to the urban and rural landscape in the British post-war period, and served therefore to emphasize that Europe was not immune to the attacks to the landscape denounced by Tunnard.

Gordon Cullen (then Assistant Art Director of the magazine) presented sequences of photos and drawings of urban equipment, electrical wiring, poorly pruned trees and advertising; the issue cover illustrates in a very evocative way, the urban chaos, created, according to Nairn, by traffic engineers and public officials. As stated by Nairn (1955, p.366), the *AR*'s concern was mainly visual and the magazine, in fact, was known for the visual experience afforded by its pages allowing images to reach an audience whose experience of a

printed visual culture was still quite limited. In addition to the carefully prepared photographs of well-known authors, The *AR* also featured numerous photographs captured by amateurs and members of the magazine staff, including Ian Nairn. These informal photographs eventually became important tools of architectural journalism, especially after the war, and were just as controversial as those taken by professional photographers.

With the essay "Outrage and righteous indignation: ideology and imagery of suburbia", authors Gold and Gold intend to demonstrate how architects and architecture critics contributed, consciously or not, to build a negative image of the suburbs, and describe *Outrage* as a "stridently anti-suburban" and manipulative work (Boal et al eds., 1989: 164) that contributed through short texts enhanced by a wide repertoire of illustrations and photographs, to the "already extensive anti-suburb literature of those years" (Figure 5).

Outrage concludes with a manifesto for the layman which encouraged the Englishman to take initiatives for the protection of the landscape and to take action against the expansion of subtopia and the impositions of the "tyrannical town planner". The triumph of *Outrage* prompted the *AR* to set up a "Counter-Attack Bureau" in order to handle the enquiries from architects, planners and ordinary citizens and which consisted in a sort of task force or, in the words of the editors, in a "service to monitor and guide the good visual character of England".

The *AR* also launched a monthly column called "Counter-Attack" which monitored specific cases submitted by readers who, in this way, became an active part of the process. As suggested by Pousin (2007), this monitoring was offered by Ian Nairn and Gordon Cullen who through this consultancy, promoted an attitude that favored both the old - preserving, for example, the fabric of a city - as the new - by managing public spaces and seeking creative solutions, according to the editors, independent from existing doctrines.

Figure 5: The kind of informal photograph printed in the pages of AR special issue "Outrage" (1955, p.383) and mentioned by Gold & Gold and others. (Photo: Ian Nairn)

The impact of *Outrage*, described by Hugh Casson as a "hard blow to the self-esteem of architects and planners"[9], prepared the ground for the launch, in December 1956, of another memorable special edition: *Counter-Attack against Subtopia* edited by Ian Nairn. In this issue the critique on the suburbs, the New Towns and the legacy of the garden city is further developed and explored in more depth.

Unsurprisingly, an image of Los Angeles opens this edition (Figure 6). The Californian city, in fact, was considered by the *AR* editors and other theorists the worst example of suburban sprawl. In their view its low density represented the crisis of the contemporary city, a vision that was later contested by Reyner Banham[10], a renowned British architecture historian who joined the *AR* editorial board in 1959 and remained until 1964, in his book *Los Angeles: the architecture of four ecologies* (1971). According to Banham, Los Angeles threatened "the intellectual repose and professional livelihood" of many architects, artists, planners, and environmentalists because it broke the rules of urban design that they promulgated. Banham challenged the belief held by theorists such as Jane Jacobs, the Team Ten and the *AR* editors that certain densities and certain physical forms were essential to the working of a great city.

But in *Counter-Attack against Suptopia* Ian Nairn and other authors were still insisting on the issue of density: sixteen years after the publication of the Barlow Report, the mission to decentralize and redistribute the population had practically been achieved, but the concept in which density calculations were based, in their view, needed to be reworked.

Both *Outrage* and *Counter-Attack against Subtopia* attracted widespread interest in the United States and numerous letters from individuals and American associations commenting and identifying with the issues raised by Nairn reached (and further encouraged) the AR editorial committee.

Among the enthusiasts was William H. Whyte who, in 1958, asks Nairn and Cullen to contribute with a photo essay and drawings to an article by Jane Jacobs called "Downtown is for people" in conclusion to the Fortune magazine edition *Exploding Metropolis* (published as a book in 1958). Undeniably Nairn represents a significant link between the countries where the debate around the damage (aesthetic, economic and environmental) of suburban sprawl was more heated: Britain and the United States and is also the anti-suburb discourse that caused the alliance of AR editors with the influential American author Jane Jacobs which declared herself an "avid Townscape follower". [9]

In 1961, Jacobs publishes her influential book *Death and Life of Great American Cities,* defined by David Harvey (1989: 73) as "one

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[7] Casson, H. "Outrageous Postscript" in Journal of the Town Planning Institute. July-August 1956, p. 187-192.

[8] Banham was Pevsner's PhD student and became a renowned architectural historian himself. He the AR editorial board in 1959 and was the assistant executive editor until 1964.

of the first, most articulate and most influential antimodernists treatises". In his review of the book, Hastings (under the pseudonym Ivor de Wolfe) declares:

> "Now comes a warm but high wind across the Atlantic and (one hopes and believes) a hot handshake for the Ian Nairns, Gordon Cullens and Kenneth Brownes of this continent in the shape of a book which is a must for all who believe the urban consequences of those odd bedfellows, Ebenezer Howard and Le Corbusier, to be the spawn of the devil working through his chosen vessels."[10]

Isaacs (2000) notes how, although Jacobs didn't discuss the pictorial aspect of a city directly, her comments and sketches implied some similarity to the sensitivities of Gordon Cullen. Between 1955 and 1965, the Rockefeller Foundation responded to the post-war housing crisis by funding research projects on Urban Design. Among the researchers sponsored by the Foundation were Kevin Lynch and Gyorgy Kepes whose research on the perception of urban form gave rise to the book *The Image of the City,* published in 1960, as well as Jane Jacobs, Christopher Alexander, Christopher Tunnard, Ian McHarg, Ian Nairn and others (Laurence, 2006).

The scholarship that Ian Nairn received from the Rockefeller Foundation allowed him to travel across the United States for a year (1959-1960). This journey resulted in the book *The American Landscape: a critical view* published in 1965 where Nairn records his impressions about the character of the American landscape which he defines as a "chaos of non-relation". In this book Nairn hopes that one day the American landscape could achieve a new unity through the use of Townscape which he defined as "the art of relating objects in an organic and sensitive way". Again Nairn alerts to the effects of the landscape on the mind and reminds readers that, by giving identity to places, Townscape gives identity also to people (1965: 3). In *The American Landscape*, Nairn comments on the lack of identity of the Levittowns, the large suburban communities with its dwelling, almost identical to each other. The Levittowns suburbs, the first mass-produced communities, became in fact a prototype and similar communities were built throughout the country after World War II. Nairn compared the Levittowns with the quiet town of Ysleta (now in Texas):

> "In Ysleta one can say "I'm here in X. Outside is Y, somewhere different. In Levittown all he can usually say is "Where the hell am I?" (Nairn, 1965: 45)

A review of Nairn's book published by *The New York Times* in

Figure 6: Views of Los Angeles in <u>Counter-Attack Against Subtopia</u> *(Nairn,1956: 354).*

1965 started by explaining to readers that the art of Townscape, consists of two main factors: relationship and identity.[12] According to the review, relationship is to fit together the parts of a particular environment, and identity is the recognition and appreciation of the needs and specific qualities that make one place different from another. Although the review was very positive, it objects to some of Nairn's negative comments such as against the downtown redevelopment plan and pedestrian mall for Kalamazoo, Michigan by Austrian émigré Victor Gruen (1903-1980). Although by then shopping centers had become the commercial cores of post-war suburbs, Gruen —who is considered the father of the modern shopping center– designed the Kalamazoo Mall as one of the first shopping centers for pedestrians within a city and represented one of the first attempts to revitalize cities against the growing suburbanization. Nairn, however, regretted that designers of this type of center, even with the best intentions, tended to simply throw all elements in the same space.

Interestingly, in the context of the circulation of planning ideas from Europe to the United States, Victor Gruen is one of the personalities whose career is also significant. Although he was not directly associated with Townscape, his architectural and urban production gained, during the 1950s and 1960s, high visibility and was inevitably exposed to the scrutiny of theorists and advocates of Townscape that, as we saw, were very

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[10] Jacobs made this comment in a letter to Hastings dated march 1964, kept in Priscilla Hastings personal archive. See Erten, 2004: 102.

[11] In "The Death and Life of American Citizens", de Wolfe's review of Jane Jacobs's *The Death and Life of Great American Cities* (The Architectural Review, February 1963, n.792, vol.133, p.91-93). The relationship between Nairn and Jacobs is further strengthened during her first visit to Europe in 1967 (see: Nairn, I. Cities 'strangled by the planners'. *The Observer,* 12 February 1967: 12).

[12] Andrews, W. "Townscape: a New Name for a New Art" in <u>The New York Times</u>, 7 March 1965.

interested in the suburbanization process in the United States. Gruen also criticized the "anti-city" and in his book *The Heart of Our Cities: the urban crisis: diagnosis and cure* (1964) he wrote: "If we do not want the city to be destroyed, if we do not want Anti-City to bury us, we have to prepare for an all-out counter-attack" (Gruen, 1964), a statement that, in our opinion, echoes the warnings of the AR special editions of previous years.

Nairn continues this critique, commenting on the creation of Strøget, in Copenhagen, Denmark, according to him, a genuinely successful pedestrian zone: "everyone is obsessed with pedestrian precincts these days", writes Nairn, "the 1960s average town planner thinks that it's enough to just separate people from cars for the city to become glorious like Venice". This simple vision could, according to Nairn, do more harm than good and he invites all planners to see how the Danes were dealing with Strøget. Nairn concludes that it did not make sense to take the transit off a street without being sure that it would become "splendid" without it.

Throughout his career as a critic and journalist, Nairn provides countless examples of the Townscape approach and some terms coined by Gordon Cullen in his book *Townscape* will also appear in articles written by Nairn in major English newspapers during the 1960s and the 1970s. Nairn's style is undoubtedly vigorous, energetic and appealing and he is able, in our opinion, to convey urgency more effectively than other promoters of Townscape. He was a skilled writer having authored numerous

Figure 7: Scenes from the TV series "Nairn Across Britain", episode "From London to Milton Keynes", as shown in Glancey, Fernando and Tait, 2007.

books, guides and pamphlets, and contributed to *Buildings of England,* the series of guides conceived by Nikolaus Pevsner, with the volumes on *Surrey* (1962) and *Sussex* (1965). Perhaps Nairn's most controversial texts were published in English newspapers, and his growing frustration culminates in a long article "Stop the Architects Now" in *The Observer* newspaper, where he accuses architects and planners of "stamping over the landscape in jackboots, the boasted trademark of Le Corbusier, that arch-priest of arrogance", what represented a further step in challenging Modern Movement urban policies.[13]

In this invective Nairn claims that the character of a place cannot be obtained by experts alone but by teams where all members have equal importance. He also accuses architects who, in his opinion, had been taught for years to regard themselves as "mini Mieses" and who had minimum contact with the site. According to Nairn, architects and planners were treated by the public in general, with contempt, they saw the architect as "a wet kind of nuisance, eternally fingering his bow-tie on the edge of real life" and the planner as one of the "dreariest inhabitants of a dreary local government structure".

As well as Nairn's talent as critic and polemicist, Graham King (2006) stresses his versatility, noting that he was the first and probably the only commentator to have exercised his critical skills in specialized magazines, books, newspapers and even television.

But to what extent Townscape could be said to have influenced the debate on the post-war reconstruction? According to Erten (2004: 294), resonances of AR campaigns are still present in several architectural discourses, Townscape was the most successful of its campaign, and today the book *Townscape* by Gordon Cullen is one of the canonical texts for urban design although distanced from the neo-romanticist ideology that originated it. Urban interventions and gradual development of high density and mixed use have replaced the 1960s urban renewal removals and are now commonly accepted, and Townscape principles were incorporated by New Urbanism in its advocacy of compact cities and critique of suburbia and zoning.

Urban regeneration programs and the global competition between cities have prioritized sustainability and the quality of urban design in contemporary public policies. This establishes a certain continuity with the past and the theories that advocated a return to the city urging us to retrace the history of urban design and examine the political and economic forces that molded them as well as their impact on the way we see the city and act upon it. From this point of view Erten (2004: 289-290) reminds us that Townscape's resistance against decentralization and its goals to keep the city compact and dense followed the

[13] Nairn, I. "Stop The Architects Now" in The Observer (Weekend Review) 13 February 1966, p.21.
[14] King, G. "Ian Nairn: the Missing Art of Townscape" in Urban Design Quarterly [online]. Issue 59, July 1996. URL: http://www.arch.mcgill.ca/prof/sijpkes/arch374/winter2001/b_king.html. Accessed: 12.09.2009.

ethical imperative to preserve the resources that fueled the city. This meant to preserve the livelihoods of those who cultivated these resources and to unterstand the landscape as a means to rehabilitate citizens.

Ian Nairn emerged as a key interlocutor in the debate on the physical quality of planning and design, and the importance of the Townscape theory. Nairn's travels helped to spread this debate, and were not limited to the United States. He traveled again to the United States in 1967 as the Architecture Correspondent for the English newspaper *The Observer* and to Italy. There is also evidence that he travelled to Israel, France (a trip that resulted in the guide book *Nairn's Paris*), Switzerland, Canada, Denmark and Australia, and maybe to other countries. In Italy some of his writings had a strong impact in the post-war reconstruction efforts when Italian were searching for solutions to for urban problems arising from the conflicts between the new and the old in the redevelopment of the historical centers damaged by World War II.

Not only Nairn's travels and international efforts reveal his belief in the usefulness of cultural exchanges between countries, but without a doubt were important for the export of Townscape theories outside of England. In fact, although historiography commonly regards the movement as a strictly British phenomenon, Townscape is connected to the lineage of urban design of authors such as Kevin Lynch, Christopher Alexander, Jane Jacobs, and even to Yoshinobu Ashihara in Japan.

There are numerous indications that Townscape was received, assimilated and incorporated into urban theories and practices —more or less successfully– what raises many questions that, in the author's opinion, should be further explored. As noted by Friedman (2010: 326), in the ambit of the circulation of ideas and experiences it is always important to identify interactions that generate creative and learning experiences that contribute and enhance the relevance of what is being exchanged, separating them from those that impose or copy an idea or practice, promoting it as a universal solution, and often leaving a legacy of failure and cynicism.

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Designing a Sustainable Future for Vietnam

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Through an elective studio, a group of CRP undergraduate and graduate students developed a sustainable planning vision for a coastal area close to the city of Quy Nhon, Vietnam. Inspired by Frank Lloyd Wright's organic design principles, they integrated large scale development proposals to the local context and traditional practices. The author, a participant in the studio, discusses the process and the final proposals.

In the Spring quarter of 2013, an elective CRP studio engaged seventeen graduate and undergraduate students from CRP in an urban design project in Vietnam under the supervision of professors Hemalata dandekar and Vicente del Rio. The Organic Design Challenge 2013 was an international, interdisciplinary, visioning project sponsored by Eric Lloyd Wright & Associates of Malibu for the 3rd Rock Development Company. The CRP class sought to integrate a large-scale project into a traditional coastal community in southeastern Quy Nhon applying organic design and planning principles in the context of a foreign culture and an unfamiliar geographical landscape. The class produced a final report entitled *Sustainable Visions for the Future of Vietnam* which included three design alternatives.[1]

Organic Design Challenge 2013

In 2011, a similar Organic Design Challenge elicited investigative reports on the city of Quy Nhon from the University of North Carolina at Chapel Hill, the University of Hawaii at Manoa, and Columbia University. The Organic Design Challenge 2013 elicited conceptual ideas and development strategies for the advancement of the private-public Quy Nhon Economic Green Zone Master Planning Project. Besides CRP, the University of Oregon School of Architecture and Taliesen, the Frank Lloyd Wright School of Architecture, participated in the challenge. The goal was to integrate the development of three large coastal sites in a coordinated manner as a foundation for a long-term urban development strategy for Quy Nhon.

According to the 3RockD development company, "the Quy Nhon Economic Green Zone is a test model to showcase how the coordination of urban planning, transportation planning, city infrastructure development, disaster mitigation planning, and municipal policy development can launch a city . . . that is economically sound, environmentally sustainable, and culturally reflective" (3RockD, 2012).

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[1] The final report Sustainable Visions for the Future of Vietnam - Ghenh Rang is available from CRP upon request, or directly from our website at <http://planning.calpoly.edu/content/projects/studio-projects>

Ghenh Rang and Quy Nhon

CRP's project site included the district and village of Ghenh Rang within the jurisdiction of the city of Quy Nhon. Located on the south-central coast of Vietnam along the South China Sea, Quy Nhon is the capital of Binh Dinh Province and has a population of around 280,000. The city's urban fabric is densest in its inland region away from flood-prone, low-lying coastal areas. Quy Nhon has a varied natural landscape that includes lush forested hills, coastal wetlands, broad riverplains, lakes, agricultural lands, aquaculture ponds, wetlands, peninsulas and islands. Aquaculture is a growing segment of the local economy (as it is throughout Vietnam), making the city a large global exporter of farm-raised fish in addition to ocean-caught fish. Sandy beaches stretch 27 miles along the city's eastern coastline. Quy Nhon has a diverse set of natural environments that can be valuable components of a sustainable and economically viable Eco-Urban Region (Spencer, 2011). However, impacts from urban development, typhoons and the loss of coastal mangroves and wetlands have been reducing this rich ecosystem's natural ability to contain and filter excess water, exacerbating flooding in many areas.

Cal Poly students developed plans for the sustainable development of Ghenh Rang, a small coastal ward of approximately 500 acres in southeastern Quy Nhon. Ghenh Rang is physically isolated from Quy Nhon city, bounded by steep hillsides to its north, west and south, and the South China Sea to its east. A single two-lane highway provides the only connection from the main sections of Quy Nhon to the northwest and to other cities to the south. Currently Ghenh Rang has a diverse range of land uses including agriculture, aquaculture, residential neighborhoods, and a small business district. It is home to a small university, a hospital that specialized in dermatology, an historical leper colony, and a park with a monument dedicated to a popular Vietnamese poet. Much of the land area is devoted to rice cultivation and several acres in the southern edge to fish farming. Ghenh Rang is also well-known for its artisanal industries, including boat building and furniture making—generally small scale factory production.

Organic Design and Planning Principles

While Frank Lloyd Wright's organic design principles are clear at the architectural design level, this is not the case at the urban level when one looks at his vision, Broadacre City. City planners and urban historians often dismiss Wright's utopian community visions for being a misguided, environmentally insensitive vision of an "anti-urban" human environment. However, as Eric Lloyd Wright argued during his presentation, his grandfather's vision was rooted in a deep desire for self-sustainable communities built through organic design methods (Wright, 1932). Each of Wright's self-sufficient communities was to be embedded in nature, sustained by its own food production, and enlivened by its own cultural and educational centers

Cal Poly students were challenged to translate Wright's organic design principles into the larger context of community building. According to Frank Lloyd Wright, "in an organic architecture the ground itself determines all features; the climate modifies them; available means limit them; function shapes them" (Wright 1932). His grandson Eric Wright encouraged the class to adopt a foundation based on the nine "sustainable organic design principles" that translate into: simplicity; inside/outside integration; harmony between building and site; nature of materials; character of place; human scale; spirit of building; resonance with nature; and timeless beauty. Inspired by these ideals, the Cal Poly students worked collaboratively to identify the following sustainable design principles as a planning framework that guided the class throughout the design process:

- Respect existing eco-systems
- Develop socially, culturally and environmentally-friendly land-use patterns
- Offer eco-efficient infrastructure and design solutions
- Provide full accessibility
- Maximize existing resources

Development Program

The client's project brief directed students to provide facilities that support local culture, embrace the natural environment, and encourage a sustainable local economy incorporating elements from both "traditional" and "new" economies. The new facilities are to guide Ghenh Rang to become a global destination for medical tourism, a growing field in Vietnam. Key components of the program included:

- A "smart" hospital and medical tourism campus
- The extension of the Han University campus at the northern edge of Ghenh Rang
- A Green-Tech zone for high-tech industries
- Sustainable agriculture and aquaculture
- A fishing wharf and marina for fishing and boating
- Boat-building and furniture-production facilities

The class engaged in a multifaceted and iterative visioning process. Students also researched international case studies of sustainable design in Southeast Asia which provided an understanding of potential sustainable development practices for Ghenh Rang. The study of existing documentation—such as the investigative reports produced for the 2011 Organic Design Challenge–and a traditional SWOT analysis provided a comprehensive understanding of the location and defined site issues to guide project conceptualization. Based on the five sustainable planning principles discussed above, the teams developed their own visions, goals and objectives to guide them through the design process. Each team produced a set of design ideas and a conceptual diagram designating potential land uses while responding to the site's topography, geography, existing uses, and development potential. After a presentation to the clients, the students refined their concepts and produced detailed development visions including an illustrative site plan and images highlighting key project elements.

Figure 1: Aerial view of the Southern-most part of the city of Quy Nhon, Ghenh Rang and the project site. (source: Google Earth)

Figures 2 to 5: Images from Ghenh Rang.

General issues embraced by the class in developing their visions included green building technologies; passive ventilation; building orientation to harness coastal breezes to maximize natural cooling; natural day lighting; water reclamation; rapidly renewable building materials (e.g. bamboo); solar shading; and green roofs. They addressed key environmental concerns involving the health and value of local ecosystems including coastal and freshwater wetlands, coastal mangroves, freshwater rivers, and floodplains. Students were aware that enhancing the coastal mangrove vegetative buffer along Ghenh Rang's coastline would preserve a necessary natural barrier to coastal flooding. They also addressed the need to restore native habitat while also providing dedicated areas for aquaculture, dealing with the problem caused by fish farming pools that had replaced valuable wetlands habitat.

The teams proposed to integrate new development into the existing vernacular built fabric and to enhance, not replace, the traditional urban environment. While developing design solutions and project elements, students were challenged to embrace local land use patterns such as the division of land into long, narrow building plots, and to incorporate local building practices, materials, and scale into new development of varying densities. The teams developed distinct design solutions to provide unique and varied visions for Ghenh Rang to transform it into a vibrant community and a global destination for medical and cultural tourism. Brief descriptions of each team's proposals are as follows:

Team One: Project [RESTORE]

Elizabeth Brighton, Edith Lopez-Victoria, Kerby Olsen, Thomas Van Pelt, Abraham Sheppard, and Tan Tranngo.

This team sought to integrate modern, service-oriented development into a vernacular built fabric and rich local culture. Project [RESTORE] provides a framework for infill of varying intensities – from preserved and enhanced residential neighborhoods, to beachfront tourist amenities, to a multi-story mixed-use core. The project incorporates three primary catalysts linked by a restored creek along a north-south axis: a university, medical and wellness complex; an active resident- and visitor-serving mixed-use core; and a green zone incorporating restored natural habitat and innovative agricultural practices. As shown in the Illustrative Site Plan, several key plan elements present a comprehensive vision for site development:

- An educational and medical campus is composed of an expanded university, "smart" hospital, and a wellness center complex. The health and wellness center, along with an associated university, provides the primary economic driver for development. The hospital-university complex will focus primarily on high-tech medicine and agricultural research.

- A mixed-use core provides local and tourist populations with urban amenities, living accommodations, and active public space. It incorporates infill development in the

existing core, the reconfiguration of land uses, the integration of natural elements like the creek, and the provision of public open space suitable for cultural ceremonies and social interaction. New buildings will reflect vernacular building typologies. The core is easy to access from the educational facilities, medical and wellness centers, local residential neighborhoods, and other resident/tourist amenities.

- A sustainable environmental/agricultural research center and visitor center provides support to local agricultural and fish farmers to embrace leading sustainable practices. Raised boardwalks will provide access to this valuable natural resource which is located within a restored wetlands habitat area.

- A Cultural Resource Preservation District preserves the historic Quy Hoa Leper Colony, a historic church, and the popular monuments to poet Han Mac Tu and Empress Nam Phuong. The district serves as a central physical and spatial linkage between the Wellness Center, the beachfront, and the downtown core.

- A Creekside Promenade follows a restored creek along a central north-south axis, creating a central spine linking key facilities including the university-medical complex, the mixed-use core, the Cultural Preservation

Area, the wetlands restoration area, and the sustainable agriculture visitor center. Along the restored creek, small-scale vernacular inspired buildings reflect the local mixed-use traditions.

- A Beachside Commercial District, protected from coastal flooding by a restored vegetative buffer, provides active mixed-use for both tourism and local economic practices including fishing and carpentry. The district integrates tourist uses, including hotels and restaurants, into a local mixed-use neighborhood.

Figures 6 to 8: Project [RESTORE] : mixed-use development along the shoreline (above) and the restored creek running north-south (below), and the illustrative site plan showing the key development elements.

BUILDING TYPES
1 Faculty Housing
2 Student Housing
3 Gymnasium
4 Swimming Facility
5 Geothermal Plant
6 Woodworking Facility
7 Smart Hospital
8 Recovery Building
9 Health & Wellness Center
10 Full Recovery Bungalows
11 Green Tech Building
12 Boat Woodworking School
13 Park Facility
14 Beach Hotels
15 Environmental Center
16 Sustainable Agriculture Research Center

LANDSCAPING FEATURES
A Pedestrian Walkway
B Natural Pond
C Healing Garden
D Central Park
E Neighborhood Pocket Park
F Public Plaza
G Agriculture Research Zone
H Aquaculture Research Zone
I Natural Creek
J Viewing Platform
K Boardwalk

Team Two : The Emerald Queen

Jenny Ha, Sophia Lai, Matt Orbach, Thomas Park, Stephan Schmidt, Hillary Tung.

The Emerald Queen design team evoked the local cultural significance of the celebrated Empress Nam Phuong, for whom Queen's Beach is named. They propose to use Ghenh Rang's cultural heritage as a central catalyst for their plan that allows for economic development while embracing local culture and a distinct sense of place. Emerald Queen's plan is based on three main economic drivers—medicine, education, and tourism–and their design vision includes a main business corridor lined with restaurants and cafes; a cultural center offering a glimpse into local maritime and agricultural history as well as classes in traditional crafts such as wood boat building; and a variety of locally-owned and operated tourist accommodations. Some of this team's key elements are:

- A Downtown Commercial Core located at the intersection of primary transportation routes with a design inspired by traditional Vietnamese ocean side villages. This center provides tourist accommodations, restaurants, and shops. New development respects the local cultural heritage and environmentally-sensitive areas while creating a dynamic, mixed-use and accessible core with cafes, hotels, nightlife attractions and a central market.

- A Transit Hub provides multimodal access (bus routes, shuttle services, and taxis) to the main city (North) and the south along the existing highway, and provides connection to Gheng Rang's main points of attraction. Within walking and cycling distance to the commercial core, the transit center allows for decreased traffic on the inner streets.

- A Beachside Local Marketplace occupies a central location and provides flexible space for farmers and artisans. This lively facility serves residents with seafood and fresh produce while tourists are attracted to woodworkers and artisans.

- The Hospital and Rehabilitation Village is a primary economic generator in Ghenh Rang, attracting international visitors. Its location allows for easy access to recuperative natural environments to the north and Queen's Beach to the east. Medical tourists can enjoy the scenic beauty and trails, wide sandy beaches, and rich cultural amenities.

- The proposed University Campus is a regional resource at the northwestern edge of the project area, easily accessed via the primary transportation link to central Quy Nhon. Per the Design Challenge directive, the university will specialize in innovative technology for sustainable agriculture and fishing. Because of its large-scale educational and residential buildings, the campus is strategically located at the outskirts of the project area to help retain traditional building scale in the main village.

Figures 9 to 11: The Emerald Queen proposal. Character images of the transit hub and a mixed-use street, and the land-use diagram.

Team Three: Ghenh Rang 2050

Danielle Althaus, Kyle Bell, Ryan Banuelos, Penelope Legget, Shaun Prestridge.

Team Ghenh Rang 2050 envisions "a community that integrates sustainability through organic design in order to advance the local and regional economy, create opportunities in education, promote a healthy environment, and foster new and existing social connections". The proposal focuses on enhancing the local community by seeking a strong local economy through various scales, from neighborhood-focused marketplaces to international facilities for medicine, education, and tourism. Environmental considerations include the enhancement of a green belt for recreational purposes, the preservation of natural open space within the project site, green corridors, preservation of agricultural land along the floodplain, and a substantial vegetative buffer to project from coastal flooding.

The proposal emphasizes five economic generators for a vibrant local economy: a) education; b) green technology; c) medicine and wellness; d) sustainable agriculture and aquaculture; and e) commerce and tourism. In order to encourage these economic generators, the plan incorporates several key components (see illustrative site plan and renderings) and includes the following:

- A Downtown District with a mixed-use commercial core and a regional transit hub located along an east-west axis with direct access to a beachfront promenade. As the promenade nears the beachfront, varied public open spaces provide social opportunities for both locals and visitors. A transit center provides a multimodal hub for both local and regional transit.

- A Traditional Practices District located at the southern end of the project area will play a vital role in maintaining Ghenh Rang's traditional economy and character. The district enhances the local economy and culture through various elements, including a fish and farmers market, protected harbor, woodworking facilities for boat-building and furniture making, an educational center for sustainable agricultural practices, and a community sailing center.

- The university/hospital/sports district incorporates an expanded university campus, a Smart Hospital, and a Sports/Recreational Complex --elements that create an integrated district of related uses. The expanded university is a key factor in promoting Ghenh Rang as an innovator in green technology and sustainable agricultural practices. The Smart Hospital campus provides local health services while also providing a center for medical tourism. The Sports Complex serves the University and Medical campuses and can accommodate large-scale sporting events.

- A pedestrian promenade encircles the central project area, connecting key elements of the plan. Pedestrian routes lead from the downtown core to the beachfront and continue southward to the boat/sailing center and beachside marketplace, and continue inland along a restored creek back toward the downtown district, terminating at the University entrance.

Conclusion

The 2013 Organic Design Challenge – Sustainable Visions for the Future of Vietnam provided Cal Poly students with a unique op-

Figures 12 to 14: Ghenh Rang 2050: illustrative site plan, beachfront promenade and pier leading to Palm Trees Park and sailing center.

Sports complex

Downtown core and transit center

University campus

Agricultural Education Center

Hospital

Palm trees park

Hotels

Pier

Sailing center

Traditional practices district

Marketplace Street

Figures 15 & 16: Ghenh Rang 2050: Marketplace Street and general view from the southeast.

portunity to apply global design principles to a foreign site with unfamiliar economic, cultural, and physical qualities. Students were challenged to integrate intensive economic development into a traditional Vietnamese community. While engaging in a nine-week collaborative envisioning process that embraced Cal Poly's "learning by doing" students developed three plan alternatives providing broad yet distinct visions that seek to provide guidance for future public and private investments in the region. As global appreciation grows for the importance of sustainable economic development, developers and individuals can better embrace sustainable design and planning practices like those envisioned by Cal Poly students for an economically vibrant and environmentally sustainable Vietnam.

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FOCUS 10
Spotlight

Learning from California:
Highlights of CRP Studios Fall 2012/Spring 2013

Hemalata Dandekar

PhD.; professor and department head, CRP.

CRP Department Head Hemalata Dandekar writes about the 2012-13 studio projects. By highlighting their objectives and accomplishments, she notes how important community outreach and learn-by-doing studio pedagogy are in shaping students into professionals who will be fully engaged in the field.

Extensive hands-on work in the studio continues to be a distinct signifier of CRP's undergraduate and graduate programs. Work completed in classes during the 2012-13 academic year served a diverse group of California communities as well as a small coastal settlement in Vietnam. Host communities ranged from Clearlake in Northern California, to Menlo Park in the Bay Area, and south of San Luis Obispo to Goleta and the city of Bell in Metropolitan Los Angeles.

The quality of CRP students at all levels of training work makes it an attractive proposition for cities to contract with us. Our studios engage students to look ahead at ways to improve the fabric of cities at different scales, from project site to citywide and regional. The exposure to real communities and diverse locals gives CRP students a broad exposure to planning issues throughout the state. Their success in meeting the needs of diverse client-communities is an indication that our students are well prepared to undertake the increasingly complex prob-

lems that professional planners must address. In the 2012-13 academic year, CRP studios engaged in the following projects:

San Luis Obispo, CA

Undergraduate Studios: CRP 201 (Fall 2012), CRP 202 (Winter 2012), and CRP 203 (Spring 2013)

Our home city of San Luis Obispo was the host of all three of our undergraduate studios, each addressing urban design/planning problems of increasing scale at various sites and corridors. Under the guidance of instructors Umut Toke and Woody Combrink, undergraduates in CRP 201 learned the basic graphic presentation skills in urban design using pencil, pen, ink, color, and rendering to plan/design options for a key gateway into San Luis Obispo at Marsh and Higuera streets, a site now occupied by a gas station (Figure 2).

Professors Vicente del Rio and Umut Toker, in their respective sections of CRP 202, completed a mixed-use development plan for a site at the gateway to the city from the north where Highway 1 meets Foothill Boulevard (Figure 3). Currently occupied by an outmoded shopping center, the site is critical to the city and to the Cal Poly community, surrounded as it is by
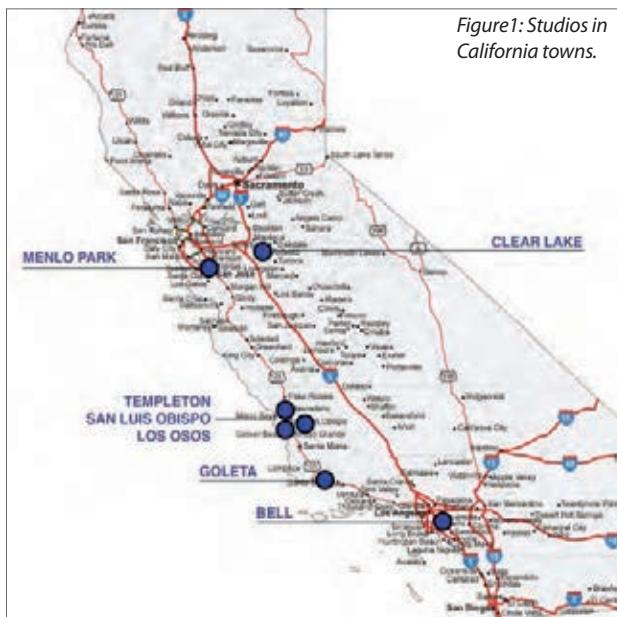

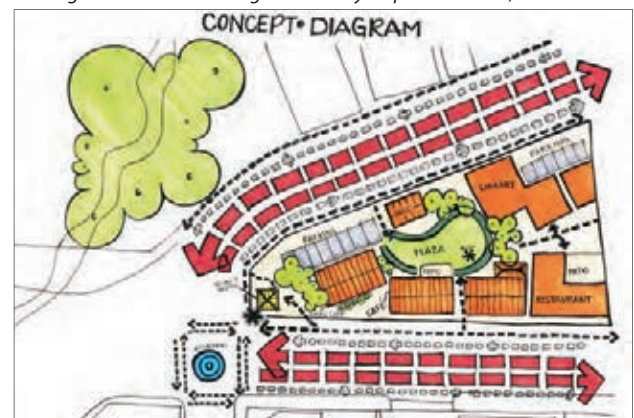*Figure1: Studios in California towns.*

Figure 2: Part of the design exercise by Stephanie Benzel, CRP 201.

off-campus student housing and only a couple of blocks away from campus. The student teams came up with feasible pedestrian-friendly mixed-use residential/commercial development solutions that took advantage of the location and the spectacular views of Bishop Peak and Cerro San Luis. The projects were reviewed by juries that included San Luis Obispo city planners.

Designing streetscapes and build-out for expanding the city's downtown along the Lower Higuera Corridor was the challenge laid out by Professors Toker and Combrink to the CRP 203 studios. Students added to their repertoire by considering form-based codes, enhancing their digital graphic capabilities, and creating detailed plan documents (Figure 4). Final presentations were made to a jury that included senior planners from San Luis Obispo and a city planning commissioner.

Strategic Urban Design for Los Osos, CA

Undergraduate Studio: CRP 341 (Fall 2012)

Professor Vicente del Rio guided the 3rd year CRP 341 Urban Design Studio in responding to a request from the the San Luis Obispo County Planning Department and the Los Osos Community Advisory Council (Figure 5). The class was commissioned to work on developing alternative urban design scenarios for three areas in Los Osos: the Los Osos Valley Road and the Baywood Park commercial areas, and a large vacant parcel located at South Bay Boulevard and 18th Street.

The students investigated opportunities and constraints and community expectations through the analysis of existing documents, field visits, on-site questionnaires and interviews, an online survey, and two community workshops. In a final presentation to the Los Osos Community Advisory Council and the community, the students explained their proposals for the three sites and showed how future development could enhance the community's identity, walkability, and attractiveness, and stimulate economic development. This work will help the county planners and the Los Osos Community Advisory Council in the process of developing the Los Osos Community Plan.

Planning and Design Studies for Templeton, CA

Undergraduate Studios: CRP 410/411 (Fall 2012 and Winter 2013) - see the article on this project in this issue.

With Professor Zeljka Howard as instructor, the fourth year community planning studio was contracted by the San Luis Obispo County Planning and Building Department to assess development opportunities for Templeton, an unincorporated community in northern San Luis Obispo County. Teams were charged with preparing planning and design studies for two areas of particular development potential. A central component of their effort was the extensive public outreach to assess community wishes and identify areas of development potential. In cooperation with Planning Department staff, residents, and business owners, the students conducted three workshops (one with high school students), a focus group workshop, a business survey, stakeholder interviews, and a com-

Figure 3: The Foothill project by J. Bonilla and S. Coleman; CRP 202.

Figure 4: South Higuera project by S. Benzel, S. Johnson & H. Shimer; CRP 203.

Figure 5: Los Osos project by A. Levin, P. Minegar & T. Vogt; CRP 203.

Figure 6: Class proposal for downtown Templeton; CRP 410/411.

Figure 7: Vision for Ghenh Rang by Althaus, Banuelos, Bell, Legget & Prestidge; CRP 472.

Figure 8: Project for Old Town Goleta by AH. Cha, K. Day, K. Kiefer, Z. Hackney & M. Walker; CRP 553.

munity opinion survey that was conducted at sites of public worship and online. The work culminated in a public outreach effort and two reports that provided ideas for development of the Downtown and the Ramada Drive Area (Figure 6). County staff will use these documents to inform the 2013 update process of the Templeton Community Plan.

Sustainable Visions for the Future of Vietnam

Undergraduate/Graduate Elective Studio: CRP 472 (Winter 2013) - see the article on this project in this issue.

Professors Vicente del Rio and Hemalata Dandekar guided 18 graduate and undergraduate CRP students in an international planning and urban design elective studio to develop schematic plans for the sustainable development of an area in Ghenh Rang, city of Quy Nhon, Vietnam. Students addressed a complex set of cross-cultural challenges in responding to an Organic Design Challenge 2013 directed by the studio of Eric Lloyd Wright. Student teams from three universities—Cal Poly, Frank Lloyd Wright School of Architecture, and the University of Oregon Department of Architecture—were invited to this challenge. They engaged in a visioning design challenge for Vietnam's first model green village—a 14,000 acre Green Economic Zone located in Quy Nhon, Vietnam. The Cal Poly team's site offered opportunities to design a project bridging the local—fisheries, existing village, environment, culture—and the global—tourism, medical campus, university, technology zone (Figure 7). The students' alternative visions for the site will be presented to officials in the Construction Ministry, Vietnam.

Specific Plans for Goleta, CA

Graduate Studio: CRP 553 (Spring 2013)

Professor Umut Toker's section of the graduate CRP 553 Community Design Studio worked with the City of Goleta to develop three specific plan proposals for Old Town Goleta—Hollister Avenue, the current and historic center of the town. Despite its central location, the area currently lacks an active presence of community members and a pedestrian-friendly atmosphere. With the support of the with city planners, the students focused on a new vision for Old Town through a participatory design approach. Three teams of five students each developed alternative proposals based on field observations, community workshops, and extensive in-depth interviews with residents and business owners in busy locations in town, during weekends and community events. The information collected offered an in-depth understanding of community needs and wishes for the area that will be useful as Goleta's city planners move forward on their plans for Old Town. The student proposals were presented to the City Council at their June 2013 meeting and the community comments were so positive that the City Council added a discussion on the implementation of specific elements of the plans to their following meeting agenda. The student-proposed restriping of Hollister Avenue to accommodate bicyclists was subsequently implemented, and the implementation of other student ideas continues (Figure 8).

Menlo Park Waterfront Vision Plan

Graduate Studio: CRP 553 (Spring 2013)

Professor Kelly Main guided graduate students as they created a vision plan for Menlo Park's waterfront in the Spring Quarter 2013 (Figure 9). Menlo Park is a city of approximately 30,000 people, located north of San Jose along the southwestern part of the San Francisco Bay. The city's waterfront, an approximately 60-acre area, is currently zoned light industrial; however, residential development pressure is on its horizon. Less than a ten-minute bicycle ride is Facebook's headquarters which—with 6,600 employees on its current and expanded campus—will further impact the need for housing. With a median home price of $750,000 (in 2010), Menlo Park has had difficulty addressing its share of state-mandated affordable housing.

In response to these pressing and divergent housing needs, the City amended its general plan and zoning ordinance to allow higher-density residential development at the center of its industrial waterfront. The City asked the class to develop a "vision plan" through community outreach. The students met with property owners and city staff, and engaged community members in parks, at local community events, and in community centers in a discussion about the future of the waterfront.

This studio provided CRP students a planning challenge that faces waterfront communities throughout the Bay Area: to adapt aging industrial sites to accommodate housing. To address the land-use compatibility issues inherent in such projects, many communities have chosen to simply eliminate industrial uses. Instead, CRP students saw the challenge as an opportunity to expand the concept of a mixed-use neighborhood beyond the typical residential and commercial combination found in many new urbanist plans.

They focused on creating great public spaces to address compatibility concerns. Small, pedestrian-oriented streets provide a buffer between residential and industrial uses and create a pedestrian and bicycle-friendly neighborhood. The bayfront trail—which currently ends at the project's boundaries—is extended through the project area and skirts a small plaza intended for both day- and night-time activities. The design includes informative exhibits and public art to educate visitors regarding climate change and sea-level rise. A new pedestrian/bicycle bridge will improve connection to the rest of Menlo Park, which is separated from the project area by Highway 101.

The students' plans were at once contemporary and respectful of the area's industrial history: a mixed-use area that includes apartments, small-scale retail, and jobs and small businesses provided by the light industrial uses. These urban design plan alternatives were presented at a joint meeting of the City Council and Planning Commission in early June.

Figures 9a & b: Menlo Park Waterfront Vision Plan; CRP

City of Bell

Graduate Studios: CRP 552/554 (Fall 2012 and Winter 2013)

Professors Chris Clark and Kelly Main's Community Planning Studio engaged in planning for the City of Bell, a small city with a predominantly Hispanic population and indistinguishable from dozens of similar municipalities in the Los Angeles basin. However, Bell was beleaguered by corruption: guided by the city manager, the City Council accepted large salaries for little or no effort, while the city manager paid himself more than a million dollars per year. His largess is legendary; he became a poster child for the Tea Party, the ultimate exposé for the argument that government needs to be dramatically reduced.

The CRP department decided to provide planning assistance to Bell, to attempt to make good on the promise of planning and the planning profession in a context where it was absent. Graduate students, equipped with humility and an ability to communicate in Spanish, engaged the citizens of Bell. Expecting anger and mistrust, they instead found people ready to get back to the business of governance. The community was eager to talk about the things that had always mattered: public safety, education, parks, and good housing.

Through this class focus on community participation and inclusion, students reached out to people where they lived, shopped, and played (Figure 10). The lesson was that if one stands at City Hall waiting to hear from people one will only hear from those who frequent City Hall. The student teams addressed issues of

Figure 10: Community visioning exercise, City of Bell; CRP 552/554.

economic revitalization along commercial corridors, improving the city climate and air quality, and developing the recreation potential of the L.A. River corridor that bounds the city. They also looked for opportunities to increase the stock of affordable housing, enhance the security of its citizens, and restore confidence in the City of Bell. The bad leaders are gone from Bell but the good citizens remain, and they are ready for planning.

City of Clearlake General Plan Update

Graduate Studios: CRP 552/554 (Fall 2012 and Winter 2013)

Professor Cornelius Nuworsoo's CRP 552/554 studio prepared an administrative draft General Plan for the City of Clearlake.

Figure 11: Clearlake General Plan Update; CRP 552/554.

The studio included 14 graduate students who collaborated with residents and city leaders in formulating a development scenario to accommodate projected population, and jobs and housing needs, by 2040. Located in Northern California, 80 miles north of San Francisco in rural Lake County, Clearlake is 10.8 square miles and sits on the southern shore of Clear Lake, the largest natural freshwater lake entirely within California. With a total population of 15,250 residents (2010 U.S. Census), the racial composition of Clearlake is predominantly white (73 percent) while 21 percent of the population is Latino. In 2010, the median household income in Clearlake was $26,382 compared to the Lake County and California state median incomes of $41,182 and $60,883 per household, respectively.

The project involved a thorough analysis and comprehensive update of the City's General Plan. The General Plan includes detailed long-term goals, objectives, polices, and programs to inform future development on eleven Elements: Economic Development; Land Use; Circulation; Conservation; Housing; Public Facilities; Safety; Health; Open Space; Noise; and Community Design. 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 Clearlake to improve the quality of life for residents, provide diverse housing options, generate economic vitality for the city, and develop a vibrant destination to draw visitors from near and far.

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 to not only accommodate projected population and employment growth, but also reflect community concerns for conservation and additional amenities for residents.

As shown in the Proposed Land Use Map (Figure 11), development is focused along: (1) Austin Park; (2) Olympic Drive Corridor (from Austin Park to State Route 53); (3) Lakeshore Drive Corridor (from Old Highway 53 to Austin Park); (4) Gateway at State Route 53 intersection with Lakeshore Drive; (5) The Avenues; (6) Regional Shopping Center (Wal-Mart/Airport Area); (7) Ogulin Canyon Industrial Center (northeastern corner of the City); (8) an area for agriculture.

Reflections on Campus Planning:
Lessons for Professional Practice

William Riggs
PhD, AICP; assistant professor, CRP.

CRP's new faculty William Riggs brings in significant experience in campus planning, having worked as a campus planner for the US Coast Guard and the University of California at Berkeley. In this article he discusses the challenges and rewards of campus planning, framed by unique processes, requirements, and standards.

Planning is a diverse field with many different areas of professional practice. Campus planning, as opposed to traditional city planning, is one of these areas—different than traditional municipal, and having a unique requirements that are framed by jurisdictional, environmental, and physical planning needs of the respective institution.

Based on my experience in this role, planners need a flexible skillset that moves beyond the traditional role of processing permits and crafting zoning codes. They need to be deep thinkers and leaders who can adapt to changing situations and understand nuanced bureaucracy. By taking advantage of it, as well as other practical words of wisdom, I believe both current and future planners can excel in almost any professional situation they find themselves in—being the glue that pulls unique projects and people together for success.

William Riggs at a US Coast Guard base.

Introduction

Since coming to Cal Poly during the 2012-13 academic year, I have been approached by many of my students with questions about my experience working in the campus planning environment for both the federal government (US Coast Guard) and as a Principal Planner for University of California (UC), Berkeley. These jobs were not only very different than the positions that many of my peers took in local government, they were less talked about in the academic environment. They involved a general yet holistic knowledge of the planning field and an ability to draw on skills ranging from urban design and physical planning to economic analysis and the environmental process to solve problems in a complex and highly bureaucratic environment.

Given this, it is my goal in this essay to touch on some of my professional experiences and talk about the opportunities in

working in a campus vs. city environment. Focusing on my professional experiences, I will compare and contrast the role of planners in these environments using unique projects as examples. Secondly I will continue by focusing on some of the challenges of working in the campus environment. Finally I will offer my own words of wisdom stemming from this experience and how they can be translated to paths to success in not only the campus and municipal environment but in the consulting world as well.

Opportunities

While planning in the campus environment is similar to planning in the city environment, a key distinction is the jurisdictional variation. Whether working for a corporate campus like Google or Facebook or for a state or a federal agency, each organization will likely have its own approval systems and standards that may be very different from a traditional city planning process. Each is a shade similar to a municipal framework and may have some elements, but is unique unto itself.

For example, working for UC Berkeley there was a planning process that involved a series of collaborative committees that would make decisions on land use and capital projects. As a planner I would work on conceptual urban design and massing schemes for new facilities. These were for a variety of different types of projects, including academic buildings, parking garages, streetscape plans, athletics facilities and student housing. After completing the cursory design process, the project would be reviewed by a design review committee similar to a design review board. With their advice and input, it would then go to an executive campus committee under the chancellor for land use and budget consideration.

With that approval, the planning staff would begin environ-
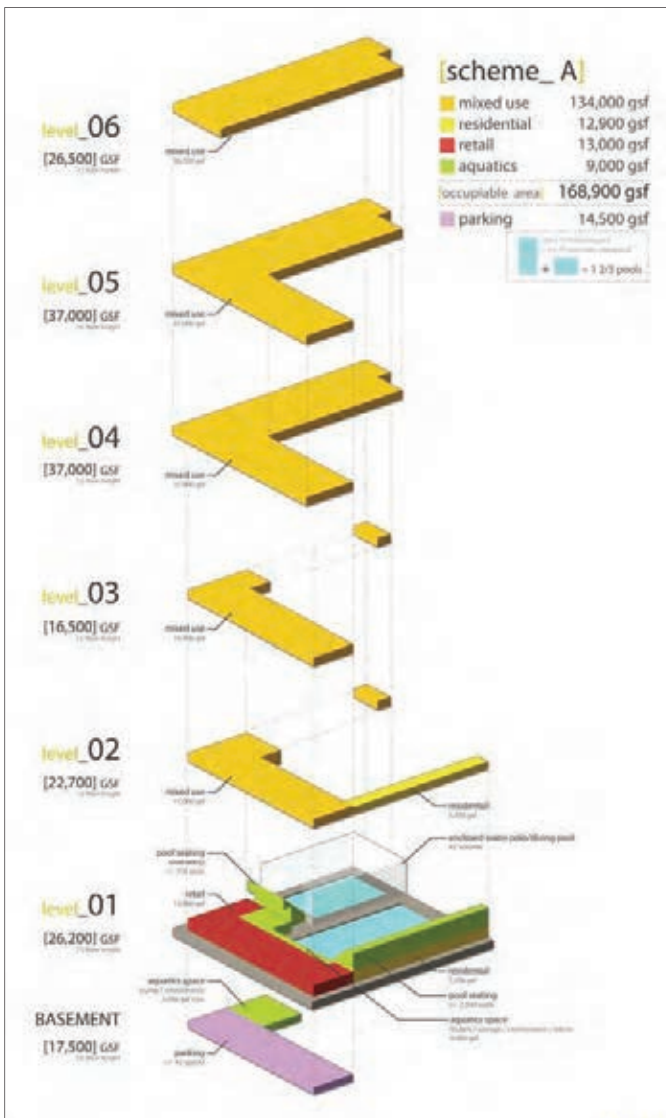
The architectural lay-out scheme for the different levels of the aquatics facility (above), and the computer rendering showing its insertion in the city fabric.

mental clearances in parallel with more advanced design (schematic, design development, working drawings, etc.), and although a higher board (the UC Board of Regents in this case) might offer environmental approval for larger projects, the project basically would go forward at this point. This is different from a municipal environmental, where a city council might ultimately make a decision for a project, sometimes based more on political leanings than staff recommendations and committee work.

One of the more interesting projects I worked on that provides a good example was an intercollegiate aquatics facility. The goal of the project was to explore different options for an aquatics facility on the campus. With a team of planners and architects, we evaluated sites and configurations based on multiple criteria including site orientation, circulation / transportation, and urban design / place-making opportunities. We eventually settled on a parking site that offered not only a location for a large mixed-use structure but offered the possibility of creating an iconic architectural gesture that could potentially become the terminus for a greenway that would lead all the way to the local Bay Area Rapid Transit (BART) line.

When the concepts were in draft form, the project went to several committees. They reviewed the land use and design factors as well as the relationship with adjacent properties and local zoning. Since the property provided a "seam" between residential and campus-oriented uses, reviewing the compatibility of uses was important. Both groups recommended that more active / athletics uses be placed on the campus side of the parcel and other uses such as offices and student housing be on the residential / neighborhood side. The executive planning committee and chancellor gave approval and required that financing be in place prior to breaking ground.

It is this fairly nimble and yet opaque process that is much different than a city environment. In a municipal setting, by comparison, a planner may not be able to work on a concept with committees and respond as quickly to feedback based on the demands of the public and the city council. Campus planners can set their own agenda in a way that city planners cannot because they do not answer to a council—to a certain extent they can design their own work program based on staff expertise and the needs of the organization—in reality setting their own work program and / or agenda to suit their own interests. This is a key distinction of campus planning, and allows planners in this position to work on a large diversity of projects.

Challenges

Likewise while this process of planning in a campus environment provides opportunities in terms of work portfolio diversity, it does pose challenges: primarily in the differences of the bureaucracy and because the "chain of command" is sometimes more diffuse. Many times it is more nuanced and political than the municipal environment. This nuance poses two problems: 1) it can slow down otherwise fast-

moving projects; and 2) it can sometimes lead to institutional complacency and entrenchment that threaten the success and / or quality of a project.

An example of the first problem, a slow-down based on the nuanced political environment of campus projects, was a Parking Masterplan I worked on in 2010. From the beginning it became very clear that parking numbers were dynamic and changing, even when we were completing the plan. As depicted in the graphic below, even other building projects that I was working on at the time were targeting the same surface lots that we were trying to gauge parking needs for.

At the same time there were numerous differing viewpoints about how to balance transit accessibility with auto mobility. Some on the campus felt that reducing the number of spaces would deter students, faculty, and staff from coming because of the loss of easy access to campus. This is despite the fact that that almost half of parking permit holders lived within a 5-mile radius of campus in a transit-rich area also conducive to biking and walking. Others felt as I did, that by fully supporting modes other than travel via auto, total accessibility would increase to the benefit of the local environment and would do so at substantial savings to the campus.

Being the head of a transportation program that was funded by parking revenues put me in the middle of this muddled situation that became almost paralytic, yet this lack of momentum was eventually overcome by two strategies. First, I used diplomacy and selling the ideas of a transportation demand management (TDM) strategy to each committee member individually. This primed them for an eventual decision incrementally and kept the topic fresh in their minds.

Secondly, working with a team of planners, I made sure the Parking Masterplan document was extremely well written, made linear arguments and could withstand critique—many times acknowledging concerns that had been vocalized during the planning process. Not only did this pave the way for a successful plan, it launched an important and lingering dialogue on the high cost of providing parking vs. the alternative of supporting patrons who travel via transit or those who bike or walk (on an annual basis, paying for all transit rides costs about one-quarter of the cost of providing parking).

As for the second issue, entrenchment, as with any organization, ideas in a campus environment can become stale because of the lack of substantial turnover in personnel and the lack of public stakeholder interface. In these situations planners can become marginalized based on "group-think" and a lack of diversity of ideas in leadership, resulting in projects not going forward "just because" or being put on the shelf to become very expensive paperweights.

Such was the case for one of my very first large professional projects—a $300,000 facility plan for the Coast Guard pier in Monterey. The pier had been open to the public and a popular dive location, but was closed after the events of 9/11. Due to confusion and a lack of knowledge and / or willingness to discuss the issue at the leadership level, the pier was still closed in 2004 and was falling into disrepair. There was a disagreement about ownership between the Army (Presidio of Monterey) and the City of Monterey, and complaints about upkeep from the Coast Guard and Naval Postgraduate School. NOAA wanted to use the pier and had a federal allocation to build a dock for its research vessel but did not have a forum to discuss it with anyone. Caustic letters were being sent between the Army, Coast Guard and the City threatening the constitutional right

The UC Berkeley campus and its surroundings showing 5-minute walk distances from select areas and available parking spaces. Below, examples of campaigns to encourage the use of alternative transportation.
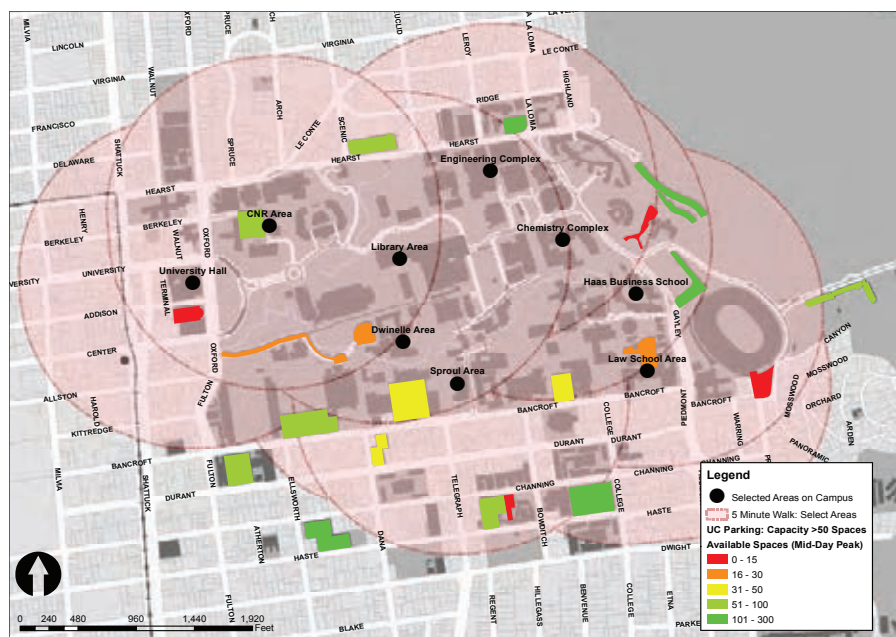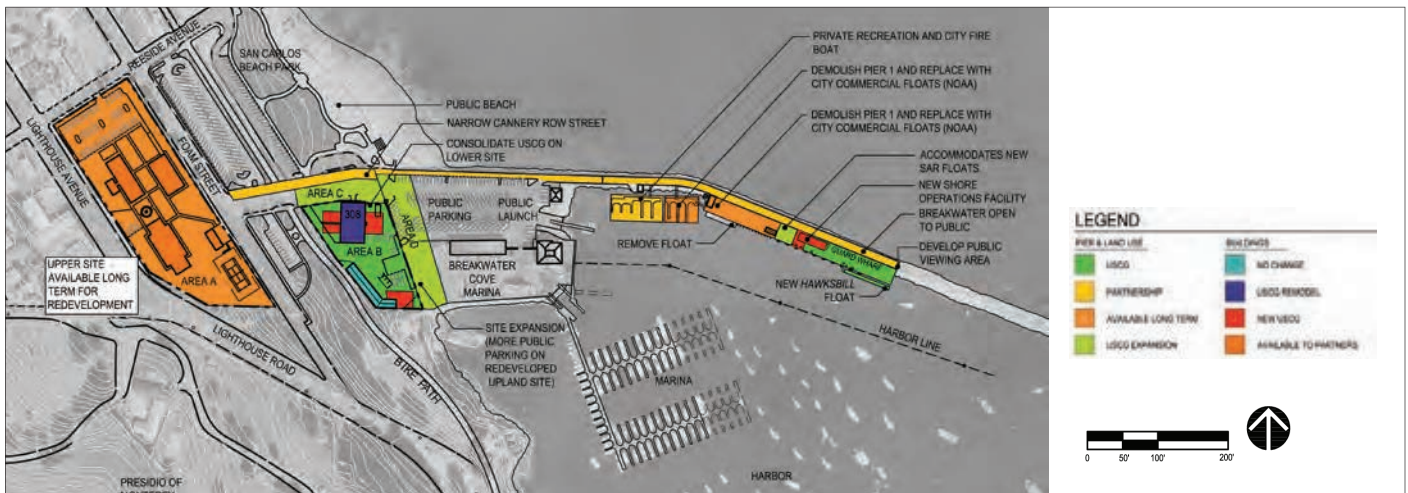
The Monterey Bay National Marine Sanctuary site and the chosen design alternative for the new waterfront facilities.

of federal agencies to usurp local right based on "navigational servitude". Before anything could be done with the facilities, everyone had to come together and re-learn to collaborate.

With the support of my supervisors at the Coast Guard, I did research on the ownership and improvements that had been made at the pier—many of which the City had completed despite the fact that they did not have any ownership interest. I arranged a collaborative idea-sharing session for all parties to get to know one another and potentially move forward. Everyone expressed a desire to see the pier re-open to the public despite their other interests in security and / or expanded facilities. After this, I was able to present the history of collaboration that many at the table were not aware of, along with a proposed way forward. In this situation we were the "glue"—the people who bring together all of the folks who normally wouldn't talk to one another—that paved the way to begin work on a new plan for Coast Guard facilities. Eventually this plan even focused on trading desirable land to the City of Monterey in exchange for an increased footprint at the head of the pier.

While the plan was long overdue, it was only by keeping focus and momentum, and constantly remembering the collective history of the project, that we could keep it moving. As a result, since then I have always advised my clients to never stop moving—even if you are taking just baby steps. I used to tell my UC Berkeley clients that forward momentum should be their best friend and ally in getting capital projects completed. As projects are shelved the clarity of focus becomes less clear, and before long, the plan loses relevance—especially to the stakeholders who had been invested and involved in shaping it.

Conclusion

Campus planning is but one shade or slant on a planning field, and while it is something that I never planned to get into (and stumbled upon as my career developed) it is an area where people who are flexible and like a diverse work program, in a nuanced political environment, can flourish. That said, because I did happen on the field by accident, given that none of us know our exact future, I would encourage flexibility.

Despite the fact that many of us have specific desires in what we think we want as a professional, from my experience I've found that the best philosophy is to be open to opportunity and let one's career develop organically. To illustrate this I sometimes use the expression Semper Gumbi or "always flexible". This is a play on the Coast Guard's motto Semper Paratus, which is Latin for "always ready". Using this philosophy I've seen some of my own peers "cast their nets" as widely as possible, open to new avenues of the field of planning, and by doing so turn their planning education into new adventures.

Because of this I would offer some words of wisdom in navigating the professional realm of planning practice for both current planners and those entering the profession. As I've alluded earlier, these do not apply solely to the area of campus planning, but they incorporate many of the ideas I mentioned in this essay. I have used them as a guide to developing my own skillset so I can do as Forester (1982) suggests and effectively

"plan in the face of power" in whatever type of professional environment I find myself in.

They can be translated to any area—so whether it be like one of my friends, who found a job working with hospitals to be better prepared for disasters, or another who is making movies about walkability and housing, they can be a guide in developing a holistic and flexible skillset. Equipped in this way, planners can fill many holes and find niches that work for individual skillsets. And it just so happens that one of those areas in the planning field might be a campus environment.

Ten Practice Job Skills in Urban Policy and Planning

When students ask me what got me my first job I am candid with them and tell them it was my diversity of experience and the out-of-class experiences that were most important. While I had done very technical and ground-breaking plans for the Town of Dangriga, Belize, interned for an English urban design firm, and had excellent GIS skills, it was my personal experience working in Africa and doing volunteer economic development work for the neighborhood of Old Louisville that caught people's eye on my CV. Keep this in mind when presenting yourself on paper and in person and do not let your diversity of experience and passion for what you love be overshadowed by technical prowess.

1. Diversify Your Skillset / Experience

  a. Try to learn as broadly as you can

  b. Refine these skills based on job requirements

2. Think at Different Scales and Remember the Big Picture

  a. Learn technical skills but understand their context

3. Learn to Write Well

  a. Key Steps

    1. Content: Develop good content

    2. Polish: Polish breeds trust

      a. Proofread for careless errors that undermine your points

      b. Be succinct: if you can say it in 3 words don't use 5

    3. Design:

      a. Use bullets

      b. Consistency: fonts and hierarchy

      c. White space

4. Identify and Capitalize on Your Strengths

  a. Make yourself indispensable

5. Know When (and When Not) to be Wonky

  a. Be deliberate in using lay language and do not use acronyms

6. Be confident and sell yourself

  a. Tout your successes but don't exaggerate

  b. No one else is going to toot your own horn louder than you

7. Trust but don't be careless

  a. Remember that others may not always have your interest in mind

  b. Keep careful records and save everything

  c. Keep your online life personal

8. Update your resume continually

  a. Scan for opportunities that might be of interest

  b. Be aggressive in networking / informational interviews especially when potential jobs are concerned

  c. Make it professional and always bring a copy to an interview

  d. Use easy-to-read fonts and don't be too "designy"

  e. Keep records of all applications and stay organized

9. Think and Speak in a Linear Way

  a. Outline 3 points / answers

  b. Explain the points

  c. Remind about the points

10. Think broadly about job options

  a. Many tiers of government, non-profits, technology companies, public policy analysis, related fields, etc.

    1. Planners are deep thinkers and deep thinkers are desirable

    2. Planners are glue that can be the individual that holds disparate teams that otherwise might not work together

  b. Don't overlook internships when you are looking for full-time employment

Sustainability Planning in Las Vegas

Richard Rojas

AICP; MCRP (class of 2006).

In 2011 the City of Henderson, Nevada led a local coalition to apply for a $3.5 million Sustainable Communities Regional Planning grant from HUD. As a planner with the City of Henderson from January 2008 to April 2013, CRP alumnus Richard Rojas authored the grant application besides working in the city's Sustainability Plan and in various long range planning projects. In this article he discusses these experiences.

I suspect that in the past few years, the mantra of "doing more with less" has taken hold in just about every planning agency across the nation. The abrupt halt in development meant the revenues that supported our jobs disappeared as well. As a planner in the public sector, this meant navigating the omnipresent specter of layoffs by taking on unfamiliar assignments, trying to exceed expectations as much as possible, and inevitably picking up the slack when coworkers were "reassigned" or left on their own will to pursue more secure opportunities. While the instability has been stressful, it has also opened up many opportunities to expand my own knowledge base and skill set. More often than not, "doing more with less" means pursuing the goals of the community, elected officials, and city administration without the financial resources (i.e. paid consultants) to offer specialized knowledge and expertise.

The economic downturn has challenged communities to be more efficient with increasingly limited financial resources. Coincidentally, national interest and momentum has been coalescing around the concept of sustainability. At the City of Henderson, Nevada, this interest was manifested in the form of an interdepartmental "green team", led by planners, including myself, that helped the City develop strategic priorities for energy, water, waste and recycling, transportation, buildings, parks and trails, and public health.

Using a combination of local networking and research of national activity, our green team gained insight on the policy options available to Henderson. Ideas were prioritized for implementation utilizing a collaborative process that evaluated political feasibility, resources accessible to individual city departments, and benefits to the community. Once implemented, progress was measured, publicized, and distributed to the community through annual green reports.
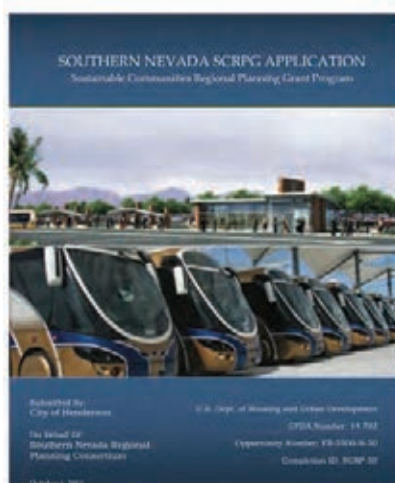
Fortunately, this process that the green team utilized for collaborative decision-making served as a great model for developing a grant application for a regional planning grant. While Henderson was able to achieve small-scale success on energy efficiency retrofits, residential recycling, and turf conversions, the Las Vegas region as a whole was not making collective steps toward sustainability. In order to address the larger issues of the economy, social equity and the environment, in the midst of steep cutbacks to local government, we needed to find additional resources. The option with the most potential was a federal grant program known as the Sustainable Communities Regional Planning Grant Program.

In 2010, the U.S. Department of Housing and Urban Development (HUD) initiated a partnership for sustainable communities. This federal agency partnership between HUD, U.S. Department of Transportation, and U.S. Environmental Protection Agency offered grants to support planning efforts that integrate housing, land use, economic and workforce development, transportation, and infrastructure investments.

While HUD's program offered the resources needed in the Las Vegas region, the process for requesting funding was daunting: the criteria were extensive, the application window was very short, and perhaps most important, the grant writing expertise that seemed critical to success was not available. In spite of these concerns, the leadership at the City of Henderson decided it was a priority. With Henderson as the project champion, the Southern Nevada Regional Planning Coalition organized a group of business, nonprofit, and government stakeholders to pursue the planning grant.

As project manager for this assignment, my initial response was to evaluate my opportunities and constraints. Opportunities

included recent transportation improvements, interest from potential partners, my own knowledge of best practices in regional planning (e.g., Sacramento Blueprint and Envision Utah), and support from my managers. My constraints were a limited timeframe (thirty calendar days), limited staff resources (my supervisor and me) and our complete lack of experience with grant writing.

In an effort to appeal to potential partners, I decided from the beginning to make the process open and accessible. Working my way back from the deadline, I created a schedule of meetings. I would draft ideas to address the application criteria (statement of need, project proposal, governance structure, budget, etc) based on what was successful in planning efforts I was familiar with in Sacramento, Salt Lake City, Denver, and San Diego. In response, my colleagues and potential partners could critique and revise the draft material in person or remotely via web chat, conference call or email. All comments would be considered and a consensus process would help resolve conflicts.

The best opportunity for sustainability in Southern Nevada and the foundation for the grant application project proposal was the bus rapid transit (BRT) infrastructure that was recently developed to serve the entire region. In recent years, the Regional Transportation Commission of Southern Nevada, the region's metropolitan planning organization, successfully planned and constructed the most expansive regional BRT network in the United States to complement its local services. These improvements connected the largest employment center (Las Vegas Strip) to suburban areas including the downtowns for Las Vegas, Henderson, and North Las Vegas. In order to maximize the utilization of BRT, changes to land use were needed to improve access between current and future urban housing, employment, and recreation opportunities. Thus, project funding would be directed toward public outreach and education (i.e. scenario planning, public workshops, opinion surveys, and public events) with the general public, elected officials and influential business, nonprofit, and public agency stakeholders to build interest and support for revising planning policies that could make implementation possible.

To assist with grant writing, I relied heavily on my network of colleagues. For example, a grant administrator I met and assisted during an American Society of Public Administration conference presentation helped me develop cost estimates for the budget. A university research fellow who expressed particular interest in public health and planning issues with a previous regional work group was critical to identifying nonprofit and private sector partners to whom to reach out. A human resources analyst from the Henderson Green Team helped me verify salaries and benefits for project staff estimates. A coworker from a previous job connected me with the Southern California Association of Governments Compass Blueprint regional planning program to brainstorm the scope of a key project component I was evaluating. And, most important,

a grant writer at the University of Nevada Las Vegas proofread my application draft and provided strategic revisions.

Less than two months after our completed application was submitted, we received an email from the Secretary of HUD, Shawn Donovan, informing us that our proposal was accepted and awarded $3.5 million. The days that followed were a blur of joy, excitement, disbelief, and concern for the unknown. A press conference at the university attended by local dignitaries was a nice pep rally for everyone who was now officially committed to seeing this project through. In the weeks that followed, we were introduced to a HUD grant administrator (financial representative) and grant technical advisor (general liaison) who would guide us through processes and procedures for reimbursements, developing a detailed work plan, and completing progress reports. And in the months that followed, we recruited and hired project staff and selected consultants to coordinate the studies and activities we proposed.

As I look back on this experience, I am very grateful. It was rewarding to turn an idea with potential into a multi-year planning project designed to bring about positive change. It was equally rewarding to learn from dedicated individuals locally as well as nationally. Though Las Vegas may not transform into the mecca for sustainable development overnight, I'm optimistic the project will help to improve the development pattern, building product choices and location and integration of land use and public infrastructure in Southern Nevada in the near future.

Tips for Grant Writing:

1. Pay attention to details. Federal grant announcements are complicated. Read closely and match your response to the request as much as possible.

2. Utilize your network. Many people enjoy assisting others and appreciate the chance to be included, especially if they can potentially assume a bigger role in the project. This is especially important for collaborative projects that rely on partnerships over control.

3. Set realistic expectations. Create a strategy that effectively responds to criteria within the available timeframe.

4. Emphasize the positive. Clearly state why you need resources without being overly critical. Include examples of strengths and potential to improve in the future.

Interview with Alumnus Trevor Keith

Master in City and Regional Planning, Cal Poly;
Energy Program Coordinator, County of San Luis Obispo.

FOCUS: When did you graduate?

Trevor: I received my MCRP degree from Cal Poly in 2003 where I completed a Masters Thesis comparing a New Urbanist development "The Crossings" in the city of Mountain View with a Planned Unit Development to determine the success of the New Urbanist principles.

FOCUS: Describe your current job. What are your primary responsibilities and what type of work do you do?

Trevor: I am the Energy Program Coordinator for the County of San Luis Obispo, and lead the energy group in the Planning and Building Department. We work on implementation of various energy programs offered throughout the County which include the Energy Watch Partnership. This partnership specifically focuses on engaging with municipalities and small / medium businesses to assist them in a reduction in their energy use by applying energy efficiency methods. We also sponsor Energy Awareness Month in San Luis Obispo during October in order to educate our residents and business owners about energy efficiency opportunities.[1]

We anticipate the upcoming approval to expand the emPower Program across the Central Coast to offer a residential energy efficiency loan program similar to one that is currently available in Santa Barbara County.

In addition to my work in the energy efficiency sector for our County, I also oversee the development of the Los Osos Habitat Conservation Plan. This plan is part of an application by the County to obtain incidental take permits from the US Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (DFW). The HCP identifies the suite of activities that will be covered by the permit (covered activities), their anticipated impacts to the listed species covered by the permit (covered species), and the steps that the County and other plan participants will take to avoid, minimize, and mitigate the impacts of the covered activities on the covered species (the conservation strategy).

FOCUS: Can you briefly describe your previous jobs?

Trevor: I have had the opportunity to work for three separate, private environmental/planning consulting firms here in SLO.

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[1] For more about the 2013 Energy Event go to the San Luis Obispo County website athttp://sloenergymonth.org/. For the promotional video, go to http://youtu.be/qCTqsjZldK0

Trevor Keith and his team accepting the Energy Awareness Month Resolution from the San Luis Obispo County Board of Supervisors.

Prior to coming to the MCRP program, I worked in the bay area at a software start-up firm that handled supply chain management for internet retailers. Before my software days, I worked in Kings Canyon and Sequoia National Parks managing the concession services in the two parks.

FOCUS: How is your education reflected in your work? Do you feel that the classes and skills from ourprogram support your professional practice? What did we provide you with that you feel is fundamental for your professional practice?

Trevor: The MCRP program was a great learning lab for me, where I learned the fundamentals of the planning process and how it is applied in the jurisdictions here in California. In addition, I received exposure to innovative projects the CRP Department faculty were involved in at and around Cal Poly. Specifically, I spent time on research with Dr. Richard Lee; gained professional experience during my internship at Crawford, Multari, and Clark; and of course, my thesis advisor Dr. Vicente del Rio provided an excellent foundation of knowledge and practice for my career in planning.

FOCUS: Which do you think are the strengths and weaknesses of the MCRP program?

Trevor: The strength of the MCRP program is the mix of classes and exposure to all the different elements of planning. This allows you to understand theory and then apply it to the planning process. Cal Poly's approach in the "learn by doing"

method truly differentiates Cal Poly's program from others I had considered attending. The MCRP program has continually recruited stellar professors who work on innovative projects and research which allows the students opportunities for close collaboration with faculty and involvement in a real-world 'learning lab.' The only weakness of the MCRP program is that the number of projects and opportunities for work outweighs the time and availability a student will have to be involved.

FOCUS: What are the critical knowledge areas for planners entering the field? (e.g. land use law, research methods, zoning, housing finance, CEQA, etc.)

Trevor: I think the saying "jack of all trades and master of none" is a great initial approach and self-expectation for first steps into the planning field. Once you have developed a good understanding of the planning landscape, then you can begin to specialize in certain areas. I would stress a strong background in current planning and CEQA to have the fundamentals so when you work on other aspects of planning you will always remember how that will affect implementation of your work.

FOCUS: What are the critical skills and tools for planners entering the field?

Trevor: Good communication is the key to planning (and life). This takes on many forms whether it's writing an understandable staff report, presenting to a community group, or giving an applicant updates on their project. Using creative technology can help deliver your message. I find that being clear and concise always helps. Lots of folks like to judge

a plan by the number of pages; I find that if the plan itself is accessible and people use it, you have found success. Most projects that I have seen breakdown is due to poor or non-existent communication about an expectation. Hand-in-hand with communication goes professional interpersonal skills; I highly recommend paying attention to developing your interpersonal skills. After working in Kings Canyon and Sequoia National Park, where I directly managed staff employees and interacted with the public regularly, the most important skills were maintaining a positive attitude and actively listening.

FOCUS: What was the most challenging aspect of moving from the MCRP program to professional practice?

Trevor: Not getting the amount of opportunities to pursue research and using the REC center on a daily basis. I really appreciated the amount of opportunity to assist on different projects that the MCRP program provided me.

FOCUS: What do you see as planning's big challenges in the near future, and what do we need to teach students so that they may successfully engage on these challenges?

Trevor: I see the planning field becoming less specialized. I have found that in my career that I have had be more versatile instead of specialized. In addition, projects have become more complex so you end up working on a project as a team instead of independently. The MCRP program does an excellent job of offering opportunities to work with groups and multi-disciplinary teams on projects.

The SLO County team at the 2012 Energy Event.

Theses and Professional Projects Abstracts
Master of City and Regional Planning
City and Regional Planning Department, Cal Poly San Luis Obispo

For fulfilment of the Master of City and Regional Planning 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 the master's theses and projects approved during the 2012/2013 academic year; they are available from Cal Poly's Kennedy Library at: http://digitalcommons.calpoly.edu/theses.

Greyfield Development in Vallejo, California: Opportunities, Constraints, and Alternatives.

Jonathan Peter Atkinson

The regulatory framework and presence of underutilized commercial land make Vallejo, California ideal to facilitate greyfield development. The city has policies and programs that call for the redevelopment of underutilized commercial land. Springstowne Center, CVS Center, and Meadows Plaza are shopping centers that exemplify signs of maturation and/or decline. Since Meadows Plaza experienced the most decline out of the three shopping centers based on the amount of vacant square footage, this master's developed three conceptual alternatives for the revitalization of Meadows Plaza: (1) Adaptive Reuse; (2) Residential Development; and (3) Mixed-Use and Residential Development. The project concludes by recommending that Vallejo implement the Underutilized Commercial Land Conversion Program as outlined in the Housing Element of the Vallejo General Plan as a way to redevelop underperforming sites like Meadows Plaza and facilitate greater community revitalization.

http://digitalcommons.calpoly.edu/theses/1037/

What Comes After the Boom? Baby Boomers in Santa Maria, California. A Market Study for People's Self Help Housing.

Elizabeth Anne Brighton

This master's project has two parts: the introduction and background informing on affordable senior housing market study, and a market study prepared for People's Self Help Housing (PSHH). The introduction starts by providing current and future trends for seniors at the national and state levels. This includes discussion of the "Baby Boomer" age cohort and their rapid growth and potential impact to the housing market. The introduction describes challenges facing developers of affordable senior housing., such as type, location, and funding sources. Federal funding sources for affordable senior housing projects are briefly presented and their applicability to the project is explained. The stage is set for a market study to determine the feasibility of an affordable senior housing project in the Santa Maria/Orcutt market area.

http://digitalcommons.calpoly.edu/theses/1065/

The Development of an Eletronic Data Collection Tool and Comparison of the Eletronic and Manual Methods of Land Use Inventory.

Wesley M. Catanzaro

An important component of Planning Information Systems for municipal planning agencies is a comprehensive land use inventory that provides information on the location, distribution, and intensity of land uses throughout a community. This data is a necessary prerequisite for the informed creation of planning documents such as General Plans, Specific Plans, Housing Inventories, and Climate Action Plans. Planners may also wish to incorporate additional information at the parcel level, such as the number of housing or commercial units, building condition, and/or access and connectivity to adjacent streets. Because some of this information is best observed in the field, agencies require methods of collecting this data that will ensure data precision, accuracy, and consistency, while minimizing data collection and processing time. Electronic data collection tools that are compatible with Geographic Information Systems provide a potential solution that can facilitate these desired data collection parameters. This research illustrates the development of an electronic data collection tool that planning agencies may utilize within various planning efforts, and compares the efficiency of the tool to traditional "pen-and-paper" data collection methods in terms of time savings, reliability and consistency.

http://digitalcommons.calpoly.edu/theses/1013

Urban Agriculture Stormwater Management in California Cities.

Rachel L. Cohen

Cities in California are beginning to incorporate urban agriculture into their land use designations. However, it became evident that just because an urban farm was small, organic and provided certain benefits that it was not free from impacting its surroundings. As more urban agricultural ventures are established within cities, planners have to carefully consider their effects, such as stormwater pollution. This thesis utilizes two case studies, the cities of Oakland and San Diego, to examine the similarities and differences between each city's urban agriculture ordinances

and evaluate whether or not the cities have adjusted stormwater requirements in parallel with these ordinances. Interview responses and site visits in each city were analyzed and compared to expound upon the approaches each city engaged. Using the collected data and analysis as a base, a set of guidelines was created for managing stormwater runoff from urban agriculture.

http://digitalcommons.calpoly.edu/theses/1015

Effects of Transit-Oriented Development on Affordable Housing, Job Accessibility, and Affordability of Transportation in the Metro Green Line Corridor of Los Angeles (CA).

Audrey M. Desmuke

The understanding of social and economic change in the Los Angeles Metro Green Line corridor and an analysis of current planning policies can help identify how future policies may generate more positive outcomes. This study evaluated the conditions of four one-mile radius areas around stations in the corridor by studying demographics, housing affordability, transportation affordability, and job accessibility between 2000 and 2010. Over this period the corridor has not yet developed to the standards of a location efficient environment. This study recommends the protection of vulnerable populations—such as the renter-occupied housing units—because they are more likely to make up core transit riders that need public transportation. Affordable housing near transit enables households to save money on both transportation and housing expenditures and works towards making the corridor more affordable. By understanding the three main variables in the context of social equity, a decision-maker can avoid the potential of negative gentrification and displacement, and promote economic viability in the corridor.

http://digitalcommons.calpoly.edu/theses/988

Addressing the Administration of Planned Developments: The Case of Arroyo Grande, California.

Matthew J. Downing

The City of Arroyo Grande, California has a problem administering the regulations of five Planned Developments. This problem arises from these regulations showing in a 167-page appendix of the City's Development Code which includes the original approvals for the developments. It also includes amendments to those approvals that are only added to the appendix. Therefore, changes to the regulations governing the Planned Developments are not tracked. It takes staff considerable amounts of time to research answers when members of the public have questions regarding development in one of these Developments. Because of the numerous pages that must be read through to track the changes to one of the districts, there is no guarantee that the information presented to the inquirer is accurate. This can lead to issues when the rules are not consistently applied. The purpose of this project is to investigate an appropriate method to address this problem.

http://digitalcommons.calpoly.edu/theses/948/

San Luis Obispo Regional Transit Authority: Recommendations for Future Service Demand.

Alexander J. Fuchs

This thesis explores the potential commuter demand for additional or express bus services provided by San Luis Obispo Regional Transit Authority (RTA) by focusing on Route 9, which operates between the North County and the Central County. Electronic survey instruments were created to collect data from non-riders in three major employers in San Luis Obispo County: California State University, San Luis Obispo (Cal Poly), the City of San Luis Obispo, and the County of San Luis Obispo. A link to one of the surveys instruments was included on San Luis Obispo Council of Government's (SLOCOG) e-newsletter to reach additional non-riders. Analysis of the survey data resulted in two recommendations to the RTA: (1) expansion of RTA Route 9 services, and (2) non-rider outreach programs.

http://digitalcommons.calpoly.edu/theses/1011

Financing Public Solar Projects: California Public Jurisdictions' Experiencing in Acquiring and Financing Solar Photovoltaic Installations.

Dana M. C. Hoffman

More efficient technologies, state laws as well as environmental, social, and political pressures have contributed to placing solar acquisition on the agenda for California's public entities over the last half decade. As an alternative to outright purchase, a promising financing option made available to jurisdictions in recent years is ownership by a third-party provider (TPP) including various forms of Power Purchase Agreements (PPA's) and leasing. This thesis reviews solar acquisition practices in California over the last six years, comparing financing options through document analysis and feedback from staff. It finds that directly buying installations has provided a slight advantage in direct savings and overall satisfaction, but success generally depends upon the jurisdiction having secured upfront capital, usually from very low-interest loans or large grants. TPP projects have provided a good alternative to direct purchase, resulting in significant savings and positive reviews from jurisdictions, allowing them to invest in larger installation sizes, and to meet local policy goals or mandates. This thesis observes the limitations for installation sizing, impacts of siting on savings, tips for selecting a solar installer, the benefits of cooperative procurement arrangements, and the relative importance of existing and expired monetary incentives available for solar from 2006 through 2020.

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Historically-informed Development in the Civic Center South area of Downtown Los Angeles.

John Daniel von Kerczek

The site of today's Civic Center in Downtown Los Angeles evolved gradually over the course of over 150 years before being dramatically transformed in the early to mid 20th century.

Understanding how this area evolved and was redeveloped can help guide efforts to restore physical and historical continuity throughout the area. Specifically, this historical understanding can assist in identifying key opportunity sites within the area, such as Civic Center South, and in setting urban design goals for new development. Research for this thesis included an analysis of the area's historic development and a review of its current conditions. The historical analysis examined how the study area initially developed and how it was subsequently transformed through redevelopment. The review of current conditions examined recent and proposed development in and around the Civic Center South site and recent policies and regulations that are guiding new development within Downtown Los Angeles. This study ultimately provides an overview of the historic development context of the north end of Downtown Los Angeles as well as a review of the developments and regulations influencing development within that area today.

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Joint Use Partnerships: Evaluating the Feasibility of a Joint Use Partnership between the City of San Luis Obispo and Cal Poly.

Kathryn S. Mineo

As demand for additional athletic fields continues to increase, the City of San Luis Obispo is struggling to meet the recreation needs of the community. This project evaluated the feasibility of a joint use partnership with Cal Poly San Luis Obispo for the shared use of the University's underutilized Sports Complex, and made recommendations of strategies to address the City's recreation needs. This study reviewed current and professional academic literature on successful approaches to joint use partnerships; conducted case study analyses on two Cal Poly facilities; and worked with City and University officials to examine the issues associated with establishing joint use agreements between state universities and local municipalities. Because little research currently exists to inform joint use partnerships between these two entities, the opportunities for exploration are many. Of particular interest are the fields of local and state policy and financing methods.

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Benchmarking San Luis Obispo's Municipal Energy Use: An Audit Implementation Plan.

Elizabeth Laura Pfafflin

The process for meeting goals for energy reduction for buildings is often disorganized, cost-prohibited, and behind schedule. In order to meet these goals a jurisdiction must first establish a system for tracking and monitoring energy use, pinpointing areas in needs of improvements, and sharing this information with decision makers. Energy Star's Portfolio Manager benchmarking system provides a tool for public workers and building managers to meet these needs. The County of San Luis Obispo's climate action and energy reduction plan, titled the EnergyWise Plan (2011), sets a goal for the County's

municipal buildings to reduce their energy use by 20 percent from 2006 levels by the year 2020. This thesis uses the Portfolio Manager Tool to analyze the current energy use of the County's municipal buildings, pinpointing the areas most in need of further examination in order to meet the EnergyWise Plan's goal. The thesis concludes with an audit and retrofit implementation plan for the County's top energy users, as well as a set of recommendations to improve energy use.

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A Conservation Plan for Reservoir Canyon Natural Reserve, San Luis Obispo, CA.

Brian M. Provenzale

This thesis results in a conservation plan for the Reservoir Canyon Natural Reserve (RCNR) in San Luis Obispo, California. It is a professional project for the City of San Luis Obispo with the goal of eventual adoption by the City Council. The plan was motivated by City policy, which advises creating conservation plans for open spaces, and by a particular need to address management issues in RCNR that include plant and wildlife conservation, trail access, erosion, electrical utility easements, and other legal matters. The project consists of two main components: the conservation plan and a companion paper. The paper is an overview of the theory and best practices involved in conservation planning, and is meant to be complementary to the conservation plan. The Draft Reservoir Canyon Natural Reserve Conservation Plan, attached as an appendix, explains the conditions of the reserve and describes the goals and management strategies the City will employ.

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How Land Use Regulations Inform Sustainable Development: A Look at Commercial Development in Bakersfield, California.

Darcy Marie Reed

This research analyzes the relationship between local land use regulations and commercial development in the City of Bakersfield, California, specifically focusing on how the regulations are used to inform commercial development to be sustainable or not. This research contributes to similar research efforts through its contribution of the Sustainable Development Indicator Checklist, the tool used to measure sustainable development within the regulations as well as the built environment. Analysis of six case study locations falling under the C-B (Central Business), C-C (Commercial Center), and PCD (Planned Commercial Development) zone designations indicated the local land use regulations were not informing development to be particularly sustainable, mostly due to vague language, constraining language, and sometimes a combination of the two. Recommendations are made for how the City of Bakersfield can improve the land use regulations to be more pertinent to the process of informing future commercial development to be more sustainable.

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Circulator Shuttle Implementation Plan for the City of Pittsburg, California.

Justin Shiu

This study examines how a shuttle system connecting major commercial nodes, public facilities, and residential locations can increase travel options and improve accessibility to key location in Pittsburg. A review of best practices and transit planning standards provides a means to determine the cost of such a service which are then applied to three alternatives for different shuttle route alignments: 1) a north-south route along Railroad Avenue only, 2) a north-south route along Railroad Avenue and an east-west route to Century Plaza, and 3) a north-south route along Railroad Avenue and an east-west route to Century Plaza that also links to Los Medanos College. Alternative 3 provides the greatest coverage, has the largest potential ridership, and provides access to other major destinations in the eastern half of the city. However, fiscal uncertainties suggest that it is prudent to select the least expensive alternative, Alternative 1, and slowly branch out the system over time. This would create opportunities for the shuttle system to expand with the future growth of central Pittsburg.

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City of Los Angeles Cornfield Arroyo Seco Specific Plan: Parking Management Strategies.

Miriam L. Thompson

This thesis examines the state of off-street parking in the Cornfield Arroyo Seco Specific Plan (CASP) area of the City of Los Angeles. The focus is on discovering relevant strategies to strengthen the plan's ability to reduce parking supply and demand. Research has shown a causal relationship between planning policies and the oversupply of parking. The imbalance between parking supply and demand in the City of Los Angeles has resulted in large tracts of land that are paved over by parking lots instead of more valuable land uses. Our data collection methods show that half of the major land uses in the area never reach optimal occupancy. The CASP does institute several progressive parking policies that are more stringent than the Los Angeles Municipal Code and it is the first plan in the city that does not include parking requirements. However a number of relevant parking management strategies could further strengthen the CASP. This thesis identifies the benefits of transit passes and parking cash-outs; two strategies that have potential to add another dimension to demand management, civic viability and contribute to the paradigm shift that is needed to mitigate our environmental impact.

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Baby Boomer Living: Designing a Modern Continuing Care Retirement Community.

Ryan Michael Wassum

Among the innovative senior community models, the Continuing Care Retirement Community (CCRC) combines a variety of unique residential options and comprehensive services that meet the needs of new and active retirees and aging seniors. Focusing on the Baby Boomer cohort in conjunction with a modified CCRC model, this project examines the current demographic and housing landscape for Baby Boomers and seniors, as well as assesses trending planning techniques and design elements to formulate an ideal senior living prototype for the 234 acre Sinclair Ranch in Chinese Camp, California. This project concludes with the identification of key trending planning and design elements to develop a state-of-the-art CCRC and a design Draft Plan for the Sinclair Ranch that captures both the characteristics of an innovative CCRC and the emergent desires stemming from the shifting senior landscape. With key design recommendations and proposed community features, the draft plan is intended to outline and guide the vision of the proposed development for the Sinclair Ranch CCRC.

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Mid-Twentieth Century Residential Development in San Luis Obispo.

Allison Dean Zike

San Luis Obispo's mid-century spanned the years beginning in the Great Depression and ending during the post-World War II housing boom. During this time the City grew in population and in size, adding several acres of land and thousands of single-family residential parcels. This research presents a chronological representation of the City's growth, as well as key events in the City's history. Residential development in the mid-century brought several new styles of architecture to the City including Mid-century Modern and Prairie homes among others. These architectural styles are detailed and presented in order to identify and guide the preservation of historic resources.

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