FOCUS is a professional-oriented yearly journal. It highlights the work promoted, discussed, and produced in the City and Regional Planning Department, Cal Poly San Luis Obispo.
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I am excited to introduce another stimulating edition of FOCUS, the Journal of the City & Regional Planning Department. Kudos and thanks to the editor, Dr Vicente del Rio, and all volunteers and contributors to this edition. At Cal Poly our primary mission is education, but we also see an important role for sharing with a broader audience what we have learned and what we do. In this edition, you will see that our students, alumni, and faculty make meaningful contributions to society. We encourage you to share your story, so please consider writing an article or essay for the next issue.

This year the City & Regional Planning Department is celebrating its 50th anniversary at Cal Poly. The program officially started in the Fall of 1968 with a Bachelor’s degree and added a Master’s degree in 1972. The first graduating class had 20 students, and CRP now boasts over 1,500 alumni that are practising planning in California and beyond. We kicked off the year by celebrating the 50th at the 2017 APA California Conference. Our City & Regional Planning Advisory Council organized and sponsored a tour of the LEED Platinum-certified Golden 1 Center and a reception in downtown Sacramento. We had a great turnout and good times reminiscing about Cal Poly and CRP. We will continue our celebration with a two-day event in San Luis Obispo on April 27-28, 2018 including a Saturday night dinner at Edna Valley Winery. Please join us! You can find out the latest details at the CRP website: https://planning.calpoly.edu/

Last year, in FOCUS, I presented several priorities for CRP, and I want to share them with those who may have missed them. They include:

• Ensuring that our curriculum is preparing students to address California’s most pressing problems including housing affordability, urban growth and livability, overburdened and outdated infrastructure, the climate change crisis, and natural hazards.

• Enhancing our classrooms with state-of-the-art technology so that students enter the job market ready to provide immediate value to communities and firms.

• Providing financial support to students in need; we believe that everyone who wants to be a planner should not be held back because of their financial situation.

We continue to make progress on these goals, and I hope you will embrace these them and partner with us. You can make a gift online at http://www.caed.calpoly.edu by clicking on the “give now” link and contributing to the CRP Fund for Excellence.

Finally, I want to express my sorrow over the loss of Dr David Conn. (see page 7). David was a wonderful person and a mentor to me. We had met when he was still at Virginia Tech because we were both in the field of environmental planning. Shortly after my arrival at Cal Poly, I was excited to learn that David was also coming to Cal Poly. In fact, since we both had made quick moves and our families had yet to join us, we were roommates for a while. As a new faculty member, this was an incredible opportunity. David was an experienced and very successful faculty member, so I had struck mentorship gold. We often spent the evenings discussing teaching, research, academic culture, career goals, and whatever else crossed our minds. I owe a lot to him and will miss his sage advice and kind words.

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

Cal Poly
City & Regional Planning

SAVE THE DATE!
Friday, April 27 & Saturday, April 28, 2018
San Luis Obispo
COME CELEBRATE OUR 50TH ANNIVERSARY
For more details regarding on-campus events, the networking event at Edna Valley Winery and sponsorship opportunities go to www.planning.calpoly.edu.

1968-2018
Unfortunately, FOCUS 14 starts with the very sad news of the passing away of dear colleague and friend David Conn. A great teacher and a solid scholar who, for many years, was also a solid administrator as Cal Poly’s Vice-Provost of Academic Affairs, David was a strong advocate for diversity and equity on campus. Former department head William Siembieda, who worked close with David for many years, shares a beautiful eulogy with us on page 7.

Although 2017 was a troubled year almost everywhere in the world, and certainly in the US, FOCUS points out to planning and design directions that can lead to better futures. Both Hearst Lectures included in the Special Events section do exactly that. Internationally renowned planner and designer Gary Hack, professor emeritus and former Dean at Penn State, reminds us how technological changes disrupt city patterns and introduce paradigmatic shifts, and discusses the impacts from social media and networking, new forms of mobility, crowdsourcing, and eco-sustainability. In the second lecture, Andrea Johnson discussed the work developed at Terreform—a New York-based urban research center where she is research director—focusing on a project that investigates New York’s food system and the possibilities of self-sufficiency. The Special Events section closes with a brief account of the successful third California Climate Action Planning Conference, organized by Cal Poly’s CRP Department in 2017, in partnership with the Governor’s Office of Planning and Research. The Cartoon Corner provides us with good-humored contributions penned by regular contributors Chuck Barber and Dedé Rocha.

In the Peer-Reviewed section, three articles present us very different aspects of planning. Lineu Castello reminds us of the importance of planning and designing conversable places in a city: spaces to meet, relate to, engage in meaningful conversations, and construct a sense of place. Ivis Garcia and Shabnam Khan write about the perception of safety from crime and active transportation in a bike and pedestrian trail system in Salt Lake City. Evandro dos Santos discusses broadband applications, Big Data, and the role of technology and communication in the efficiency of urban functions and services, particularly transportation.

Opening the Essays section, Kobus Mentz and Susannah Goble, from Urbanism Plus in New Zealand, discuss a fundamental but very neglected aspect of urban design, urban economics, through some of their projects in Down Under. In the second of my two-part essay on Baltimore’s sustainable revitalization, I discuss the process and the major elements that turned the Inner Harbor into such a success story and a model to other cities. Transportation planning for the Rio Olympic and Para-Olympic Games, and the challenges of maintaining the legacy are the themes taken by Simone Silva, Carlos Maiolino and Jacqueline Torres, all key members of Rio de Janeiro’s planning team. Next, Anne Wyatt, CRP alumnus and program coordinator at HomeShareSLO, discusses one of the hottest issues in planning and an important affordable housing option: home-sharing. The following article by British architect and town planner Ivor Samuels is a call to go beyond promoting sustainable architecture through regulations, and to advance the interdisciplinary studies on their impacts on urban form. Brazilian architect-urbanist and plastic artist Aruane Garzedin comments on her role in provoking new perceptions and community engagement through public art. The section closes with William Riggins discussing the Ebenezer Howard’s and Peter Hall’s legacy vis-à-vis today’s strong resurgence of a stronger focus on physical design and sustainability.

The articles in the Faculty and Student Work section are demonstrative of the range of CRP’s studio and research-oriented work. Hemalata Dandekar’s article describes her study on successful public and private workforce housing funded by California’s Department of Housing and Community Development. Reflecting on the importance of sketching in planning education and in CRP, I present student sketches from an elective offered in 2017. Hemalata Dandekar, David Christie and Gabriel Ward describe the design vision and the development strategy for Newark’s Old Town produced by a graduate studio for the City of Newark. Hemalata Dandekar and myself describe our third-year urban design studio where students developed ideas and development scenarios for the area between the Salinas River and the railroad tracks in downtown Paso Robles. The section closes with an article by William Siembieda describing a resiliency index for CSU campuses developed by students in his interdisciplinary elective “Hazard Mitigation Planning and Design”.

As customary, FOCUS closes with the Spotlight section where Conversations with Alumni include BCRP graduate Nadege Dubuisson, now active in public health planning in Portland, and MCRP alumnus Michael Heater, who recently served as a Peace Corps volunteer in Rwanda for two years. The section follows with Learning from California, where studio projects from the 2016-17 academic year are briefly described, and with the list and abstracts of all master theses and projects defended in the same year. Closing this issue, another Cartoon Corner with a contribution from Dedé Rocha.

Finally, a reminder: 2018 is the CRP Department’s 50th anniversary! We crossed the half-a-century mark and, having FOCUS as a reminder, we get better every year! Keep an eye for our emails and on-line announcements, and help us celebrate participating in one or all of the events planned for this year. Enjoy FOCUS 14, and may your plans be a reality in 2018 and beyond!
Hate speech and racism; hurricanes and wildfires; mass shootings and threats of nuclear war; in these times planners and policy makers can become overwhelmed by the challenges our communities face. How do we build neighborhoods and cities that are both sustainable and just (Agyeman, Bullard, & Evans, 2012)? The issues planners see in the media can be both distracting and unnerving. How do planners function in this context? How do those that make policy and shape communities continue to make a change? How do agents of change keep their compass or “true north”? While many might suggest planning for uncertainty, a call for scenario planning, backcasting from an ideal utopian future or some planning method, I believe that there may be a more simple answer.

A few years ago I wrote about the path-bending leadership principles that every planning manager should try to embrace (Riggs, 2014). My suggestions included the ideas of confidence, questioning, learning, and service. In speaking of the last factor, service, I wrote about how we can encourage those beginning in the planning and policy fields to keep a service mindset, letting this be the foundation of their careers. I also suggested “Seven Path-Bending Ideas for Planning & Governance” most of which had a service component.

Little did I know how important these ideas would become in the post-truth era of alternative facts—and now more than ever it is important not just for civic leaders not just to serve but to serve something bigger than themselves. Planners and policy makers must adhere to a higher calling. It doesn’t matter whether that calling or “true north” are the principles of sustainability, social justice and equity, economic redistribution or economic prosperity and rationality, each of these things can be a centering force.

At the same time, I think my argument from 2014 was a bit naïve and flawed. Given the never-ending and thankless workload of many government jobs and rapid pace of technological change, I think it was too simple to say that service-alone can guide a career. Service in itself can be draining. More aptly it can be exhausting, leaving leave planners hollow and empty. Just how many times can you attend boisterous public meetings late into the night maintain your buoyancy? How many angry enforcement appeals can a planner sit through before they lose their zeal? How often can great policy development be thwarted by interests groups and mediocre solutions?

In this light, acknowledging the gravity of the issues our communities face, I argue that planners and policy makers must practice mindfulness if they are to sustain their path-bending leadership. What is mindfulness? It can mean many things, from taking time for prayer, reflection or meditation to practicing gratefulness or maintaining consistent sleep and exercise habits. At its simplest, it is taking time to do what makes you, you, and encouraging those around you to do the same—to engage in self-care and do something for yourself that brings you joy. Just like research that shows the simple act of giving hugs can result in an improved mental state (Grewen et al., 2005; Preston, 2017), research shows that practicing mindfulness can provide buoyancy needed to keep personal and professional lives fresh, creative and vibrant (Dane and Brummel, 2014).

Some might scoff at this and point to the things planners do, back to service and the AICP code of ethics. Service above self, is supposed to bring ultimate joy right? Well, perhaps to an extent, but given the gravity of the issues our world faces, service alone cannot be what provides a center. In this context, I believe practicing mindfulness and gratitude for the small things...
in life are ever more important for professionals. These items can be the reset that planners need to maintain service over careers and lifetimes.

So with these thoughts, I challenge you to move beyond service, beyond thinking about what is your “true north”, and hold tight to what grounds you as a human being—whether that is dancing, music, art, knitting, a run, a bike ride, attending a church service, meditation, or simply giving someone a hug.

I have a quote by Roberto Clemente that reads:

Any time you have an opportunity to make a difference in this world and you don’t, then you’re wasting your time on this earth.

I find this quote empowering but also believe that to seize on its’ power, we who have dedicated our lives to service, must be vigilant in taking care of ourselves—so we can be ready when our families, communities, our nation, and our world call on us. So breathe deeply; let us care for ourselves so we can care for others. Let us be the “eyes in a moon of blindness, a river in a time of dryness, a harbor in the tempest” (U2 & Bono, 1989).” Let us not just make the difference, let us be the difference.

References


Learning from a Learned Colleague: Reflections on W. David Conn

David engaged with the world by asking two questions. First, what is life asking of me, and second, how can I match my talents with one of the world’s many needs?

All of us need to spend a few minutes answering David’s questions. David Conn, a wonderful City and Regional Planning professor, a kind soul, and a champion for making Cal Poly a better university suddenly passed away on Tuesday, March 8, 2016. David’s early career was, in his words, as an “economist/planner” concerned with hazardous materials policy.

David asked us a lot of questions. Not that he needed to, but because he wanted to make sure the right questions were being asked in order to get a proper interpretation of the answers. He saw “gaps” between conversations. For example, scientists were not producing information policy makers needed. The right people were not being asked their opinions, or for the proper use of their expertise. Possibly, there was simply a need to have people talk to each other more and build mutual understanding. Fairness, ethical, and rational thinking were tools David always used in research endeavors, teaching, and interpersonal relations. All of us who worked with him learned a bit about being better people by observing how he used these tools.

We now understand that his current work on diversity and intergroup dialogues is an application of his earlier concerns with “the gaps” and how to fill them. Life was asking him to help “close the gaps” and to learn to listen for the interpretation of others. His recent work reflected a more nuanced approach to closing the gaps” by fostering intergroup collaboration to leads to personal and social responsibility toward greater social justice. In Ken Topping’s words “David was enthusiastically interested in making the world a better place.”

He always spoke from the heart and possessed a keen wit that made each conversation with him, a pleasant experience. David spent a more than a decade as Cal Poly’s Vice Provost for Academic Programs and Undergraduate Education, where he provided the vision and the leadership that improved undergraduate education. He closed his administrative career at Cal Poly as Vice President for Institutional Review. Knowing that real knowledge takes knowing about the world from many perspectives he invested in interdisciplinary courses such as the UNIV series and the Honors Program that led to him being honored
for “extraordinary contributions to student success.” Due to David’s vision and support, City and Regional Planning was able to offer CRP 333 Disaster-Resistant Sustainable Communities under the UNIV program. As a professor of City and Regional Planning, he taught environmental planning and research methods. David advocated, in word and deed, for a more inclusive society where people gained by sharing experiences with each other. This led to a pioneering new course with the Psychology Department entitled Intergroup Dialogues, which is now part of his legacy.

Hemalata Dandekar, CRP professor, puts it this way “David was just a good human being, and smart.” One knew it in every interaction with him. That was always a consideration with David, to live a “balanced” life between work, personal endeavors, and family. All were ever important to him. David grew up in England. He met his wife, Judith, when he was 15 years old, and they remained devoted to one another until the day he died.

David treated EVERYONE as his equal, and he had no ego and no arrogance. He did not think of himself as “better” than others just because of his higher education. In his mind, the janitor was due as much respect as the President of Cal Poly (he cared about the underdog). He always found something to laugh about, and this made other people happier. The respect that people express about David tells us that he did find ways to match his talents with some of the world’s many needs.

Before coming to Cal Poly, David taught at Virginia Tech and UCLA. He shared his experiences with all who needed his time and wisdom. He is missed.

William Siembieda
PhD.; Professor and former CRP Department Head.
Hearst Lecture: Gary Hack
Disruptive Changes and the Pattern of Cities

On April 6, 2016, Cal Poly’s CAED hosted professor Gary Hack for the Hearst Lecture Series. Dr. Hack is former dean and Professor Emeritus of Urban Design at the University of Pennsylvania. He writes about and practices large scale urban design having prepared plans for over forty cities in the US and abroad. Among his many publications is the influential Site Design, co-authored with Kevin Lynch, his professional partner of many years.

At Cal Poly, Dr. Hack spoke about the transformative moments in city history and their impact in form moments, calling for planners and designers to look more into the future in our work.

Today I want to talk about the future, but I do so by first looking back, focusing on the moments in a city’s long history when transformative change occurs. I am interested in this topic because I see a lot of cities planning and struggling to do things that have been on their agendas for many years. However, as planners, urban designers, and landscape architects, we need to be thinking about things that will be needed 10 to 15 years from now. I don’t see many cities reinventing their future in the plans they are making.

There are reasons for that. It takes time for ideas to mature politically. It takes time to assemble resources to overcome opposition. It takes even longer to accomplish ambitious changes. But if the horizon is 10 to 15 years ahead, then changes being pursued based on current needs are likely to be largely out of date when they are completed. A while ago, working on the plan for New York City’s West side waterfront, I discovered that there were several very large piers, including the 16-acre Pier 40, that had never been used for the passenger ships they were designed to serve. Pier 40 was built to accommodate the fast fading service between New York and England, but it took so long to build that it was completed about three years after the last passenger liner left port. Meanwhile, as these dinosaurs were being constructed New York was lagging behind in building the international airports that provided the future links across the Atlantic.

We run that risk in many of the plans we are pursuing today, just as the pace of change has accelerated. I find it instructive to look at how cities have coped with large changes in the past.

What was behind the transformative changes they needed to harness? How did they foresee change? What plans did they make? With answers to these questions in mind, I will move on to discuss the four major forces that we ought to pay attention to today because I think they will have transformative effects on our cities.

Three Cities, Three Transformative Moments

In 1850 Barcelona had just torn down its walls. Peace had come to that part of Europe, and they didn’t need the walls for protection. Barcelona, some people would say, was the densest city in the Spain because it had lived within these walls for many years. It was a modestly sized city, and there was no overt indication that it was going to grow to be much larger. But if you look carefully at the map from that era, and with the benefit of hindsight, you realize that transformative change had already begun. Rail connections had been established with the rest of Europe and Barcelona was about to become a major point of entry to the continent and a prime location for manufacturing. This kind shift in the economic geography of a city is critical to its transformation.

Nine years later, Ildefons Cerdà would author the plan for the expansion of Barcelona.1 Compare the new areas proposed in the plan to the size and density of the old city that was contained by the walls. In the vision for this plan they said: we need to think differently about the city, we need to lay it out for a different kind of way of life, plan it out for mixed use where people can have workshops and live on the same block as they work, create boulevards so that goods and people could move around the city. But they also decided they needed infrastructure in the

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This article resulted from the Hearst Lecture as transcribed by CRP student Alyssa Way and edited by V. del Rio and Gary Hack.
ground at the time that people began building the workplaces and houses according to the plan. This may be the first city in the world that actually built the infrastructure in advance of development; most cities are perpetually playing catch-up. The new city’s Eixample—literally “expansion district” in Catalan—was built on an armature of great new boulevards that are still adequate today. As is the underground infrastructure, and subways have been added to move residents efficiently to and through the area (Figure 1). Cerdà, an engineer by training, understood that the environment needed to be designed in three dimensions.

Of course, Barcelona has gone through several significant transformations since then, and it looks very different today. Now it is the most important and densest node in a network of cities, not a singular place. There are several well linked clusters of cities around Barcelona, some of which are becoming semi-independent places in their own right. After the expansions of during the 19th and early 20th centuries, the decentralization of industries required different kinds of linkages, such as highways and trains. Today the city is experiencing a third transformation, with high-speed trains and a highway network connecting it to the rest of Europe. Street cars and the metro continue to be expanded, and with a new service economy dominating the central area, public transit has renewed importance. And with it, there has been a retreat away from building new roadways, with several long-planned expressway links being abandoned. The new connection points are the nodes where mass transit lines intersect (Figure 2). So, over the past century and a half, Barcelona has gone through three major transformations in its city form, each a reflection of economic shifts, technological possibilities and societal changes.

My second example is the city of Beijing, China; a very old settlement but also a very new city since almost all of what we see today has been built since 1916, and the most visible portions since 1990. Beijing’s main city wall was torn down during China’s cultural revolution in the 1970s. At the center of the city remains the walled Imperial City where the government with its ruling dynasties and their bureaucracies clustered. A dense network of hutongs—narrow streets or alleys—laced between the major streets that are more than a kilometer apart. In 1954, after the revolution, the city was reorganized in fundamental ways, to accommodate a new social system (Figure 3). Until then, Beijing had been a bureaucratic and an intellectual city, but the new government looked skeptically on such activities and decided to make the city a place for heavy industry. The fundamental unit of the city became the danwei that essentially is a work district that also provided a place to live, shop and all the necessities of everyday life within walls (Figure 4). The largest such new unit, the Shougang Steel Company occupied over 7 km² on the western edge of the city and included a new town of over 100,000 workers and their families. Universities and government ministries were also reconstituted in this form. New parts of the city were laid out with a 1-2 km grid of
streets, allocating the areas between to danweis. In 1983, the first time I was in Beijing, I visited the danwei with the second most important district heating company (Figure 4). Every person that worked there and their family members lived within that danwei which also provided schools, a clinic, and a commercial center. People rode bicycles within the danwei, and travelled by buses on their occasional trips to the center of Beijing or other larger shopping areas. So, in this case of Beijing, a deliberate transformation of the social system generated a whole new form and character for the city.

Since the early 2000s, Beijing is witnessing another transformation as China is becoming a state capitalist country and a new kind of city is being formed. The danwei were heavily supported by public money, with government-subsidized industries, infrastructure, and expensive services such as local hospitals. Many danwei are being dissolved, and the land of the work units are being sold, hoping to raise the capital to become efficient private enterprises. The changes in the regime have also brought changes in social attitudes, and today everybody wants to experience life beyond their danwei: going to schools elsewhere, using the university-based hospitals, or patronizing shopping centers rather than shop at their little local shops.

As Beijing’s 2004 Master Plan reflects the emerging social system and economic model, the city needed, for the first time in it’s history, a true downtown! In the past, a few large state-owned department stores offered all there was to be purchased, and a few specialist stores sold silk and teas and other goods, but there was never a dominant central business district because there were few non-governmental offices. So, the plan created two new CBD areas —one as the financial center, the second for corporate headquarters and offices—and Beijingers were forced to travel to do business (Figure 5). A metro system was built to connect it all together, as well as an expressway system to get vehicles into and around the city, modelled after Moscow’s system of spokes and ring roads.

Currently, Beijing is going through another profound transformation as it is essentially merging with the city of Tianjin, about 100 km away, to form a conglomerate of 45 to 50 million people. A high-speed rail link has been created, new transport terminals, new business districts, and a whole new structure of settlement is occurring as a result of another deliberate shift in the social system. Figure 6 shows a new business node being built in Tianjin, 10 miles away from any existing commercial district.

The third example I want to explore is that of Los Angeles that, when established as a mission city in 1850 had one small center serving the surrounding agricultural plains. Although it was a desert, the plains were fertile as long as they had water. The first infrastructure to be built was small water canals and wheels...
to lift the water to the fields. By the 1860s, just as Barcelona had gone through its first major transformation, a series of events started to make Los Angeles a different city. One was the introduction of railways up and down the California coast as well as the arrival of the transcontinental railways. If that was not enough to transform the city, it did give it, as in the case of Barcelona, the impulse to think a different scale and in connection to other markets. Los Angeles became a major land market fairly quickly. By 1880 land speculators began selling sites at the end of the railway for people from the east. From that moment, land development and marketing created the idea of Los Angeles as a paradise on the west coast with a perfect climate.

Major changes that would transform the city began with the discovery of oil in the city of Los Angeles. The discovery of oil brought a great deal of capital into the city, and part of it was recycled for land development and building houses. By 1880 there were hundreds of oil wells all around Los Angeles, and created areas where no one wanted to live in, such South LA and Huntington Beach. As people preferred the valley, at a safe distance from them, electric railways were built to get people from the city further out where they lived. In the early part of the 20th century, Los Angeles had one of the largest streetcar systems in the world. It also accelerated the growth of the inland empire and over to the valley. During this period, growth filled the gaps between the small towns while expanding outward from the central core in Los Angeles. The expansion occurred mostly to the north and the east, away from the oil country.

The second major transformation in Los Angeles was the emergence of the movie industry in the 1920s and on. Why did it happen there? There are a lot of theories about it, but it was probably the intersection of capital and land. The oil industries brought capital for investment. The movie industry could not locate to the south of city because it needed a lot of flat lands. As each studio built its facilities further out, they created a demand for street cars initially, and then for highways. The highway network got laid out in only fifteen years, from 1925 to the end of WWII, as Los Angeles transformed itself into a regional city. Much happened after that in the way of shopping centers, expressways, a major grafting of these expressways onto the overall form of the city, and, in the last few years, the addition of a metro system. Interestingly, the 1925 Rapid Transit plan and the 2015 Metro Plan look strikingly similar (Figures 6 a & b). Why did it take 70 years to build a metro? Well, because there were other forces at work, which I’ll leave for you to discover.

So how to sum up these three brief histories? We can say that along the history of cities there have been essentially four
major drivers of change: economic shifts, technology, social organization, and deliberate public policies. You have seen examples of all of them in the cities I have discussed. Will these changes force cities to look different 15 to 20 years from now? If we look closely, the changes are already afoot.

The City of Networked Work and Living

The internet already dominates most of our work and living, and it will increasingly continue to do so. The fact is, we want to live a connected life, using the internet in our work places, for our dialogues with other people, and ordering goods and services. The internet has become an important driver of innovation in cities, and it is already changing cities in a dramatic way even if their physical form does not adapt as quickly as needed. “Instant everything” is the driver of profound changes in cities. For example, 50% of the US workforce holds a job that is compatible with at least part-time telework, 41% of employees are required to be in contact outside work hours, and 70% of Americans check their smartphone at least every 6 minutes. These are profound societal, and we have just begun to recognize them. We are only beginning to think about what it means for cities. How should we be designing them differently? The new localism is the world brought to the home through the new technology in our hands.

The first set of changes is the need to redesign our streets to serve additional functions. Think about the streets of New York City when hundreds UPS trucks are all going out at the same time for their deliveries. Who thought about this when planning for traffic lights or designing streets, apartment buildings or houses? Where are deliveries stored and deposited if people aren’t home? Isn’t it possible to employ delivery vehicles that don’t overwhelm streets, as in much of Asia and Europe? And who would have thought, a couple of years ago, that we would have drones dropping parcels around the city, as Amazon is already starting to do? But private sector companies are usually first adopters, with public sector change lagging behind. And change generally occurs in two stages: first we use new technologies to do what we have always done more efficiently; then we rethink the very nature of what we are doing to optimize it assuming we have new technology.

This is precisely what is happening to work places. Figure 7 shows the lobby of the Ace Hotel in New York’s Flatiron district, at the center of the city’s tech district. The people working in the lobby are not staying at the hotel, they go there every day to work on their computers, meet and greet people they want to do business with, and make social connections. This is a new way of “net-working.” I visited a library in Almere, Holland, at 10:00 AM and all of the tables were filled with people. I asked the librarian: “Who are all these people?” “They are working,” she said. “What do you mean they are working?” She informed me that “they are running their businesses right there.” This is what we are dealing with nowadays: 29% of American employees are freelancers these days, and while many work from home, they need places for easy connection, and above all need high speed internet connections. Of course, the freelancers include housekeepers or day-laborers who move from place to place, and many other work arrangements. But many of the new jobs are not the factories or the normal kinds we are used to planning and designing. They are libraries, coffee shops, university cafeterias, and even city parks, particularly those that offer free hot spots such as Paris.

There are also a growing number of shared office spaces of all kinds in every city. Companies and organizations offer freelancers a place to rent for a day or a month. Being able to share a hot desk with others they may or may not know, or have a place to meet with clients or print out files that are carried around on an external hard drive, or even share a common assistant to answer calls are the essentials many need. If you are in the catering business, you may not need a whole kitchen all the time, so there are shared kitchens you can rent only when you need to cook your food. Shared work places are now proliferating in cities throughout the world. It strikes me that we need to think about cities differently to account for this network of shared spaces.

When Nolli did his famous figure-ground map of Rome in 1748, he plotted all of the then-public spaces: streets, squares, churches, and other places open to people. If we were to do a Nolli map for today, what would it look like? Figure 8 shows a map by students from Columbia University showing all of the places in New York’s Flatiron district where you can meet with other people to work or rent out a place, in what becomes the
new network of shared workplaces in the city. Seen this way, new kinds of public infrastructure can be imagined.

For example, Boston has created a place through a public-private partnership in its Innovation District called the District Hall that is a hub for freelancers and small businesses (Figure 9). This is the place to meet with others if you are working in the neighborhood. It has cafes and a restaurant, meeting rooms, conference rooms, and large lounge spaces open to all. Similarly, the University of Pennsylvania has created the Pennovation Center, where faculty members can set up shop, have a hot desk, or rent a little bit of space to start a company, a business. These kinds of facilities are now an essential part of a city's infrastructure.

At a much larger scale, a prototype for innovative businesses may be found in Industry City in Brooklyn, New York (Figure 10). This waterfront area, with 6 million sq ft of formerly warehouse space has been converted into maker spaces of all kinds. For instance, there is a company that makes 3D printers that started with five people and has 500 employees, and as they grow, they take more spaces. There are common kitchens, meeting spaces outdoors and indoors, restaurants and other spaces that help create an ecology of innovation. New uses appear every day looking for spaces they can't find or afford elsewhere. When the Brooklyn Nets needed a new space for training, they adapted the roof of one of the warehouses into their training center, and the public can come to watch. The large warehouse structures have been linked together with common walkways to promote interchange, and the streets serving the area have been rethought as shared spaces where delivery trucks mix with people walking, on bicycles, or being dropped off by Uber cars. Figure 11 is a rendering of their new prototype street with walkways elevated a few feet so that trucks can be unloaded directly into buildings. Rethinking the nature of streets is fundamental in repositioning them in a city's future infrastructure.
Paris has been building live-work creative community spaces all around the city; one in each district. Chinese cities, such as Shanghai, have been implementing successful maker-places, and spaces for their creative classes. The Red City was a former steel company that has been converted for artistic pursuit and now boasts architecture firms, advertising agencies, and many related services besides coffee places and such. The KIC (Knowledge and Innovations Community) is being built de novo as a live-work place that encourages innovation (Figure 12). Located in Shanghai’s university district with several institutions including Tongji University, one of China’s oldest and most prestigious with more than 44,000 students, it is meant to be part of their larger innovation ecology. While much of the space is devoted to high tech R&D spaces, the area also includes shared work spaces, live-work housing, retail and cafes on the ground floor, places for fairs and expositions. In Hong Kong, the two buildings of the PMQ (Permanent Married Quarters) where married police officers used to live, were converted into maker-spaces with retail spaces on the ground level and a roof over the space between center of them, converted them into level, etc.

To support these types of initiatives, cities have built WIFI systems to make internet service ubiquitous and provide free public hotspots. In New York City, Google's new subsidiary Sidewalk is installing free WIFI hotspots on the streets throughout Manhattan, with plans to expand further to cover much of the city. Many European cities have pioneered this, including Barcelona with Smart Santander, and Paris in its public parks.

The City of Mobility

The second set of shifts that are changing cities are related to the new modes of mobility which, like the changes generated by the internet, they have been happening for a while. These changes are less related to increases in demand for movement, and more to a shift in the ownership and types of vehicles inhabiting the streets. Their impacts on the form of cities will be profound.

The shifts began with the growth of car sharing, continuing with ride hailing services such as Uber and ride sharing such as Lyft. And, of course, there are the bike renting services – which was pioneered in Paris— now virtually in every city. But the large change will be the result of the shift to autonomous vehicle services. What will the implication be? These services encourage people to leave their cars at home and, in very dense and expensive cities, not avoid owning a car, particularly if the city also offers a good public transportation system. In the future that system will probably be largely autonomous as well, operating on routes governed by demand, not fixed maps.

About twenty years ago, when I was Dean at Penn, several students came into my office asking for advice to start a car-share service. They wanted it to be non-profit and available for people in the downtown. Little did I know that five years later their Philly Car Share would have about 4,000 vehicles and be very successful. One of the things that they did was to look at how many vehicles each of their cars replaced, discovering that between eight and ten automobiles were ever given up or not purchased by regular users. Some people didn’t buy cars because they didn’t need them, some would leave their car at home when going to certain destinations, and others adapted their behaviour in other ways to use car sharing. For example, rather than purchasing a general-purpose road hog, you can get a small truck from your local car share if you need to pick up a sofa at IKEA, and if you want to have fun driving in the countryside you can get a convertible.

These changes are causing significant impacts in cities, but the second generation of them is about linking mobility services up to mass transit systems. This is what Los Angeles’ First Mile Strategic Plan is trying to do: coupling up all the pedestrian

Figure 12: In Shanghai, the Knowledge and Innovations Community is a high-tech R&D and live-work development next to a university district serving several institutions. (source: www.casestudies.uli.org)
Amenities, pathways, transit stations and alternative mobilities that can take you that extra mile around a transit station or from where you parked your car (Figure 13). Of course, European countries are ahead of us in many ways. Many cities now offer electric car sharing at transit stations and bicycle garages and service centers at rail stations. European cities are also testing autonomous buses: Trikala, Greece and Amsterdam are already deploying small driverless buses that pick people up along regular streets and lines (Figure 14). Driverless trucks and delivery vehicles are likely to appear over the next few years.

Autonomous vehicles will have a profound impact on the efficiency of traffic and on the space that our cities dedicate to movement. Because all the driverless cars will be sharing the same centrally operated smart network, they will perform in a collective mobility and move in concert, safer, and efficiently. Because these vehicles are run with safe, smart collision avoidance systems, streets could be redesigned without curbs or physical barriers, allowing more flexible and dynamic spaces between buildings. Secondly, driverless cars will take up four times less space, even at high speeds, because they will be able to drive in concert and much closer, almost comparable to buses or trains. And if you imagine driverless vehicles that take more than one passenger, you get the picture. Most of our traffic problems will be solved!

Driverless cars will also have a profound effect on the physical space dedicated to parking in cities, and in how we deal with parking. In average, US cities offer eight parking spaces for every car! Why? You need a space for your car at your house, then you drive to the shopping center, and there is a space waiting for you; you drive your car to work, and there is another space there; you drive your children to school, and you have to park to pick them up, etc. If we add it all together, it comes out to be about eight spaces available for every car in the city.

But imagine if you could actually get rid of those privately-owned cars, hailing a vehicle when needed that drives you to your destination, dropping you off and then driving off to pick up another passenger. This would profoundly change the amount of parking we need, not to mention the number of cars circulating around blocks in search of a parking spot. But if you prefer to arrive at a destination in your own driverless vehicle, you won’t need to park it, exiting the vehicle at the entrance to the garage, and watching it drive off to find a space You call it from wherever you are, and it will come to pick you up! It also means that parking can be done bumper to bumper, avoiding the need for all of that manoeuvring space.

We will have to think differently about the parking garages that remain and the future ones. In many US downtowns most buildings have 3 or 4-storey podiums dedicated to park-
ing; that can amount to about one third of the buildings’ total square footage! Some of them had eight stories of parking! When we don’t need all that space for parking, what will we do with it? We need to imagine of more productive uses for these spaces when they become obsolete and be sure that the floor to floor heights are adequate to convert them to inhabited spaces. Some people are starting to think differently about parking, and the Lincoln Road Parking facility in Miami Beach is a great example (Figure 15). There, a wonderful parking garage can also be used as an event space in the evenings and on weekends when the cars aren’t there – a fine space for banquets, weddings, parties, or music. One key detail is that it was designed with tall floors so it could serve multiple purposes. Some of our existing parking structures might even be repurposed into markets or residential and office buildings.

I recommend the study Imaging the Driverless City by BIG – the Bjarke Ingels Group, for the Audi innovations program, exploring many of the possibilities presented by autonomous vehicles as I have been mentioning. Their dystopia is that streets will be flooded with vehicles since every moving lane could handle at least double their capacity if every vehicle can keep only a few feet behind the one ahead. They suggest that streets could be liberated by the lack of striped moving lanes and traffic signals which will be obsolete. Smart cars would need a smart infrastructure, with sensors embedded in the pavement generating a ubiquitous network of smart streets that would control and direct the smart cars. Besides, we already have the technology to allow electric cars to recharge themselves by passing over charging stations embedded in the roadway. Sensors can create lighted “halos”, demarcating safe zones for pedestrians and bicycles so that they do not have to be physically separated from vehicles. You walk out into the street, and the vehicle senses that you are there and it stops or drives around you. It’s as if you carry an aura around you that cars won’t enter.

This means that driverless cars could actually liberate a lot of space in our cities that could be used as parks and other types of public functions. All of our efforts in the past have been in the opposite direction – to create lanes for bicycles, zones for pedestrians, and regulated street crossing spaces; this completely reverses the logic. Figure 16 shows Potsdamer Platz in Berlin as the BIG team imagined it in the future. You could have a concert going on in the middle of the street and have cars still using the roadway along with pedestrians and bicycles. Spaces would constantly be changing, producing a fluid streetscape rather than a static infrastructure. Smart technologies and this plasticity would allow the future city to be dynamic, adapting to the life between the buildings. Whether this is really going to happen or not will depend on a lot of things but we ought to be thinking about that, and every city in the US should be seriously looking at how it will need to change its environment as a result of driverless cars, car sharing, and other aspects of the new mobilities.

The City of Crowdsourcing

The third big change affecting cities is crowdsourcing, which will change in profound ways how capital is raised for urban development. This type of initiatives is happening in several
parts of the world and the United States. For instance, the BC Bacata Complex in Bogota, Colombia, is being constructed entirely with crowd sourced funds and it is almost entirely completed (Figure 17). It includes the two tallest buildings in Colombia—a 67 and a 56-story tower—with apartments, offices, a hotel, and retail. No new buildings had been built in that city for over 45 years, partly because there had been a lengthy two-front civil war: against insurgent guerillas and narco trafficers. As nobody would lend money for buildings in downtown Bogota, the person behind the idea started a company to raise money through subscriptions. He realized that many people do not want to buy stock in real estate companies because they don’t trust them, but they will buy a fraction of a building. If you can assure them of that will happen with the money, if it is being run by a trust, and if revenues are transparent, it can become an attractive investment. This system allowed him to raise $200 million from 3,800 investors to build the BC Bacata Complex.

Another good example is Beijing’s high-profile Galaxy complex, designed by Zaha Hadid for SOHO, an innovative real estate company in China (Figure 18). It comprises of three buildings with a mix of offices and retail totaling more than 3 million square feet of gross floor area on a 12.5-acre site. How do they get money for projects like this? Banks shy away from lending for such innovative designs. The answer is that the buildings’ leasable area was divided up and sold to many investors, big and small. The complex is owned by these buyers in condominium, they all own a physical portion of the building, and SOHO’s management company deals with getting tenants and returning money to them every year. That’s crowd sourcing and crowd sharing in financing.

But we don’t have to look for examples that far away, just look at the exciting new Hudson Yards in New York City (Figure 19). With more than 18 million square feet of commercial and residential space, it is the largest private real estate development in US history and the largest single development in the city since the construction of Rockefeller Center. It includes 4,000 residences, a center for artistic invention, a 750-seat public school, and 14 acres of public open space. They needed $600 million to build a deck over the rail yards and raised that using the immigration law: you get a green card if you invest $500,000 in any of projects in the US. That’s how the construction of the deck was possible: they raised its entire cost through international crowdsourcing!

So how can you use the potential of crowd sharing and sourcing to help advance planning and city projects? In Bogota, after the success of the BC Bacata development, its leader, Rodrigo Nino, asked a team of planners and designers of which I was a member to help establish a crowdsourcing planning effort for
the whole city. The goal was to identify projects, both public and private, that people would like to see done, would support and possibly invest in. We created a platform called Bogota - Mi Ciudad Ideal (my ideal city) promoting bottom up urbanism, crowd sourcing and funding (Figure 20). The platform canvases people for ideas. It poses questions to them, such as which type of community project would they be willing to pay for. People submit all kinds of ideas, and the platform promotes a discussion, and you can get to a consensus. It goes across the board, and people surprised us. One of the most engaged discussions was about the graffiti that is ubiquitous in the city. They debated what good graffiti and bad graffiti was, and where in the city it should and should not be allowed. We hooked it up to a radio network that interviewed Rodrigo, myself, and others, while people were calling in, even from their cars, with ideas. Many ideas came out of this citywide debate and a number of projects were carried out as a result, including a new park in the city center.

Similarly, many crowdsourcing efforts have been going on in cities around the globe. In 2011, a non-profit launched the + Pool, a crowd-sourcing effort to build a 9,500 sq ft water-filtering floating pool for New York City. It has received support from the city and state agencies has had more than 5,000 individual and corporate donors and is in the final stages of design. The City of Boston is crowd-sourcing to solicit ideas from architects, planners, and the public in general for what could be done with the very unsuccessful City Hall Plaza that people have complained about for many years. Currently, they are in the process of making changes to it in part as a response to the ideas they received. Kansas City is crowd-sourcing to collect donations for various cultural institutions. In 2013, the London As It Could Be Now call for ideas allowed people to go online, prioritize, and choose the project they supported. It resulted in the Thames Baths, a project to reintroduce swimming and pools along the river that has gained huge public endorsement. An initial 30-day Kickstarter campaign for pre-planning efforts raised 142,000 pounds from more than 1,200 backers, and funds continue to be raised through crowdsourcing. I think that the reason why crowd-sourcing public projects have been successful is that people are giving money to specific projects that they support and want to see built. In case of private projects, crowd-sourcing allows people to be confident in their investment, knowing that they owe a piece of the building they invested in.

The City of Eco-Sustainability

Finally, I want to make a few comments on the issue of eco-sustainability and the changes it is generating in our cities. This is a better-known issue, but at least as important as the three previous drivers of change. The big priority is how to deal with the threats from sea level rise, extraordinary storms, and other types of natural disasters caused by climate change. We certainly need to plan and do things that reduce the threats of climate change over the long haul, but we also need some defences in the short run. Figure 21 illustrates how New York will be affected by sea level rise by 2100. Sealevel rise is an enormous challenge to cities by the ocean but also for those on bays, estuaries, rivers, and low-lying areas. There are many other challenges related to climate change too, such as increased potential for landslides.

One of the ideas being proposed around is to build habitat breakwaters and reefs along the coast to absorb the flood surges. But the reality is that nobody has ever done anything like it for this purpose, and we do not know if it is going to work. These types of ideas and the beautiful renderings illustrating them keep being put into plans as to something that we ought to be doing. Also, bay nourishment systems at a huge scale are going to be required to keep the salt-water marshes and other ecosystems alive. This is an area where uni-
Universities have an incredibly important role by developing ideas and conducting experiments, putting together water specialists, oceanographers, engineers, climate scientists, engineers, planners, landscape architects, urban designers, architects, and so on. No one discipline has a corner on the knowledge and creativity that will be needed.

New Yorkers didn’t really believe in the dangers of climate change until three years ago when the huge storm caused by Hurricane Sandy pushed 12 feet of water up the Hudson River and flooded a large fraction of lower Manhattan. The black areas you can see in Figure 22 were flooded and had no electricity for about two weeks, and all the subways were flooded. You can imagine what this does to a city, and the enormous amounts of remediation and reconstruction money it takes. Hurricane Sandy affected 13 states causing more than $65 billion in damages and economic costs. After Sandy, President Obama’s HUD Rebuilding Task Force launched the Rebuild by Design, an innovative collaborative research and design competition that became a model for several cities. It led to the Rebuild by Design organization and its partnership with hundreds of cities across the globe.

Six projects across New York, New Jersey, and New York City received money through the Rebuild by Design competition, several resulting from consortiums between universities and private consultants. One of them includes creating a whole new level of open space that provides a barrier around Lower Manhattan. It would allow the space to be used as parks and create a whole new system of access to the waterfront over the expressways along the edges of the city. Reconstructing boardwalks was in another proposal, not like in the past, but generating higher places as barriers that could provide open space, recreational opportunities with good access down to the water. Figures 23 ad 24 are from the Big U, one of the six selected projects, that provides a protective system along ten continuous miles of the low-lying topography in Lower Manhattan. The proposal includes parks and various community amenities, breaking the area into compartments that provide separate, independent flood-protection zones.

Another competition entry was the Hunts Point Lifelines, by our team at the University of Pennsylvania in association with Olin Landscape Architects and several advisors (Figure 25). Hunts Point is a small peninsula in the Bronx that serves as the hub of the entire food supply for 22 million people in the New York region. As the area is incredibly vulnerable to flooding, we can create a new barrier wall around it but then, once you get huge amounts of rainfall what do you do with the water that stays inside? The project proposes a waterfront greenway for residents; ways to store that water on site, absorbing it in plant materials and releasing when necessary; a marine transfer station to deliver vital foods; and tri-generation plant for low-cost, low-carbon cooling and an electricity microgrid for emergencies. But you can get the picture why eco-sustainability, and particularly climate change, will require big changes in our cities. Regarding the impacts we have to respond to, flooding and sea level changes seem to be the most urgent. And each of the vulnerable parts of our waterfronts requires a different strategy and a different type of project.
Final Remarks

I discussed the transformative moments of history that result in changes to our cities, and four of the drivers that are currently generating fundamental changes in the way we think, plan and design our cities. In planning for a city, we have to think regarding that kind of infrastructure that is required by the new mobility and by the impacts of the new work and living network. We have to consider the potentials embedded in new arrangements such as like crowd sourcing and crown funding to engage the public, plan and raise resources. And we cannot survive without the research and hard work required for the needed eco-sustainability efforts. Every professional in the design fields has a role to play in re-conceptualizing the city.

But those of us in the academy also have a special responsibility to lead the way in imaging future changes to the city. We can collaborate with public agencies and professional teams in carrying out pilot projects that test the viability of new approaches. We need to be responsible for the science and analytics behind possibilities, such as mobility systems and eco-urbanism. Through our projects, we can help the public and professional communities visualize possibilities, free of the constraints that politics and clients impose on them. We can especially use our creative skills to envision the communities of tomorrow, with all the technological, economic and ecological opportunities. This is not a time to be timid: our cities are changing before our eyes.
New York City (Steady) State is a thought and design experiment that seeks to test the outer limits of urban self-sufficiency. Terreform—a non-profit urban research and advocacy center in New York City—has long been investigating how close our city can come to a completely internalized metabolic system, establishing its independence in a variety of key “respiratory” functions, including food, waste, air, water, climate, mobility, construction, manufacture, and energy. The goal is to reduce New York’s ecological footprint to as closely co-terminus with its political boundaries as possible and to examine the morphologies, technologies, and behaviors that will enable this.

Our motive is compound. Recognizing that the planetary environment is in deep peril and that the competence and will of nation states—or multinational corporations—to take decisive constructive action cannot be relied upon, we believe that cities are urgently logical increments of organization, accountancy, resistance and democracy and research is predicated on the belief that systems should be as locally distributed as possible. This is not to fly in the face of logical economies of scale but to seek the greatest systemic resiliency and to devolve responsibility to people and communities with a visibly direct relationship to the forces and issues at play.

We recognize that the first approach to questions of the environment must always be on the side of demand. Our project always looks first at questions of social organization, habit, and behavior. We know, for example, if New Yorkers were to adopt a largely vegetarian diet the city “footprint” would shrink radically. We also know that approximately one-third of our food is wasted, mainly in the consumption stage, and that more sustainable behavior in our kitchens could have a transformative impact. Likewise, we know that if the city’s neighborhoods are conceived as complete—with all the necessities of daily life including work, commerce, culture, education, recreation, etc. within easy walking compass of home—transportation requirements would be greatly reduced. And, we anticipate important social knock-on effects. If everyone in a neighborhood were able to walk to work, then all the neighborhood’s workers—from the banker to the barista—would find themselves living together as a community, helping redress our city’s radical and growing spatial inequality.

Home Grown, the first part of the project to be completed, examines New York’s food system. It demonstrates the marginal possibility of producing 2,500 nutritious calories of food for our 8.5 million people within the city. Our initial analysis shows that the New York foodprint is approximately 150 times the area of the city and Home Grown proceeds via a sequence of iterations to look at the means by which this territory can be shrunk. Simply eliminating waste would get us down to 104 NYC equivalents. Vegetarianism would have an even more radical impact, reducing our food-print to a “mere” 16 New Yorks! And, by transforming the mode of production to the most efficient methods—a change from our industrial systems of mono-cropping to more bio-intensive techniques including greenhouse, hydroponic, and aeroponic systems—yields can be multiplied by as much as 30 times! This combination of strategies gets us down to the area of a “mere” four additional...
New Yorks. Where might these be found in our densely built and crowded city?

Our initial design looks first at the most readily available sites, including vacant land, parking lots, community gardens, parks, rooftops, private yards, basements, streets, utility corridors, and a variety of derelict or underused infrastructure—such as rail yards and highways that might be overbuilt. By appropriating a reasonable proportion of this resource (half of the streets, a third of rail infrastructure, all the vacant lots), we are able to reduce the supplementary requirement for 100% production to 700,000 acres. Which brings us to that beloved magic bullet: vertical farms. Research suggests that a thirty story farm the size of a typical Manhattan block might feed approximately 50,000 people and that around 250 such giant structures (or 5,000 more neighborhood-scale versions) would do the job! But such towers are insanely inefficient, requiring enormous investment, huge embodied and recurrent energy inputs (we've estimated ten nuclear plants would be necessary to power the system!), and place a demand on local water resources that would oblige the construction of 28 desalination plants with their own massive energy requirements and other deleterious environmental impacts! Not!
Our study does show two scenarios that demonstrate how such a 100% system might be installed but doesn’t persuasively argue the ultimate benefit, short of siege conditions. Which leads us to the more important elements of the work: looking for and designing “sweet spots” to materially upgrade self-reliance, community participation, and nutrition and we’ve offered a complex scenario for producing around 30% of our food within our borders with the remainder provided either within a 100-mile hinterland or from a state-wide system focused on the old Erie Canal as a low-energy transport armature.

The core aim of the study is to compile an encyclopedia of possibilities for radically enlarging local autonomy that can be applied at every conceivable scale, from the kitchen to the apartment to the building to the block to the neighborhood to
the borough to the city to the region. Each of these can have widespread application not simply in New York but in cities around the world striving to take responsibility both for the welfare of their citizens and for their planetary impacts. Looking at medium density urban blocks, for example, we investigate the very large amount of space devoted to individual kitchens (at a time when New Yorkers consume the majority of their meals away from home and when traditional nuclear families are an increasingly shrinking minority of our population) and propose various strategies for aggregating and using this space for food cultivation, preparation, and consumption. Blocks that opt into the highest intensity version of such cooperation could raise 100% of their vegetables at home.

Terreform hopes that this work—and the volumes to come—can be of value to cities around the world striving to take real responsibility for their planetary impacts and to deepen their collective polity.
Cal Poly’s City & Regional Planning Department, in partnership with the Governor’s Office of Planning and Research (OPR), hosted the third California Climate Action Planning Conference on Thursday and Friday, August 24 and 25, 2017. Over 240 climate and energy professionals from around the state attended the conference including Cal Poly students and faculty. The conference featured leaders in the field and an in-depth focus on greenhouse gas emissions reduction and climate adaptation at the local and regional level.

Ken Alex, Director of the Governor’s Office of Planning and Research, who opened the conference via video, said that California is “really at the cutting edge of what is going on in climate change response, in the world…We are one of the originators of the Under 2 Coalition which is now almost 200 jurisdictions fighting climate change.”

In addition to Mr Alex, City of San Luis Obispo Mayor Heidi Harmon and the Chief of Energy and Sustainability at the California State University Chancellor’s Office, Aaron Klemm, also provided opening remarks for the conference.

Dr Michael R. Boswell and Dr Adrienne Greve are the conference organizers and continue to position Cal Poly as a leader in educating future climate professionals. Also, they have assisted numerous local and state agencies in the preparation of climate actions plans and other technical plans for addressing the climate crisis. Often these projects involve students who can gain hands-on training in the field. Several graduates of the program presented at the conference and are now demonstrating their leadership.

“California continues to be an innovator in addressing the climate crisis,” said Michael R. Boswell, professor of city and regional planning and the conference director. We are bringing the leaders in the field to Cal Poly to share best practices and inspire each other to create low-carbon, resilient communities.”

Event sponsors included PlaceWorks, PG&E, Bay Area Air Quality Management District, SoCalGas, ICF International, San Luis Obispo County Energy Watch, Ascent Environmental, Resources Legacy Fund, and Raimi & Associates.

Materials from the CCAPC can be found at:
http://digitalcommons.calpoly.edu/ccapc/

You can sign up for notifications about future editions of the conference at:
http://eepurl.com/cC0HU9
What’s There to Mix?
by Chuck Barber
Chuck received both his BCRP (1981) and MBA (1984) from Cal Poly. He was a political cartoonist for Mustang Daily for 5 years. He is currently a VP at Citibank in San Diego.

Garden Cities of Tomorrow?
by Eduardo (Dedé) Rocha
Architect and professor at the School of Architecture and Urbanism, Federal University of Rio de Janeiro, Brazil. Dede teaches drawing and design, and is an accomplished illustrator.
The Conversable Scale of Cities

Lineu Castello
PhD; Emeritus Professor, Faculdade de Arquitetura e Urbanismo, Universidade Federal do Rio Grande do Sul, Brazil.

One of the usual criticisms of the contemporary metropolis is that it is fragmented by mega-projects run by private sector interests. In this provocative article, Castello notes the positive outcomes of this phenomenon as long as the fragments result in places of a type and scale appropriate for public engagement and social conversation.

In the history of civilization, the city emerged when humans realized the advantages of living together and engaging in mutually dependent activities. These relationships depend on communications, on people being able to talk to one another, and on the city having places where that may happen. Nothing is more revealing of this ideal than the 16th-century diary by the Portuguese Crown representative who founded the village that would become the mega-city of Sao Paulo (Martim Afonso de Sousa in Toledo, 2008). The diary reveals that his mission was to provide a settlement where people could enjoy a “secure and conversable life”. In this context, “conversable” means “being with or living with” but also to be a dimension that a place has that allows people to talk to each other (Toledo, 2008). Whether a market, a plaza, a revitalized historic area, a seductive themed mall, or a simple street bench, a place is always a part of a city that is of a conversable scale.

Nowadays, urbanisation is seen as the constant addition of projects spread across great expanses of land. New places are promoted by public and private, local, regional and even transnational agents, with results that, at times, might be quite deplorable but, sometimes, may be acceptable or even admirable. While some are fascinated by contemporary urbanism and its success in promoting a fragmented city where parts are seen as “commodities”, others are shocked by the conception of the city as merchandise and the social implications of market-driven uses. In the global context, the ever-growing implementation of this new type of urbanism leads to a world that no longer consists of countries but rather of cities and perhaps only of places. Lynch (1962) would probably call these places “districts”, due to their structural power in the image of a city, while others would call them mega-projects and categorise them as “invented places” (Sircus, 2001).

We live a new reality, a special moment in the history of urbanisation when one of the most persistent manifestations is the disparate ways of thinking of cities and how they are now shaped into a series of territorial fragments spread across extensively urbanised regions. In this essay I argue that, as professionals, we need to step back from our intolerance for such projects because, in a considerable number of cases, they efficiently provide opportunities to improve their cities, creating conversable places.

The Threat of Fragmentation

Where is the 21st-century city going towards? Which direction is urbanism taking? Where can we find the conversable scale of the city? A scale that enables spaces where people talk and engage with each other, even within the gigantic scale of a contemporary metropolis? Today’s urban environments reveal a clear territorial fragmentation which fragments represent the demarcation and recognition of arising from social representations. We must admit, albeit reluctantly, that the current pattern of fragmented cities arises from the recognition of specific urban territories, and that their differentiation has something to do with their recognition as places, and as places of conversable scale.

The Fragmented City is a common jargon in the discourse of architects, urbanists, planners, and cultural critics. It represents the extreme in current urban scales, and it is almost always used with disdain, conferring a negativity associated with the postmodern condition of contemporary urbanization. However, one needs to reflect on the real meaning of such expression by first asking what is a “city” supposed to be, and then by discussing the intimidating idea of “fragmentation”. After all, the city is a concept that describes a reality subject...
to constant change. Is the traditional concept of a city still adequate to explain today's human settlements and their different types, scales, economies, and geographies? It seems that the imperative is to identify and investigate the possible “conversable” scales allowed by cities in their fragments.

In fact, the term “fragmentation” instils negativity and a greater concern than it deserves. What is customarily identified as fragments of the every day are generally connected to interesting urban phenomena (Castello & Bortoli, 2013). The fractions – or rather, the parts of a whole, the multiplicities of diverse things, the diversities – might reveal notable places, whether through the wealth of their particularities or the exclusive values of their heterogeneities.

Some urban spaces are clearly perceptible for standing out against the generic backdrop of the vast, fragmented fabric of their cities. These spaces may stimulate an affectionate perception of the population and are genuine “places of urbanity”, engraved in the collective imagination of the people who use them. These spaces are ultimately perceived as “places” (Canter, 1977; Tuan, 1983). My main concern is to understand what places of “conversable scale” exist in a regionalised city. The following discussion illustrates some of the new settings where urbanisation takes place today and are moulding the contemporary features of the conversable scale.

**Improved Urbanism**

The changes that cities go through in different urbanisation periods inspire theoretical and methodological changes in the discipline of urbanism. Academic literature, therefore, makes use of particular jargons, some charged with a degree of emotion. Such is the case of “Postmodern Urbanism”, the title of a wide-ranging and successful book (Ellin, 1999), and “heterotopias” for the fragmented metropolis (Shane, 2011). Indeed, contemporary European and US literature includes a wide array of terms to define trends in urbanism and city planning: “invented places”, “themed places”, “generic places” “cloning places”, “spots”, “event cities”, and “landscape of events”. It is not clear whether these terms are equivalent when referring to the new forms of territoriality that they represent, although they do seem to retain some analogy in how they define the social representations of the city, and in how they reflect the meanings of places. Furthermore, these terms are indicators of the multi-scaled players in the urban arena and their various cultural manifestations. They can also help in the manifestation of a conversable scale inside each of the different city fractions.

Therefore, city planning is undergoing considerable conceptual changes as actions in urbanism are no longer based on a vision of a finished city and complete projects – as a set of inter-related objects integrated rationally such as Modernism envisaged for projects such as Brasilia and Chandigarh, the British New Towns, and other centrally controlled environments. City planning that once tried to encompass the totality of an urbanised area has become infrequent and even discredited. If once city planning tried to define an a-priori vision of the city as a whole, nowadays a series of projects respond to different demands at different moments, defining a-posteriori visions of particular aspects of the city. Some call this project-by-project approach as the “Barcelona model”, as a reference to the series of major urban projects and investments for the 1992 Olympic Games, along with pre-existing fractions and introducing a dynamic network of new urban places. This corresponds to the increase in the privatisation of economy throughout the developed world, to the extent that the public sector is restraining from being the major driver/controller of urban development and welcome privately run projects, giving them preferential support. Key ad-hoc projects of an episodic nature have resulted (Loukaitou-Sideris & Banerjee, 1998 in Carmona & Tiesdell, 2007). The city acquires features on a new scale and with a polycentric structure and a diversity of events that occur simultaneously at a diversity of places.

**Plans and Projects turn Somersaults**

By the beginning of the 21st century, an abundant production of new urban patterns was accompanied by real reversals in urban plans and projects. “The 1970s and 1980s saw neoliberal (…) arguments coming to prominence – particularly during the Reagan era in the US and the Thatcher era in the UK (…) reducing the state’s powers and its role to provide room for market forces to flourish” (Carmona et al., 2003: 52). “Managerialism” was at the core of the reformattting of state actions, establishing an impressive turnaround at the core of city planning.

The expansion of economic liberalism affects the contemporary city leading to an accentuated liberalisation of projects and the state’s management role. New perspectives and instruments have been successively joining the repertoire of urbanism and planning strategies. Examples are the public-private partnerships, investments in place branding and urban regeneration, attracting international mega-events, privatizing plus-values generated by public investments, and planning projects that can be sold as shares to investors.

No wonder why –even more than advances in information technology– Richard Florida’s “creative economy” became a new planning paradigm, based on the creativity of people,
on what these people want, what they do well and know how to do well (Florida, 2004: 4). Such factors establish levels of competitiveness in cities of a globalised world; a competitiveness that is much like a sports championship where one only joins after carefully weighing up the opposition and the chances of winning. Local governments seek to put their cities on the world map, making them visible and competitive on a global scale. As noted by Sánchez (1999:120) “actions oriented by demand, urban attractions, competitive positioning, marketing, branding, and strategic planning,” which until recently were confined to the business arena, have become commonplace in planning and among city managers.

Gaps for Conversable Spaces in the Fragmented City

Despite the multiple territorial fragmentations resulting from the current global production of space, a more durable scale persists the scale of place, or rather a symbolic scale for place, almost a metaphor for the traditional concept of place. Global cities maintain strong connections with place because “(...) many of the resources necessary for global economic activities are not hypermobile and are, indeed, deeply embedded in place, notably places such as global cities, global-city regions, and export processing zones” (Sassen, 2001; pp. 108). Sassen also points out the persistence of the centrality of current urban conditions, such as the Central Business Districts that resulted from modernism and still survive today. Today’s CBDs are being reconfigured according to contemporary trends in urbanism practice; either revitalized or built innovatively in the manner of the recent post-suburban expansion. Typical examples of these two conditions are Paris and New York. In the former, the now classic project for La Défense, an area culminating the extension of the Champs Elysées Avenue, attracted several global finance companies to locate there and stay in Paris. In the later, the successful renaissance of Times Square as a tourist destination included a vast array of entertainment facilities. These two pioneering project types inspired many others with similar visions, scales, or programs.

If we narrow our focus to investigate more closely what happens in the everyday life of the fragments resulting from the contemporary city and look into people’s perception of these places more clearly, we find unexpected and surprising situations. Contrary to what might be expected from fragments these areas contain places for manifestations one would find in a more “conversable” scale rather than one of conflict. In more mature examples, these “conversable” places are now considerably established, showing us the importance of a new and decisive dimension, the temporal scale, as the surging of a conversable place depends on its appropriation and use along time. This is what happened, for instance, with the redevelopment project for the Potsdamer Platz district in Berlin and also for the vast area of London known as Docklands. Contrary to most critics who concentrate solely on complaining of mega-projects, we try to examine what empirical reality can teach us about them. These and other examples are discussed next and support our belief that the generalized criticism of the negative conditions of urbanity generated by the mega-projects is largely exaggerated.

Port Vell, Barcelona

The original contemporary model for mega-projects that ally business and development is probably Barcelona’s Port Vell (old port, in Catalan) designed by Manuel Solà-Morales as part of the city’s revitalization efforts strategically planned in conjunction with the 1992 Olympic Games. Located in the Molhes (or pier) d’Espanya, Port Vell creates a lively dialogue between Molhes de la Fusta and Molhes de La Barceloneta, and links to Maremàgnum, a mall designed by Helio Piñón and Albert Viaplana with numerous attractions such as shopping, bars, cafés, restaurants, and a multiplex, as well as to the L’Aquarium, considered by the Catalans as the “greatest” in Europe. Port Vell takes on the contagious dynamism typical of Barcelona’s famous Ramblas into the sea. It quickly became one of the places with the highest level of urbanity in the whole of Europe, always filled with people enjoying the day and night lives. New places for a relaxed conversations and cheerful interactions are being added all the time, corroborating the effectiveness of a conversable scale that is now strongly established. Figure 1 shows the intensity of the public appropriation of Port Vell in 2006. This project generated a long genealogy of other public and private ventures that helped Barcelona become one of the most important global cities.

Figure 1: Port Vell, Barcelona, 2006. (photo by the author)
Potsdamer Platz, Berlin

The gigantic redevelopment of the Potsdamer Platz area is one of the most discussed mega-projects in planning and urbanism. Many critics have accused it of sins such as spatial elitism, social segregation and gentrification. And perhaps in its initial stages, the project did harm the resurgence of spaces on a conversable scale quite possibly because of the gigantic nature and newness of the redevelopment. Both Renzo Piano’s Chrysler-Daimler-Benz and Helmut Jahn’s Sony Corporation contain places of urbanity, even if their amazingly sophisticated facilities might cause some initial intimidation to ordinary users. However, nowadays these are places of a “conversable scale” as people gather and engage in simple, relaxed, everyday activities there. Like others, this mega-project phenomenon has to be observed on two quite distinct time scales (Figure 2). The everyday appropriation of the major structures leads to the population’s perception of what’s allowed, allowing a more relaxed interaction with the surroundings: even fishing is allowed in Marlene Dietrich square! (Figure 3). Meanwhile, in the nearby cinema museum in the Sony area, a poster of Fritz Lang’s Metropolis remains on display, as if worriedly pondering the new directions of urban history.

Canary Wharf, London

Throughout the 1980s the public sector in London was severely criticized for its lack of vision and its neglect of urban design and, particularly, for not establishing a framework of guidelines for the quality of urban development (Carmona et al., 2003). This trend changed with the creation of the London Docklands Development Corporation in 1981 and its series of efforts to redevelop a vast area in east London previously dedicated to port activities, docks, containers, etc. The initial plan for the London Docklands was marked by major fiscal incentives and the liberalization of planning and land-use requirements. Although several of the resulting private developments were designed by star names from architecture and planning --such as César Pelli, Sir Norman Foster, and SOM-- the Docklands experienced financial, political and administrative ups and downs, enduring a difficult route through one of the most severe crises of capitalism in the early 1990s (Fainstein, 1999; 2001). The upturn came in 1999-2000 with the redevelopment of a business district known as Canary Wharf that, despite the adversities in its implementation, is considered the Docklands’ best-finished project with over thirty multi-storey office buildings, various restaurants, parks, waterfront promenades, and a shopping/subway/light rail hub (Figure 4). The consolidation of Canary Wharf in so short a period is a rare achievement and proved the effectiveness of good planning. The success of this mega-project in the fragmented territory of contemporary
London largely depends on its recognition and use by the population, and its conversable scale of small-scale details and daily uses.

_Dalian, China_

With its strange amalgamation of a communist government-cum-capitalist economy, China presents us with numerous examples of the new mode of urbanisation. Chinese cities are experiencing rapid, ambitious, and millionaire ventures such as the Bund and Pudong, on what were rice fields just a few years ago, both in Shanghai (Figure 5). The same is happening in Dalian, a city of more than six million residents at the Yellow Sea, northeast of China. With an international port and an important industrial base, it shows all the conflicts of rapid urbanisation and is welcoming mega-projects that put the city firmly on a global scale. Nevertheless, alongside the gigantic buildings of major international brands, its CBD harbours small spaces permeating the commercial blocks that are openly receptive to the development of a dynamic conversable scale (Figure 6).

_Puerto Madero, Buenos Aires_

Located only a couple of blocks from the Argentinian’s capital downtown and presidential palace, Puerto Madero is a paradigm of the successful revitalization of old port areas. Resulting from the amalgam of the top entries to a public competition in the 1980s, the plan had a slow start but took off from 1991 with the adaptive reuse of the historic warehouses, a series of modern buildings, the redesign of the promenades and public spaces, and a multiplicity of urban functions including residential use that ensure the 24/7 use of the area (Figure 7). Today, redevelopment continues spreading to the surrounding areas featuring projects by starchitects of global urbanism such as Norman Foster with an innovative residential building, Phillipe Stark with a luxurious hotel, Cesar Pelli with a landmark office tower, and Santiago Calatrava with one of his typical innovative structures, the Puente de la Mujer (Figure 8).

_Sydney, Australia_

Sydney contains inspiring examples of mega-projects, starting in 1973 with the daring voluptuous sailship-like Opera House, designed by the Pritzker Award Winner Danish architect Jörn Utzon. Figure 7: An historic warehouse converted into offices over restaurants and shops in Puerto Madero, Buenos Aires, 2011. (photo by V. del Rio)

Figure 8: Puerto Madero, Buenos Aires, 2011. The public promenade and the Puente de la Mujer in the background. (photo by V. del Rio)
Utzon. Initially, it was a controversial building on a prominent pier, but over time, the cultural importance of its performances, the progressive appropriation of the public promenades by numerous users, and the plurality pervading the surrounding area made it a valued public asset (Figure 9). In another city fragment, an old derelict port area, another private redevelopment mega-project named Darling Harbour became a huge success in placemaking. Comprising a large variety of food options, shops, waterfront promenades and uses, and entertainment attractions – many of which are public – it serves a huge clientele of residents and tourists attracted by the slogan “expect everything at Darling Harbour” (Figure 10). Both of these mega-projects became genuine places of urbanity and were unequivocally involved in creation of new urban places at a conversable scale.

Porto Alegre, Brazil

Porto Alegre, Brazil’s southernmost metropolis stands out as one of its most conservative regarding mega-ventures and lacking in planning and urban design innovation, as noted by a recent study sponsored by the Lincoln Institute (Novais et al., 2007). Openly supportive of shopping-centres, the Porto Alegre community has hardly any experience of the real extent of the types of conflicts that customarily accompany large or impactful urban projects. However, things changed in 1996 when the state government decided to donate an area along the riverfront to the Iberê Camargo Foundation for a museum dedicated to his work. To pursue a building of great quality and strong identity, the decision was to hire Portuguese starchitect Álvaro Siza, another Pritzker Prize winner (Figure 11). The inauguration of the Iberê Camargo Museum in 2008 placed Porto Alegre in the restricted group of cities with projects by internationally famous architects. The museum became a huge attraction not only because of its architecture and art exhibits but also for re-valuing the riverfront and its views. Since then, the city included it in its repertoire of urban places for visitors and residents, such as the successful ‘Museum Night’, a Saturday night dedicated to the enjoyment of museums as places (inspired by the ‘Lange Nacht der Museen’ in Berlin).

Public Fragments in Private Domains

An important overarching aspect of all the above projects is that they depend on the increasing interpenetration between the private and public domains of the contemporary city. So much so that many authors have pointed out the narrowness of the traditional concept of public space (Avermaete et al., 2009). We need to recognize new ways of perceiving the public and private domains because, in many instances, a place’s public nature is conferred by the social practices that are carried out in it. “It is still the passers-by who, through their activities and interactions, give the space its public character,
especially in their micro-practices of movements, games and bodily postures, and visual attention” (Ascher, 1995: 257-8). This implies important changes in the perception of the city since many spaces, such as shopping malls, must be recognized as about the public realm because of their intense public appropriation regardless of their legal status (Scott-Brown, 1990). Urbanism needs to accept the new historic order, abandon the nostalgia for the ideal European city-type with its dense continuous built environment, and accept the vision of a city that is at once strategic, pragmatic and opportunist, striving to combine the urban qualities that can use the market to preserve the old city’s symbolic values (Ascher 2004, 2008).

On the other hand, it is crucial to note that the new mega-scale correspondingly demands mega-urban qualification. This means that we also need to qualify the field of architecture and urbanism as the quality of projects is decisive in generating places blessed with the sense of urbanity. This realization shines a light on another decisive factor in the urban context: the attention that has to be given to the temporal scale and how the conversable scale depends on and relates to it. This became clear in the projects discussed above which, although resulting from mega operations in disparate fragments of their cities, along time and daily use turned out to be conversable spaces: places that people refer, relate, and go to, enjoy, and are strongly embedded in their mental maps. “The level of justification and the criticism applied to these projects are ultimately confronted by the way that society (...) and its various social groups appropriate them” (Novais et al., 2007:12-13).

References
Active Transportation and Perceptions of Safety:  
A Case Study of a Regional Trail and a Transit Corridor in Salt Lake City, Utah.

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In this article, Garcia and Ara Khan discuss their study on the relationship between perceptions of safety from crime and active transportation with a regional bike and pedestrian trail system in Salt Lake City. Based on community surveys and focus group discussions, the study concludes on important suggestions on how to increase the perception of safety in low-income neighborhoods that go beyond streetscape improvements.

In this article we discuss a study on the active transportation connections between the Jordan River Parkway Trail (primarily used for recreational purposes) and the North Temple corridor (used for shopping and taking public transportation) on the west side of Salt Lake City, Utah. Our purpose is to evaluate the connection between active transportation and perceptions of safety by employing surveys and focus groups with residents. A physical divide between the west side and the east side of the city has developed historically and led west side neighborhoods to suffer from stigma, negligence, and economic malaise. It has also affected their collective sense of community, with local media coverage focusing on crime activity and poverty even while other community areas—even more, affluent ones—have higher crime rates. As one focus group participant put it:

"In the news the west side has this bad reputation, that is poor, that is criminal, but there is more crime in Downtown and Sugarhouse. They say that because there are immigrants and refugees here. The reason is that they are racist. There is Latinos, Black people here...so that is all it takes. Racist do not know they are racist, but they are. This is the only neighborhood in the city I would tolerate living in. Because is diverse. My neighborhoods are from Thailand, Ethiopia, Tonga, Mexico...you cannot find this kind of cultural diversity anywhere else in all of Utah! This place feels urban. I can interact with all kinds of people, and I enjoy that."

Negative perceptions of safety are not constrained to outsiders alone. People living in west side neighborhoods repeat similar narratives, even if not regarding race, but regarding poverty more generally. They echo the idea that reductions of undesirable land uses (e.g., motels or low-income apartment complexes) would improve perceptions of safety. As another neighbor explained:

"The west side is a place full of diversity, great ethnic restaurants, and great people. But there is a lot of poverty and that is reflected in unkept homes, the amount of trash in the streets and the trail. Homeless people leave their things abandoned as well as others and there is no trash cans in the area. In North Temple, you see also a lot of predatory lending, motels, drive-through fast food restaurants, and if you put a lot of this together, it makes it an unsafe and unpleasant place to walk. You basically walk out of necessity, sometimes you just really want to walk, and this is what you are given, but is unenjoyable."

Literature Review

The role of the built environment in facilitating active transportation in a neighborhood has garnered considerable attention in the planning realm (Frank et al. 2007, Saelens et al. 2003, Ewing and Cervero, 2001). In their research, Cervero and Kockelman (1997) as well as Frank and Pivo (1994) have brought forth evidence into the relationships between accessibility and connectivity as seen in compact neighborhoods—positing that compact neighborhoods facilitate higher numbers of walking trips than sprawling ones. Ewing and Cervero (2010) identified qualities in urban design that influence walkability and theorized a relationship between the “5Ds” of compact design (density, diversity, design, distance to transit and distance to opportunities) and the likelihood of citizens walking.
In support of these findings, public health research shows that physical and environmental factors do, indeed, influence behavioral patterns related to health and especially in regards to the choice of mode of transportation (Salmon et al. 2003, Bargh and Ferguson 2000, Bargh and Chartrand, 1999, Sallis et al. 1999). In their examination of how environmental attributes influence physical activity generally, Sallis and Owen (2002) demonstrate that availability of factors such as aesthetics, convenience, and access result in incrementally higher uses of active travel. In framing the context for design choices from an urban planning research perspective, Saelens et al. (2003) studied the factors mentioned above and demonstrated their impacts on biking and walking as utility choices beyond their simple entertainment value.

Importantly, Sallis et al. (1999) have argued that greater access to such resources result in higher levels of participation in active transportation regardless of socioeconomic status. The authors find that low-income individuals are living in resource accessible neighborhoods engaged in active transportation at the same rate as their wealthier counterparts. Conversely, other studies have found that, after controlling for personal vehicle accessibility, socioeconomically depressed neighborhoods generally have poor access to such resources and, thus, have lower numbers of people participating in active transportation (Macintyre et al. 1993).

Research into active living has also taken into consideration conceptions of safety and the corresponding impact on walking behavior. Empirical findings from Gilderbloom et al. (2015), Mason et al. (2013), and Handy (2006) support the idea that walking behavior is related to safety—being either from crime or car accidents. Moreover, Wood et al. (2008) and Loukaitou-Sideris (2006) demonstrate that some land uses such as liquor stores and motels may discourage walking while, conversely, improving lighting or mixed-use development encourages walkability. Mixed land uses, and lighting facing the street reduced walkers’ fears by creating corridors with more community surveillance—similar to the Jacobsonian conception of “eyes on the street.” Tracing the linkage between these factors, Hong and Chen (2014) quantified connections within the built environment to perceptions of safety and walking behavior. In their study, they found that people living in safe and accessible areas are more likely to walk. However, the authors also reported that density could have a negative effect on perceptions of safety if there is a corresponding perception of criminality in an area.

Place quality is interpreted as being formed in various dimensions; it is the sensorial experience that a place provides to its residents as a combination of social, physical, environmental, and economic features (Kloosterman and Trip 2011). Thus, pleasurability reflects the social, economic, and safety dimensions of their respective qualities of life. All of these factors generate a complex array of interlocking features influencing the overall quality of life and personal satisfaction with residential characteristics. Hence, Myer (1988) regards quality of life to be a shared characteristic that residents in a community experience and subjectively evaluate communally.

Often regarded interchangeably with quality of life, the place quality has been explored in similarly varied dimensions. For example, McCrea et al. (2005) investigated quality of life and the subjective evaluations therein at different spatial levels. He found services such as access to health and higher education gained the highest satisfaction at a regional level, while neighborhood satisfaction was found to be associated with social interactions, perceptions of crime, and urban amenities such as parks. It is important to consider culture, social contexts, spatial attributes and the built environment holistically to see how they affect travel behavior (Sauter and Huettenmoser 2008). Thus, the objective of this study is to assess the perceptions of safety in the Jordan River Parkway Trail and the North Temple corridor to gauge their capacity to offer quality of life to low income neighborhoods while encouraging activity and public transportation.

Methods

As part of a studio course at the University of Utah, focus groups and community surveys were conducted with neighborhood residents. Residents gave feedback on a number of social, economic, and environmental issues as well as planning topics like accessibility, walkability, and signage. While the focus groups evaluated the use of active and public transportation along North Temple and the Jordan River Parkway Trail, this article is limited to the presentation of data primarily related to safety issues.

Survey data was collected Spring of 2016. A convenience sample of 292 users out of about 19,000 adults who could potentially participate in the survey was administered, representing about 1.6% of potential participants. The study area bordering the communities of Rose Park, Fairpark, and Poplar Grove, was bounded by the space between Interstate 15 and Redwood Road (west to east, respectively), and between 900 South and 600 North (figure 1). Students went to transit stations, the trail, community centers, and supermarkets. These locations were strategically chosen beforehand to reach out to as large a variety as possible in respondents age, race, gender, and user groups. Attitudes toward the quality of the neighborhood were measured by the frequency of their usage of the Jordan River Parkway Trail and the North Temple corridor.
A total of five focus groups were conducted and included between three and nine participants per session. The focus groups were organized by students, faculty members, and neighborhood partners in Spring 2016. Participants came from a variety of ethnic/racial backgrounds and socioeconomic groups. To be inclusive of Latino voices (a significant demographic in the study area), one focus group was conducted entirely in Spanish and for Spanish language speakers. The participants represented a diverse variety of backgrounds and travel modes including bikers, transit users, walkers, renters, and homeowners. Participants represented a number of professional backgrounds such as real estate developers, legal service holders, students, nonprofit organizations staff, construction workers, business owners, public land management employees, just to name a few.

The group brought together 32 participants who were urban planning professionals that work/live in the area, and community leaders elected to boards and commissions and west side residents across neighborhoods. Questions included: (1) What do you feel makes the area bikeable or walkable?, (2) What do you think would prompt more people to walk or bike to North Temple or the trail?, (3) How do you and your friends and family use the Jordan River Parkway Trail and North Temple?, and 4) What types of services or activities would encourage you to walk and bike more in these two areas?

Findings

Community Survey

To better evaluate assets and potential improvements along the Jordan River Parkway Trail and the North Temple corridor, surveys were distributed to residents about their use of active transportation options like biking and walking and what obstacles might deter them from such choices. The surveys were collected in March 2016 from 292 local respondents. The following is a highlight of survey results that pertain to safety issues. Except where noted, questions allowed for multiple answers and some answers have been omitted or combined.

**Significant impediments to using the trail**

- 32% feel unsafe
- 8% hard to access on foot or bike
- 8% hard to follow, insufficient wayfinding
- 8% limited parking
- 44% other

**Environmental concerns**

- 65.4% litter
- 45.3% water quality

**Desired trail enhancements**

- 44.5% bathrooms, water fountains, trash cans
- 31.4% accessibility improvements
- 24.4% landscape improvements
- 20.4% safety improvements (e.g. more lighting)

**Ways to encourage walking, biking, and transit on North Temple**

- 47.5% entertainment options
- 42% retail shopping
- 33.2% community spaces
- 32.5% landscape improvements
- 24.1% safety improvements

**Barriers to walking or biking along North Temple**

- 40.6% it’s unpleasant
- 37.2% don’t feel safe
- 34.1% not much to walk or bike to

The survey sheds light on residents’ views of the North Temple corridor and the Jordan River Parkway Trail (JRPT), along offers

![Figure 1: Map of the west side of Salt Lake City. (source: Westside Studio)](image-url)
avenues for future improvements. About 32% of the respondents felt unsafe while using the Jordan River Parkway Trail. Others would like to see accessibility improvements (31.4%), landscape improvements (24.4%), and safety improvements such as more lighting (20.4%).

One of the questions pertained to what respondents felt would encourage people to walk, bike, and take transit in North Temple. The majority (47.5% of the respondents) would like to see entertainment options, 42% retail shopping, 42% retail shopping, 33% community spaces, 33% landscape improvements, and 24% safety improvements such as more lighting in the area. Survey respondents reported the major barriers to walking or biking along North Temple: 41% it’s unpleasant, 37% don’t feel safe, and 34% not much to walk or bike to.

An earlier study by McLeroy et al. (1988) showed how the presence of parks in urban areas could influence encouraging physical activities, while a lack of access to parks can discourage physical activity. In the survey, we found out that about 40% of people who live in the neighborhood (which is about 1 mile from the furthest respondents’ home/office) have never been on the trail. About 40% of those who have used the trail, use it at least one a week. This indicates that accessibility to parking is not enough to attract people to the park.

Fewer individuals were found to take advantage of the community assets—the Jordan River Parkway Trail and the North Temple corridor—even when they lived within 1 mile or 1.5 miles. About one-third of those who use the trail had as their destination another place in the neighborhood, including along North Temple.

A total of 51% of those who indicated safety as their primary concern in the trail also reported “almost never” or “never” visiting the Jordan River Parkway Trail, while 50% of those who felt safe went to the trail at similar rates. This indicates that the frequency of use is not strongly related to perceptions of safety. About 49% of those who indicated concerns about safety in North Temple use transit while 40% of those who do not indicated safety as a primary concern regarding their choice. It follows that the perception of crime does not deter transit users from using transit either.

Focus Groups The primary concern of focus group participants was the feeling of safety, especially on the trail. This includes spots that are under-lit and concerns about the homeless that congregate and camp in certain areas. A Hispanic woman said:

"I was walking in the middle of the day with my husband and kids we went by a tent. This homeless American older woman came out of the tent and she started to yell at us, she seemed very upset...she was obviously mentally ill. I know she is vulnerable to perhaps other homeless people, men, attacking her, because she is a woman. No one should be homeless, but especially women. I still walk there even if she yelled at me and my husband and children because I enjoy walking in the trail after dinner. But I can see how her presence would deter others from walking by, especially women walking alone or children."
A female runner expressed:

"I always go running south to where I live on the trail because I know that north is close to North Temple, where there are more homeless people. They camp under several of the bridges on the river. So, I know to avoid the north side and always go south. I don’t even try to go north anymore."

Some respondents seem to feel that the homeless have a right to use public spaces and residents’ concerns and opinions on the issue differed within the focus groups. Other people commented about illegal behavior in the park. For example, people getting drunk in the park. One gentleman discussed his opinion on the matter:

"I am not afraid of walking in the area. I know where they hang out. A lot of them are not even homeless. You see close to the park in Rose Park. Right there in front of the playground, these Latino men that are always hanging out under the tree, in the benches. They get there with their bikes. They just hand out and drink and play loud music. Sometimes in the middle of the day, you would see someone pass out on the bench. They are not harming anyone, just themselves. I still do not like it because there are children around and they are not a good example."

A similar theme of people not feeling safe emerged when discussing the North Temple corridor. One participant added to the conversation,

"So, during the day, I am fine, I would walk to restaurants near my house or to the supermarket. I would not walk later than 9 or 10 at night. I would prefer to drive than to walk at that time. I would drive to the closest restaurant—which is about a block and half from my house after dark. I feel unsafe to walk. There is a high homeless population. I am not sure if to say they are homeless because many of them are living in the motels. North Temple is full of these motels, and something needs to be done about them, because they attract crime and prostitution. The amount of prostitution going on contributes to the crime in the area, with pimps, drug dealers and so on."

Another young woman added:

"I would not walk around when is dark unless I am with my boyfriend. The other day two men were fighting in the middle of the street. One was on top of the other one just beating him up; they were obviously drunk or high. All kinds of people from the motels were just staring in a big circle, like in high school. My boyfriend and I just kept walking on the sidewalk, like nothing was going on. No sign of police around. Is not like is the first time I see something like this going on. So, thank God that it was not some kind of shooting. I am afraid to be at the wrong place at the wrong time; you know what I mean?"

Also related to safety is cleanliness, with participants concerned that some sections of the trail feel run down or dirty, or have uneven or broken pavement. One person who lives near the trail commented:

"The place gets full of trash and there are trashcans anywhere, at least that I can see. Some of my neighbors at the school organize a clean-up once a year in the summer. We come and clear about a mile of the trail near the school and invite parents to join us, lots of people come. Last time we got like 20 big trash bags! I wish we could get into the river; there are things that people thought in there, near where I live there are at least two shopping carts. One time someone left a boat, and I had to call the city, so they came and removed it."

Some of the same issues take place in North Temple, as one man that lives in the new development near 600 West and North Temple, which is close to a freeway underpass commented:

"I see a lot of trash under the underpass, there is tons of trash there, clothes, shopping carts you name it. There is a lot of those red caps for needles too, so you know that people are shooting up, right? The health department and a volunteer neighborhood watch group every couple months clean up the area. I think they clean it up a couple months ago and if you go now, it looks like it has not been clean in a year."

Discussion and Conclusion

Safety was a theme that repeatedly arose in both surveys and focus group discussions, with some respondents indicating that perceived safety issues already affect how they use the Jordan River Parkway Trail and North Temple.

One issue is with limited lighting along the trail. Currently, the trail gets very dark after the sun goes down with little lighting along significant portions of its length. This may be, in part, a deliberate strategy to limit the use of the trail after dark (most
city parks are closed at night), but poor lighting can also deter the use of the trail in the evening if users fear to feel stranded after dark. A recommended solution is to implement more lighting along the trail, particularly around trail entrances and common gathering places. Better lighting would also help with wayfinding and keeping cyclists on the trail. Also, improved lighting around trail entrances on North Temple will promote a transition between the trail and the street that feels safer.

Some respondents expressed concerns about homeless populations congregating along the trail. By nature, any new amenities that improve the comfort of the trail may also draw more homeless individuals. While resolving this is beyond the scope of this article, it is an issue that should be handled sensitively and in partnership with other city and nonprofit organizations. Improved lighting should alleviate many safety concerns and can be augmented with amenities like police call boxes or clearly marked trail exit points.

The North Temple corridor also suffers from high levels of transitory populations living in the nearby motels. These aspects might detract some pedestrians from using North Temple after dark. Given these conditions and based on previous research, high-density residential zoning and a mixture of uses facing the street would contribute to more watchful "eyes on the street" by creating more opportunities for recreation, dining, and entertainment in the area (Jacobs, 1961; Newman, 1972). This would intrinsically make the North Temple corridor feel safer for all users. The focus groups confirmed that such design principles could facilitate surveillance of the street and promote a sense of safety. A few businesses like the Red Iguana restaurant are popular, and it was suggested that more businesses along the corridor would draw pedestrians and cyclists:

"The one thing that we have that is attractive to the rest of Salt Lake City is Red Iguana. That is the only place that would make people come from the east side to the west side. People are willing to make a line for hours to eat there, even if is next to that crappy motel. The motel is not a detractor for people to be there at all. All we need are more places like Red Iguana! People then would say, hey, the west side is the place to be. They would not just drive to Red Iguana, they might drive there, sure, but then they would walk to other attractive places. As of right now, we only have the Red Iguana, that's it."

A major barrier to the pedestrian experience in the study area—for both the Jordan River Parkway Trail and North Temple—is the perception that it is unsafe regarding criminal activity. This finding is similar to other studies in low-income areas where there might be homelessness or land uses that are associated with criminality, like motels. The streetscape improvements (sidewalks, landscaping, light rail, etc.) are all great amenities, but people still find that North Temple lacks business and destinations. The area has a number of vacant buildings, huge parking lots and empty lots as well as uses that do not support walkability (e.g., quick loans shops, and fast food drive-throughs). These spaces do not add much to the perception of safety or walkability in the neighborhood.

Even if there are a lack of destinations, widespread and well-maintained sidewalks (incidentally, both ADA-compliant features), visible traffic signals, paved trails, and street furniture did invite people to walk and bike in the daytime, but soon after it gets dark, people are reluctant to take advantage of the few amenities that exists. Drug activity and prostitution outweigh the attractions of the improvements for some community members. When residents prefer to drive to the area instead of walking, it further contributes to the problem of surveillance. The underutilized North Temple corridor affects the pedestrian experience by lowering the amount of activity on the street.

The mere physical improvements to the street do not add to the livability of a neighborhood if the resident's real challenges are not addressed (lack of businesses, amenities, etc.) and integrated as part of the planning process. This is supported in the literature, when compared to driving, people decide to take a walking trip to a destination based on more than a few factors. Ewing et al. (2005) identified five contributing factors of active transportation and transit use, including density, diversity (mix of land uses), design, destination accessibility, and distance to transit.

Data from the focus groups and the user surveys suggest that, although streetscape improvements enhanced the neighborhood aesthetics and increased accessibility somewhat along North Temple, it is not enough to serve the broader purposes of attracting people to walk, bike or take transit in the area. Although residents may indicate that safety in regards to crime is one of their concerns, these concerns may not affect their likelihood to increase levels of walking, biking, or using public transit in the neighborhood. For participants who live in a low-income area and with fewer amenities than the average neighborhood in the same city, crime may not be so high as to serve as an actual barrier, even while narratives and perceptions of criminality. If safety perceptions are not addressed in the community, it will fail to bring in the desired sense of place. While access to light rail stations and amenities (particularly grocery stores and restaurants were viewed positively) may induce active transportation, the perception of safety and crime were of high importance to residents.
References


Broadband Applications for Digitally Based Public Transportation in the Smart City

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Inevitably, cities are becoming more interconnected and dependent on smart wireless computer systems and networks. In this paper, Evandro Santos discusses broadband applications in generating Big Data, and the role of technology and communication in the efficiency of urban functions and services. He argues that digital and mobile technologies are making the connections between transportation service providers and users tighter, faster, and more personal to greater collective and individual benefits.

Emerging issues and future challenges in the field of transportation planning unveil new possibilities for smart transportation through Broadband Wireless Internet Access in Public Transportation technologies for personal and mobile devices. Broadband infrastructure plays a fundamental role in modernizing transportation systems by making them safer, cleaner and more efficient. Furthermore, smart devices and innovative applications have fundamentally improved the use of broadband for transportation planning and operation purposes.

Through broadband deployment and the use of Intelligent Transportation Systems (ITS), it is possible to collect, streamline and integrate data from multiple sources. Such technologies provide an advanced planning tool for smart city governance – providing cities with creative solutions for daily tasks and emerging challenges dealing with public transportation, infrastructure efficiency, and environmental sustainability.

This paper reviews broadband applications to generate Big Data from the built environment, aiming to explore the role of technology and communication in finding more practical and efficient ways to improve essential urban functions and daily services such as mobility, public transportation, and infrastructure. This research has direct implications to enhance innovation and economic growth, urban and regional development, global competitiveness, and quality of life.

Introduction

The world has become increasingly urban. According to the United Nations (2014), 54 percent of the world’s population lives in urban areas, a proportion that is expected to increase to 66 percent by 2050. In America, the vast majority of the national population is urban with an 80.7% urbanization rate, according to the United States Census Bureau (2010), with the majority of the population residing in metropolitan areas – characterized by large central cities and suburban areas. Throughout these areas, issues of poverty and technology challenges prevail.

Information and Communication Technology (ICT) has evolved quickly bringing to life new horizons and possibilities to a vast array of human needs from health care to innovations and challenges in urban management. Technology and communication have fundamental roles in finding more practical and efficient ways to improve urban quality of life, essential urban functions, and daily services such as mobility, public transportation, and infrastructure.

Big Data and the Internet of Things are the technology backbone for transportation planning and infrastructure management in the smart city context and the catalyst for a better, more efficient and sustainable public transportation.

“Like railroads and highways, broadband accelerates the velocity of commerce, reducing the costs of distance. Like electricity, it creates a platform for America’s creativity to lead in developing better ways to solve old problems. Like telephony and broadcasting, it expands our ability to communicate, inform and entertain. Broadband is the great infrastructure challenge of the early 21st century. But as with electricity and telephony, ubiquitous connections are means, not ends. It is what those connections enable that matters.”

This paper addresses theories, methods and tools in E-Planning (an essential part of E-Government or digital government); principles and concepts in Urban Planning, Transportation Planning and Urban Design; and ICT developments, especially the Internet. It is worth noting that technology evolves at a fast pace, and what is a breakthrough technology today, perhaps will be the foundation of ground-breaking technology tomorrow, in a continuous and most probably endless process.

Silva (2010) notes that broadband and mobile communication technology lead to a new transportation planning paradigm. They must be seen as more than a simple transfer from an analogic to digital for daily routine transportation information and data, requiring the re-structuring of steps and re-engineering of procedures, development of full ICT integration, and changes in the nature and purpose of transportation planning.

Speed and reliability for communication purposes only can happen with connections established over a high-bandwidth broadband infrastructure network, enabling information to be utilized in the most efficient and effective ways. Broadband is the communication and data technology required for Geographic Information Systems (GIS), virtual reality, real-time monitoring, wireless networks, Big Data collection and management, and related applications as Intelligent Transportation Systems (ITS).

Fast broadband and wireless connections enable the use of sensors in vehicles and the human connections for “crowdsourcing” information that can be applied to make service requests, report issues, and respond to crime, traffic jams, severe weather, and other urban and transportation related problems. According to US Telecom Broadband Association (2017), the broadband industry plays a vital role in the U.S. economy as a key resource which:

- Facilitates employment;
- Drives innovation;
- Provides a virtually unlimited forum for information exchange;
- Serves as a critical platform for consumer well-being and international competitiveness, among other direct benefits.

Smart cities are utilizing multi-sourced information flows as Big Data to improve services and develop indicators to evaluate the socioeconomic and environmental health of entire communities such as public transportation reliability, quality and efficiency as important test beds for physical improvements, social innovation and economic growth, further exploring the issues of density, diversity, innovation and inequalities set out in the National Broadband Plan. The deployment of broadband infrastructure in low population density areas, demographically diverse regions, within different state and local communications policies are examples of important barriers to overcome, resulting in more competition, better innovation policies and less inequalities, such as the ‘digital divide’, an economic and social inequality with regard to access to, use of, or impact of information and communication technologies (ICT).

Thanks to broadband availability and dissemination, and the Web 2.0 platform for user-generated content, usability, and interoperability, software applications can be applied elsewhere worldwide with urban neighborhoods as the locus for community organization and political participation. That’s the way of using technology to foster civic engagement, social development and economic growth based on transportation, mobility and environment protection.

US Cities and National Broadband Plan

The Federal Communications Commission, an independent agency of the United States Government, has the mission to “make available so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, rapid, efficient, Nationwide, and world-wide wire and radio communication services with adequate facilities at reasonable charges.” On March 17th, 2010, FCC released the Connecting America: The United States National Broadband Plan with a goal of universal broadband access and creating a more productive, creative, efficient America in which affordable broadband is available everywhere, and everyone has the means and skills to use valuable broadband applications.

According to Mossberger (2013), cities were eligible to apply for infrastructure and other grants to assist ‘underserved areas’ with a broadband adoption of 40% or less. Urban areas are of pivotal importance for a national broadband policy due to their density and diversity characteristics leading to positive impacts on economic development, productivity growth, innovation opportunities and social gains. Cities, in general, have experienced direct benefits in a series of political areas such as health and education, energy, environment, safety, and transportation, among others, thanks to the advanced support of high-speed networks, especially true for densely populated cities and metropolitan areas, where the benefits for technology use are highest.

Segregation and concentrated poverty increase the digital divide in America as a gap between demographics and regions that have access to modern information and communications technology, and those that don’t or have restricted access.
Although other factors play a role as obstacles to overcome for the Connecting America Plan, such as the general English language literacy, computer competence, disposable time and income, and a value on access to information as prerequisites to a reasonable utilization of the Internet.

Urban transportation and economic growth, among several other political areas, can directly benefit from investments in broadband—especially in places with limited or no connectivity. According to Qiang (2009), United States, Britain, Canada, Germany, Portugal and Finland have all included measures to expand broadband access and to bolster connection speeds in their planned economic stimulus packages. Australia, France, Ireland, Japan, Singapore and the Republic of Korea have announced separate broadband plans.

The need for an urban broadband policy is due not only because much of the national population resides in urban areas, but because of the concentration of infrastructure and technology innovation in places where government services, civic engagement and community organizing seem to be more expressive, or where technology inequalities limit the ability of local governments to realize potential cost savings, service improvements, and online communication with citizens.

**Broadband initiatives Worldwide**

Worldwide initiatives provide the context of what different societies are doing and how these initiatives impact different places. According to Philbeck (2016), there is a significant amount of investment allocated for broadband access throughout the world, and even so, there are still 1.5 billion individuals—urban and rural populations—currently without access to basic broadband mostly in regions such as Asia & Pacific, Africa, The Americas, and Arab States, with required investments in an order of US$ 450 Billion, representing not only a great social development potential but also an impact on the economy mainly due to the relationship between broadband and economic growth.

Despite the amount, place and pace of investments, a certainty remains that the world is going inexorably to broadband infrastructure deployment. Just 10% increase in broadband penetration is likely to have a positive impact and could raise economic growth by between 0.25% and 1.4%. If broadband speed is doubled, GDP may increase, potentially by up to 0.3%, as demonstrated by Philbeck (2016, p. 3). Recognizing the importance of this issue, during the January 2016 Davos World Economic Forum, the UN Broadband Commission hosted a special session to facilitate alignment and collaboration among established initiatives, foster joint investments, promote partnership, and maximize the impact of the various efforts to extend the benefits of connectivity worldwide.

**Smart transportation applications**

Broadband and advanced communications infrastructure play an important role in modernizing various transportation systems by making them safer, cleaner and more efficient. Broadband can also encourage the use of alternatives to automobile transportation. Route-planning applications make public transportation easier to use, and in-vehicle broadband can make mass transit more attractive.

Furthermore, Geographic Information System (GIS), and Global Positioning System (GPS) based applications have been created, developed, improved and applied to streamline data collection and processing for urban mobility purposes, namely for public transportation modes with a direct contribution on urban mobility parameters.

The ITS, which adds information technology to the transportation infrastructure, is the technology tool to benefit the most from worldwide broadband dissemination with developments on components of intelligent infrastructure such as transit management, freeway management, crash prevention and safety, traveller information, emergency management, intermodal freight, among several others. For the purpose of this paper, three ITS applications will be highlighted: Real-Time Monitoring, Information Management, and Instant Mapping, as features to allow portability, accuracy, and intercommunication for different devices from different technology platforms.

Advanced Metering Infrastructure (AMI) technologies is an integrated system of smart meters, communication networks, and data management systems that enable a two-way communication between utilities and customers/devices (gadgets) and users, requiring large bandwidth, and reliable dedicated speed to accomplish their tasks successfully and in a timely manner.

ITS applications together with AMI technologies can provide cities, government agencies and research institutes, as well as firms and data companies, among others involved with urban mobility, transportation data and communication, with a large amount of data from several and different networked sources, according to Santos (2012). Available intelligent transportation infrastructure as shown in Figure 1 are tools for city management through ICT and can support smart city initiatives for social, economic and environmental sustainability aims.

**Big Data & Internet of Things**

Big Data is a United States White House’s priority directing government and the nation to improve society’s technological capabilities by using vast and rich data resources. For urban transportation purposes, Big Data represents the next-level
technologic tool for gathering information precisely, when and where it is needed the most.

Big Data is being used for a vast array of needs, from monitoring extreme weather and urban disasters, development in the medical field, engineering, and transportation planning. A good example was in Japan, when a 5.0 scale earthquake shook Tokyo on March 11, 2011 as an aftermath of a 9.0 magnitude earthquake at 231 miles from the East Coast of Honshu. On that day, a massive amount of data sets were collected, and authorities in Japan are now using Big Data intensively to improve preparedness and mitigation for future disasters. According to NHK Japan (2015), GPS data from more than 10 million cell phones, thousands of videos shared on sites, travel records from more than 1.5 million cars’ navigation systems, and more than 35 million tweeter comments were put together that day to extract invaluable information. For transportation purposes, in the same day, public officials and authorities gathered and analysed three kinds of Big Data: Data from sensors set up by the Police Department at major roads, Route information from taxi companies, and Location information from cars’ navigation systems.

A similar procedure, utilizing a plethora of travel data from new mobility services such as Uber, Lyft, Via, Bridj, Cabify, Spli, from drivers, utilities and emergency vehicles, for instance, can be successfully applied as Big Data to monitor conditions for man made emergencies, extreme weather, natural disasters such as flash flooding, wild fires and blizzards, among several types of events. The efficiency, accuracy, and quick response of the procedure can even lead to protocols to be used during emergencies and catastrophes.

Big Data means data and information from multiple and different data sources to be systematized and processed to identify an issue or problem, and an efficient and practical way to get such data is through the Internet of Things (IoT). IoT is an open platform and a network of physical objects, devices, vehicles, buildings and other items which are embedded with electronics, software, sensors, and connectivity, which enables these objects to collect and exchange data, only possible using the NGA – Next Generation Access through optical connections in a Ultra High Speed between 100 Mbps – 1 Gbps (Wi-Fi Alliance, 2016). According to Barret (2016), “it’s (IoT) Wi-Fi for smartwatches and Internet-enabled coffee makers and whatever other connected appliance might suit deranged fancies, certified by the Wi-Fi HaLow, from Wi-Fi Alliance”. Wi-Fi Halow is a long range, low power, low frequency 900 MHz, 802.11ah Wi-Fi standard.

In this perspective, it is possible to identify the Internet of Moving Things (IoMT), an evolution of the IoT, as the ability to connect anything that moves and monitor, analyse, and deliver real-time insights from the resulting data. Because motion sensors provide an intuitive way for consumers to interact with their electronic devices, the market applications are endless and can include: Smartphones, Tablets, Automobiles, Wearable devices, Health and fitness monitors, Gaming consoles, Smart clothes, Smart watches, Shipment tracking, and Remote controls.

The goal is to have several applications working in just one gadget, such as a smart phone or tablet, for instance. Regardless the gaps on accuracy and reliability compared with specific devices for specific tasks (i.e. camera for HD photo, specific sensors for detection, etc.), and for the purpose of this
paper, smart phones and applications can be considered an inexorable trend due to their increasing popularity, low cost, and their practicality and convenience.

**Broadband Applications**

ICT (Information and Communications Technology) has proven to be a pivotal condition and a challenge for most cities to reach economic growth and to manage most aspects of urban life. For such, digitally-based start-up enterprises play an important role for municipalities by offering data driven co-productivity, co-efficiency and open, adaptive and contextually relevant solutions, handling the exponential surge in demand for data-based urban services that just can’t be met by municipalities alone, especially when dealing with Big Data.

As a technology concept, broadband applications respond to a new dynamics between cities and researchers, ICT developers, designers and management experts, providing invaluable tools related to public transportation and urban infrastructure. Cities have come to realize that offering broadband “open access” environment can support private players in the innovation sector to find novel and highly efficient ways to tackle important urban issues.

Broadband applications collect and process Big Data from its own devices and sensors, ‘importing’ and ‘incorporating’ cloud-based data from external sources. This is done through applications and platforms, such as Internet of Moving Things, mapping, visualization, reporting, and analytics specifically developed to provide actionable insights from the increasing amounts of data generated every day. Most importantly, they provide users and managers with a real-time information for planning and responding to major issues and concerns, helping to improve inter-agency coordination, systems efficiencies, emergency responses, and users’ experience.

**Public Transportation Connectivity**

It is on public transportation where the most advanced features of ICT have been implemented. Offering onboard entertainment, positive vehicle control, passenger connectivity, surveillance and security, fleet management, onboard advertising, as well as data generation for quality service improvement, delivering on-the-go Wi-Fi with the same speed and reliability as home or office network became paramount and the flagship for public transportation agencies.

By land, water and air, in passenger mode vehicles such as trains, subways, buses, taxis, ferryboats, airplanes, and so on, the accessibility to high-speed Internet is helping transit authorities and transportation departments to quickly download travel schedules or passenger information, allowing for traffic management with intersection-place units, or by increasing security and surveillance at crossings, stations, and depots, for instance. Sensors, cameras, meters, analysers, detectors, and a plethora of devices components and accessories are set to collect, store and deliver accurate information regarding the complete trip experience, from origin to destination, including terminals, vehicles, and intermediate stops and terminuses.

Passengers can access the Internet through laptops, smart phones, PDAs and other communication devices transforming their travel experience by extending access to information and office connectivity, entertainment, and/or Voice over Internet Protocol (VoIP) applications. Moreover, with private vehicles offering broadband access and Wi-Fi connection and the advent of driverless cars, private and public transportation will be totally interconnected in a smart system through broadband and Big Data.

**Broadband and Wi-Fi**

According to the Broadband Commission for Sustainable Development (2015), broadband may support another dimension of connectivity that consists entirely of machine to machine communications, called M2M. Smart sensors and Radio Frequency Identification - RFID chips are increasingly becoming part of the IoT network. Underlying both acronyms is a basic concept of using the Internet to transpose the physical world onto the networked one. IoT/M2M makes everyday objects ‘smart’ and context-aware. In doing so, it offers significant economic benefits and a huge range of new possibilities, because smart objects can sense their surroundings and respond to them without the need for human intervention.

Broadband applications translate this concept of IoT/M2M applications for NGA supported by a major Smart Grid development. IoT/M2M has big implications for network architectures, protocols and management, which may be quite different to networks ‘powered by humans’. Getting there will require the development, standardization and deployment of many technologies, from smart sensors and actuators to new broadband protocols.

The deployment of the 5G, the next generation of communication networks for the 26 billion connected devices, is expected by 2020. The 5G International Cooperation and Next Generation Mobile Networks Alliance predict that 5G networks will need to meet the needs of new usages, such as the Internet of Things as well as broadcast-like services and lifeline communication in times of natural disasters.
Conclusions

Modern, networked, and proactive cities, known as smart cities, learn faster and generate more business opportunities per geographical area than ordinary cities. According to Campbell (2012) they have a much thicker and better-connected institutional character with technology and mobility playing a key role in such development.

Entrepreneurship in ICT has become highly dependent on cities’ growth patterns and expansion of data-based urban services. Broadband, ICT, ITS, NGA, IoT, IoMT, GIS, GPS, Big Data, and Smart Transportation applications are essential components of an engaged, competitive and dynamic city. As transportation planning and related infrastructure are pivotal components of how cities network, learn, and innovate, there is a promise of competitiveness, economic development, social gains and environmental protection in the so-called smart city, and ICT is the essential condition for such an achievement.

For transportation, infrastructure and mobility, cities can benefit greatly from the state-of-the-art of ICT: from the growth of wireless broadband in mobile connectivity, the broadband applications for third-generation (3G) wireless network services, the development of smartphones and other mobile devices, the emergence of new types of connected devices, and the rollout of fourth-generation (4G) wireless technologies. The availability of 5G wireless network services by 2020 will consolidate the Internet of Things and Digital Innovation as the technology avenues for cities development.

In the era of digital cities, the Internet is shaping the geography of opportunity and improvement, and reducing social and economic inequalities in urban areas, particularly through the Web 2.0 platform and the technologies for mobile devices. Broadband applications are therefore technology development for improving urban mobility and public transportation, filling a niche for transportation planning, infrastructure and operation evaluations, a leap forward for urban development based on broadband deployment and communications evolution.

As stated in the White House’s report to the President (2016), technology has a structural importance in the future of cities with transportation playing a special role in three key dimensions: Energy-Efficient Districts, Accessible Mobile Districts, and Connected “Inclusive” Districts. Technologies influence patterns of behavior, and digital and mobile technologies are making the connections between transportation service providers and users tighter, faster, more personal, and more comprehensive to greater collective and individual benefits. They save time, improve comfort and productivity, lower costs for mobility and universal access, and increase safety, among several other direct and indirect benefits.

Acronyms used in this article

AMI - Advanced Metering Infrastructure
DSS - Decision Support Systems
FCC – Federal Communications Commission
GIS - Geographic Information System
GBPS – Gigabits per Second
GNSS – Global Navigation Satellite Systems
GPS - Global Positioning System
ICT – Information and Communications Technology
IoT- Internet of Things
IoMT – Internet of Moving Things
ITS - Intelligent Transportation Systems
KBPS – Kilobits per Second
LTE – Long Term Evolution
MBPS – Megabits per Second
M2M – Machine to Machine
NGA – Next Generation Access
OBI – Omnibus Broadband Initiative
OSM – Open Street Map
RFID - Radio Frequency Identification
WiMAX - Worldwide Interoperability for Microwave Access
Wi-Fi HaLow - Low power, long range 802.11ah 900 MHz Wi-Fi

References


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Essays
URBAN ECONOMICS BY DESIGN: THINKING FROM DOWN UNDER

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Based on their experience in Australasia, Kobus Mentz and Susannah Goble discuss how, by considering urban economics, urban design, and local governance concurrently, greater efficiency, prosperity and social equity can be delivered at differing levels of city scale. The authors are, respectively, director and planner of Urbanismplus, one of New Zealand’s most respected and awarded planning and urban design private firms.

The nexus between urban economics, urban design, and the politics of local governance is seldom understood. Economic strategies often lack a spatial (place-based) dimension, as much as urban plans often lack an economic logic. These inter-relationships are important if we want our cities to be more efficient and our communities more equitable and prosperous. In addition, sustainability imperatives demand we deliver more with fewer resources.

This paper will discuss examples of how this can be done at city-wide level by locating the right uses and intensities at the right locations and favouring consolidation over expansion. At precinct level it will illustrate how employment creation, economic efficiencies, and social uplift can be assisted through place-making, exploiting the movement economy, and harnessing the power of retail. Micro design suggestions will be offered to show how the market can be coaxed into accepting new, more efficient, typologies. It will offer methods that unlock complex planning challenges quickly and that direct local authorities towards a virtuous economic cycle by better aligning their strategies, resolving internal disconnects and leveraging more effectively off external entities. While the examples are drawn from Australasia and some elements are culturally-specific, most principles have universal application.

City-Wide Level

Put the right stuff, in the right place, at the right intensity

So often the significance of large scale urban planning attributes are obscured by more charismatic or trendy local initiatives, such as buildings with iconic status or green credentials, some under the guise of so-called ‘landscape urbanism’. Yet getting the fundamentals right at scale can, through their significant multipliers, produce more meaningful benefits which may apply indefinitely.

The Melbourne 2030 Growth Strategy was an outstanding example of this principle. Signed agreements were negotiated between five city councils and four state ministries which determined commitments to minimum densities, intensification around rail stations and city centres, new rail and bus infrastructure, employment land, and strategies to reduce travel, as well as biodiversity corridors and a raft of environmental outcomes. When independently measured benefits were astounding, including AUD$25-43 billion savings to the Victorian economy, 14% less travel, and up to 23% less travel time. The
Consequential environmental savings are extensive. Although a complex process, these outcomes were achieved by simply putting the right infrastructure and uses, in the right places, at the right intensity.

While many of the strategy’s attributes remain intact, aspects such as the all-important urban growth boundaries have been subsequently undermined due to politicians succumbing to pressure from vested interests. These challenges highlight the importance of the relationship between local governance and implementation, as discussed later.

Contrary to Melbourne, the subsequent Greater Christchurch Urban Development Strategy ensured its key attributes were enshrined into local planning law. Early on the community was asked to select between three growth options varying from sprawl, to ‘business as usual,’ and ‘smart growth’ (more intensive development focussed on public transport nodes). The measured consequences of each option were described such as: land take (2,110 to 6,850 ha), infrastructure costs (NZD$430m to $580m), traffic congestion increase (190% to 630%), vehicle emissions increase (49% to 103%) and water use increase (35% to 55%).

A mid-range option was selected which became the point of departure for the process that applied the same ‘right stuff in the right place’ approach. The resulting strategy is recognised as an international best practice example by the Commission for Architecture and the Built Environment (CABE). This clearly articulated and quantified Spatial Plan proved particularly useful after the devastating 2011 earthquake as a tool to reconsider the disposition of growth in the region.

Mend before you extend

While the case in general against sprawl and for smart growth is well established, counter arguments persist. These are often premised on housing affordability grounds (not restricting supply), liveability or lifestyle preferences, or the self-interest of landowners who wish to develop.

However the cost of infrastructure (water supply, sewerage, transport, and health services) can be as much as double, and more on the periphery. A recent Curtin University study found that for 1,000 dwellings it cost $309m in infill areas and $653m on the edge (Trubka., Newman & Bilsborough, 2008). Further efficiencies are realised when development draws on existing infrastructure, which is already incurring maintenance and renewal costs, and utilises existing resources to their full capacity.

Newman and Kentworthy’s (1999) work as far back as the 1990s established a clear link between density and the energy consumption of private passenger travel. Hong Kong at a density of 300 persons/ha use approximately 3,000 mega joules (MJ) of energy per capita against Houston with under 20 person/ha using around 64,000 MJ. We are compelled to develop denser and more efficient cities from an energy, economic, as well as environmental perspective. Urban transport alone, according to Peter Calthorpe (2010) accounts for 30% of carbon emissions in the USA, and 20% when measured globally.

Balance agglomeration strategies with the value of local employment

Many city experts are promoting strategies that will increase the agglomeration of jobs in city centres, they argue economic productivity benefits derived from increased specialisation, a deepening of the labour market, and knowledge spill over, resulting in greater innovation. Auckland City recognises that it needs to increase its 15% of jobs in the CBD when compared to Sydney’s 22%, Melbourne’s 28% and London’s 33%. Accordingly it is undertaking a range of initiatives, including the strong promotion of a new city rail link, to significantly strengthen its public transport network.

This approach should be balanced with providing jobs and services in outlying areas where it is needed to avoid sterile dormitory areas and support the complex needs of local communities. Local jobs will significantly reduce the need to travel at all.
Adapt planning approaches to meet the changing needs of employment uses

It is useful, at the city-wide scale, to differentiate between residually compatible and non-compatible employment uses. More flexible zoning arrangements, with less distinction between living and working, should reflect the increasing range of residually compatible uses. Industrial uses, often less glamorous in planning terms, are vital to urban economies. Their proximity to other related businesses (so called value chains) is also important. If these links are weakened efficiencies are diminished. Industrial land, due to its lower land value is vulnerable to change. Consider the consequences if big employers are forced to move, play this through over a 10 or 20 year period, and if necessary consider measures to protect their positions.

Consider proximity

Proximity ranks different places by how far they are from a range of amenities such as major education facilities, hospitals, employment opportunities, and public transport destinations. Places with high proximity are valuable as they require less travel and should be considered for strategic development opportunities. Unfortunately many of the cities' poorest people live in areas of low proximity, this means that year on year their disadvantage is compounded. Improved transport connections, strengthened community services, and targeted employment strategies should be considered.

A useful approach is to rank all large sites against their proximity and land value. Identify those sites with high proximity and low land value, where the market has not yet recognised their attributes. The opportunity is to affordably invest in housing or services while deriving the social and environmental benefits of less travel.

Connect social initiatives with economic benefits

Economic and social needs are intertwined. Job creation, as an economic issue, is the flip side of unemployment, a social issue. In addition we know poverty is linked with crime and crime comes at a cost, as Socrates ostensibly said 'poverty is the parent of crime'. However crafting approaches that deliver economic benefits from social and planning initiatives can be very complex.

An example of this is the Tamaki Transformation Programme, New Zealand's most ambitious social regeneration project. Here an early, more comprehensive action plan, was estimated to be able to grow New Zealand's GDP by $2 billion and directly support 20,700 jobs over 30 years. These calculations stem not only from increased productivity, but also the savings in social support costs and benefits from the reductions in crime levels.

Key to this was the comprehensiveness of the approach. The 20 year plan captured central, regional, and local government priorities and offered a strategic sequence of spatial and non-spatial initiatives. Innovative foundation period projects included pathways to health sector careers for Maori and Pacific residents, a technology-based learning network for children, and state housing renewal demonstration projects. At the heart of the strategy is a redeveloped peoples' park and living precinct. A community service hub would serve as a catalyst for private sector participation and regeneration.

Provide well-connected street networks

How we lay out our streets matters. Their patterns can determine safety, retail viability, and movement efficiency. Well-connected street networks generally offer travel savings over more convoluted ones.

Small changes can add up, in Auckland 25,000 kilometres are being saved per year just by linking three culs-de-sacs in a low density suburb. Nearby some fourteen landowners were persuaded to abandon cul-de-sac layouts to form a neighbourhood of linked up streets resulting in substantial ongoing travel savings.

Bill Hillier's (1989) work is seminal in this regard. His Space Syntax approach maps street patterns as a series of axial lines, then measures how many intersections each line has. These are ranked in categories from the most integrated (most intersections) to the least integrated. His early research showed high correspondence between the degree of integration and degree of pedestrian usage. The more connected the street, the more pedestrians, even when compared with less connected patterns in higher density areas. Later work showed higher degrees of integration result in higher degrees of safety (reduced burglaries), while constitution (active frontages which offer observation onto the street) played a role, this was secondary. In addition, higher degrees of integration also resulted in higher land values in retail areas.

Hillier's latest work, still in progress, postulates that knowledge economies will also benefit from connected networks as innovation is also reliant on the stimulus of chance encounters brought about from external sources (Hillier, 2016). These are difficult to achieve in more exclusive arrangements including isolated neighbourhoods, business parks, and gated communities.

Precincts and Places

Recognise the inter-dependency of economic, and place-based strategies

Wealth creation and employment strategies are mostly con-
cerned with financial, regulatory, organisational, educational, and promotional issues. Few integrate effectively with the place-based dimension. However strategy and place are interdependent. Strategy can suggest how a place should be improved, and a place can suggest latent economic opportunities embedded in its attributes.

The success of more complex precinct-wide employment approaches are heavily dependent on the attributes of the site and where it sits in the city-wide network. Where, for instance, should uses which will reduce ‘leakage’ be best located? Can different initiatives be concentrated in one location for greater momentum toward transformational change?

Specific potential employment uses can be identified by determining which classes of use are under-represented in an area when compared to other comparable areas. Further research can determine which initiatives are required to overcome barriers to their establishment. Business attraction initiatives can recommend specific locations that will best suit their needs and offer synergies with other businesses.

Promote ‘quality of place’ as an economic attribute

The ‘old’ economies based on ‘comparative’ advantages, inherent in the resources or attributes of their region (such as tourism destinations, manufacturing based on a local resource, or agriculture) manifested in the segregation of uses such as industrial areas, business parks, shopping centres or malls, and dormitory housing areas, each with their own zoning. Locational considerations for these economies are usually land value, labour skills, accessibility, and housing conditions.

However many communities are striving to develop ‘competitive’ advantages which go beyond the ‘comparative’ ones. Often referred to as the ‘new economies’, those developing ‘competitive’ advantage include areas such as the service, green, knowledge, and creative economies. These industries are made up of new businesses that are small (often 6 people or less) requiring small premises which can be easily acquired. The entrepreneurs that lead these businesses are mobile and can choose locations based on their preference around quality schools, health services, natural amenity, and urban quality. As a result ‘quality of place’ has become, to some degree, a driver of employment.

Capitalise on the competitive benefits of creativity

Richard Florida’s (2005) work comprehensively underlines the competitive importance of quality of place, alongside technology and diversity, to attract the ‘creative class’ who will deliver creative economies. When the arts and creative industries are developed and promoted in a manner which integrates their organisational efforts with their place-based attributes they can deliver significant results. Melbourne does this well, Rob Adams, the Director of City Design in Melbourne, argues that a return on investment in the arts of up to 11:1 can be achieved, in comparison with between 2 to 4:1 for investments in roads (Noble, 2008).

Small scale efforts can also deliver results. Dunedin, a small university city with a static population of around 125,000, recently established a ‘creative quarter’ in a historic warehouse precinct which has already resulted in new businesses (some new to the city), new apartments, a hotel, car parking building, cafes, shops, and a pop-up theatre located in a rescued character building. Buildings left vacant for over ten years and others threatened by demolition due to earthquake strengthening requirements have been given new life.

Key to success was a transparent process which secured endorsement from the public and the council. A clearly articulated sequence of place-based initiatives was set which reduced the impact of an adjoining arterial road, better linkages with local parks and squares, and the creation of pedestrian friendly local places. This resulted in the removal of planning barriers and attracted $500,000 in early funding for public realm improvements, a $70,000 re-use grants scheme, and earthquake strengthening subsidies for eleven projects.

Persist in compact city and smart growth approaches

The earlier mentioned economic benefits of favouring intensification and smart growth strategies over sprawl are hard to realise on the ground. Achieving the right policy settings is one thing but convincing the market (and sometimes the local community) to build complex and more intensive environments is another.
The path of least resistance is often still to deliver environments where uses are separated, uncomplicated, and predicated on the convenience of the car user, all with significant economic, social, and environmental consequences. The challenge is to deliver high quality, commercially viable, and locally acceptable forms of urbanism that are more efficient and sustainable. Higher densities, public transport, and the creation of communities with thriving and diverse centres are core. The public realm should foster social and civic life and a range of living and employment options should be available.

There are often many hurdles to overcome such as low land values, which make low density housing and commercial options more attractive, powerful construction and development entities that resist change, professions that perpetuate conventional planning and transport practices, the dominance of car use, the spatial needs of large format uses, land owner interests, and local ‘not in my backyard’ attitudes.

There are fortunately more and more successful examples emerging, these are often the result of many years of advocacy, leadership, and policy changes at governance level followed by implementation approaches which combine innovative design, community engagement, funding, and implementation practices.

**Target town and city centres as catalysts for employment**

In recent years many new public realm-based town centres have been built, however few have managed to achieve significant amounts of non-retail jobs. An outstanding exception in this regard is University Hill in Whittlesea, a new town adjacent to Melbourne (Figures 4 & 5). The large site adjoining the RMIT remote campus had remained vacant as successive plans to build technology parks had failed. The left leaning council, rightly concerned with the dormitory status of their city, insisted on permitting only employment uses and no housing or retail (to protect their other centres).

A 3-day inquiry by design workshop managed to illustrate that with this approach only a modest amount of light industry jobs would be created, many within categories which were in decline. Instead a public realm-based approach, which combined industry, offices, retail, housing, and community facilities would generate up to 30% more higher quality jobs. The project is now being realised, numerous shops, apartments, offices, commercial/industrial buildings, and community facilities have been built. Employment is anticipated to exceed expectations.

The key approaches behind this outcome are discussed below.

**Harness the power of retail**

There are a range of techniques, in addition to those mentioned above, required to create or regenerate centres. Core to these is the ability to harness the power of retail. Retail generates significant, energy attracting high footfalls, traffic, and land values. It also draws substantial monetary benefits for the community. Yet when configured in closed systems such as shopping malls and stand-alone shopping centres very few non-retail jobs are created, as little as a quarter when compared to traditional town centres. Some of the absent jobs may go elsewhere, but those that need an integrated urban setting will just not exist or eventuate.

Viable retail settings can be created within a system of public streets and squares. Smaller specialty stores can be made viable by locating them along the pedestrian flows between anchor stores. Community focal points can be created with good public spaces and community/civic facilities, and the visual effects of parking can be minimised. Street markets can add vitality and give local expression, however they should com-
plement not suffocate existing shops. Events can shift user and investor perceptions of underdeveloped urban areas.

**Utilise the movement economy**

Planners often shy away from heavily trafficked streets. While understandable in living environments, in commercial environments their ‘passing trade’ can represent a significant opportunity. This is partly due to the economic benefits of retail often being reduced to ‘planned trips’ whereas spontaneous custom is a very important aspect of many local or speciality stores. New urban plans which place the commercial centre in the middle of a precinct/neighbourhood with the busy street on the periphery often fail. Hillier’s work shows us that the more integrated (often busiest) streets produce the higher retail land values. Commercial centres, to be more viable, should therefore engage with these streets directly. If traffic conditions are deemed to be too harsh, consider slip roads, back lanes, or ‘T-ing’ off at right angles. With the viability of a local centre enhanced the need for locals to travel will be reduced.

**Coax the market through incremental approaches**

Housing intensification strategies often meet market resistance to houses that offer less outdoor space than nearby counterparts, typologies that are new to the area, or purchasing areas that are not yet perceived as ‘desirable’. In some cases bold approaches which offer radical density increases above the norm succeed, especially if associated with major new contextual changes such new rail stations, new employment areas, or retail nodes. However in marginal areas early investment in the amenity components will be critical to building enthusiasm for the vision and confidence in it being delivered. A more incremental approach may be required which responds intelligently to the local market conditions and perceptions. One approach may be to offer a small early stage of conventional lower density typologies while market confidence is being established and in order to facilitate cash flow. This should not be located at the heart of the development where, in the long term, higher density would be more desirable.

‘Hybrid’ typologies may follow to get the ‘ball rolling’. These are a step closer to the optimum but distinguished by very small scale design differences that will help to overcome market resistance. An example is the so called single storey ‘smart house’ located on one side boundary, with an outdoor living court with good solar access adjacent to one another. Use of this transitional approach often gains market confidence in less than a year to graduate up to multi-storey dwellings on 40% less land area, which can be followed by an appetite for terraced housing. To support this approach, communications should draw attention away from the size of the land and emphasise design attributes such as privacy, solar access, and indoor-outdoor flow.

Where back lane units meet resistance due to the outdoor walk from garage to house, consider providing a narrow enclosed link. Maintain efficiency by combining it with a laundry or storage function.

Where multi-storey apartments serviced by lifts meet price resistance and three to four storey walk-ups suffer user resistance, consider three storey apartments where you only walk up one level to a double-storey apartment which has an internal stair (which only gets used later when accessing bedrooms). Three levels of density are achieved and with changed perceptions, taller buildings with lifts will become viable.

Where multi-storey viability for small commercial buildings are hampered by the disproportionate costs of lift/stair cores, consider convincing several owners to pool their ownership to form a larger building footprint with a single lift core.

At Harbour View a mixed use, mixed density demonstration project in Auckland, these incremental approaches helped shift perceptions in the market. Its commercial success, outperforming its conventional counterparts by 2:1, instilled developer confidence in the approach when the industry was still delivering low density cul-de-sac sprawl. Now higher density projects are a more regular occurrence in the region.

**Develop methods that unlock complexity quickly**

One interpretation of Ashby’s (1956) ‘Law of requisite variety’, is that a complex system like the urban environment takes an equally complex process to manage (or produce) it. This rings true for many of the processes behind the outcomes described...
above. Advancing sustainable urbanism in any democracy is indeed complex, as most sizable initiatives involve so many stakeholders, technical, and legal dimensions. There is also an increased urgency to crystallise the complexities promptly so that action can follow.

A variety of workshop-based methods can be helpful catalysts in this regard. Successful methods focus on the issues critical to a productive outcome and involve a combination of those most affected, those with the most knowledge, and those who have the ability to block or progress the project. They combine rational and creative methods, evaluate various options, and also allow ‘left field’ ideas to manifest. Where evidence-based, measurable approaches reach their limit value judgements, based on agreed principles, should be applied.

With adaptations these processes can be used to unlock various complex design, planning, and governance issues. Recently two 2-day growth area workshops unlocks economic returns of AUD$50 million additional retail spend, 4,680 new jobs, and an additional AUD$1.2 million in council revenues in a mid-size city in northern NSW. A community based masterplan with commitments to affordable housing, biodiversity linkages, infrastructure funding responsibilities, and programme timetables were secured.

Transport related outcomes can also be achieved. In Auckland NZ$80m was saved in a 4-day workshop with the removal of a grade-separated motorway underpass, while maintaining transport efficiency and delivering a more business friendly and pedestrian friendly outcome. North of Wellington a 3.5-day workshop saved NZ$275m on a proposed new motorway, while preserving natural habitats and improving urban connections.

**Local Governance**

**Drive local governance towards a virtuous economic cycle**

The urban environment is at once a political system and a product of politics. Different political approaches will deliver different urban outcomes. These may vary on a continuum from socialist (command economy with highly regulated central planning) to libertarian (unfettered free enterprise with minimal planning and regulation). The emphasis on the roles of the private and public sectors will differ accordingly. Where the private sector is often best at innovation, efficiency, and capital attraction, it struggles to operate outside its boundaries. The public sector is best at setting a framework for development that coordinates, connects, integrates, and helps enable a vision that reflects the wider public interest.

The earlier mentioned urban design and urban economics approaches are therefore only as effective as the wider political and governance environment in which they are set. The quality of local governance can have a profound effect on the economy of a city or region. Even beyond the issues of corruption and general competence, local authorities have the potential to stifle or stimulate the local economy.

Central governments can pull some ‘big levers’ such as macro policies, tax conditions, employment regulations, and the financial framework, yet they cannot respond to the on-the-ground-needs of local businesses and economies which vary from place to place. Yet good local economics are fundamental to all areas of local sustainability. Local revenue is required to fund vital environmental and social initiatives, and local self-sufficiency.

Local governance approaches vary, from providing only the basic services to directly providing significant social, economic, and environmental services. The former minimalist approach may result in lower rates, but runs the risk of communities not fulfilling their economic potential, while the latter runs the risk of accumulating debt and developing unsustainable finances.

However with a good understanding of the financial consequences of their policies, strategies, and organisational practices, local authorities can develop sustainable financial pathways with increased income from rates, operations and assets, as well as reductions in spending on the costly consequences of anti-social behaviour and environmental degradation.

A virtuous economic cycle can be created if these gains are reinvested (Figure 7). The sequence, starts with gains from improved alignment (1) and investment (2) in leverage projects (described later), which, if successful, deliver efficiencies, more income and more rates (3). This widening of income (4) allows for a widening of investment (5) back into leverage projects, and so the cycle continues.

**Align, align, align**

As indicated in Figure 8, four critical areas in this regard are: how holistic and well aligned the policies and strategies are (sustainable urbanism); how integrated the organisation is internally (deFrag); how well it leverages off external entities (leverage); and how accurately these attributes are reflected in the budgets (sustainable finance).

Local authorities should look holistically at their region to create conditions which allow businesses and community groups to prosper while balancing public good and private gain. Unnecessary barriers should be removed and, where cost benefits can be proven, they should apply resources to stimulate productivity.

Foremost however, they need to ensure their plans, policies, and strategies have a sound sustainability logic and are
aligned. Alignment is rare as these instruments are usually developed over different time periods, often through different cycles of political thinking.

Again through the appropriate workshop process this can be dealt with promptly. Misalignment can be brought to the surface and remedied, gaps identified and a prioritised, and a strategic sequence of actions established. In one case agreement was reached between local authorities, business, and community leaders within three days. Medium term projects worth AUD$72 million and long term projects worth AUD$86 million were identified and prioritised, putting the council in a strong position to apply for state government funding for major infrastructure projects.

It is helpful to map each strategy where possible so that the spatial dimension is understood, as often new co-locational possibilities are discovered (Figure 9). At all times strategies should be interrogated against the overall vision of the council. Initiatives should be rated in terms of their ability to transform so that a strategic sequence is established. The simple matrix in Figure 10 could be used as a tool.

**Resolve internal disconnects**

In order to deliver integrated external outcomes local authorities also have to be integrated in their internal behaviour. Discipline specialists and departments need to have reconciled their approaches within all areas such as transport, environmental, urban design, recreation, social needs, and so on.

This needs to be addressed periodically. Self-analysing and non-threatening approaches are best. One such process called ‘deFrag’ enables teams and departments to evaluate how well they, and other teams, are delivering on the objectives of all key projects. Disconnects and their remedies are identified, such as improved communications, cross representation on projects, or organisational changes.

**Leverage more effectively off external entities**

While increasingly compelled to deliver more with less funding, few local authorities utilise the vast resource within their community effectively. Yet there are many external entities
with which they share common objectives such as not-for-profit groups concerned with environmental and community needs, economic development, and employment creation. Constructive engagement with business groups, landowners, and developers can also often ensure public good is achieved while maintaining the viability of projects (Figure 11).

Underpin sustainable urbanism with sustainable finance

When faced with a need to reduce debt, local taxes, or fund asset renewal local authorities often revert to across the board cuts, delivered in a top down manner. If applied in the extreme this will leave no room to progress toward the virtuous economic cycle described earlier and may threaten their technical capacity, corporate culture, strategic objectives, and staff morale.

There are alternatives to making simple cuts (Figure 12). Consider making an even wider range of cuts, then re-investing a portion in a more strategic manner with a preference for those ‘leverage’ activities that will deliver a dividend. This will also allow for the reconsideration of outdated practices. Engage councillors, senior management, and discipline leaders in an open, collective analysis of all services and their strategic value, revenue generation opportunities, and savings through improved internal practices. Agree a time scale for debt reduction then develop a range of...
options from across a continuum of austerity to growth. Craft a path that moves from a position of debt and asset neglect, to that of financial sustainability while delivering sustainable urbanism (Figure 13).

Conclusion

More sustainable environments, which offer greater efficiency, prosperity and social equity, can be delivered at differing levels of city scale, but to do so urban economics, urban design, and local governance need to be considered concurrently.

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References


From Downtown to the Inner Harbor: Baltimore's Sustainable Revitalization
Part 2: The Inner Harbor Plan (1967 to 2005)

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Baltimore’s effective revitalization efforts are internationally recognized in planning and urban design. After the successful Charles Center redevelopment plan in the late 1950s, Baltimore’s efforts expanded to its Inner Harbor and waterfront. In this sequel to a two-part article that started in FOCUS 13, Vicente del Rio discusses these later efforts, and how Baltimore ensured a process for sustainable economic, social, and cultural revitalization.

“Designing a dream city is easy; rebuilding a living one takes imagination” (Jacobs, 1958, p. 242)

In FOCUS’s last issue, I published the first of a two-part essay on Baltimore’s revitalization efforts that started in the late fifties with the Charles Center Plan in the downtown. I also discussed how Baltimore success with two plans reflected Godshalk’s (2004) model of sustainability with livability at the apex. thus revitalization (see Figure 17 below, page 73).

The success of the 1950s Charles Center Plan encouraged the city leaders to move their attention to the Inner Harbor, only two blocks south. By establishing a new synergy between the city and its waterfront, the Inner Harbor Plan revealed untapped potential and generated strong social, economic, cultural, and recreational impacts. With the success of its Inner Harbor and its impacts in the downtown, Baltimore became a worldwide model for waterfront revitalization. Over the years, Baltimore's Inner Harbor has received numerous national and international awards, including the prestigious Heritage Award from the Urban Land Institute in 2009. In this essay, I will discuss the plan’s major elements, from its conception to around 2005, noting their role in transforming the Inner Harbor into a model of sustainable urban waterfront revitalization (see also the timeline in Figure 18).

1 See From Downtown to the Inner Harbor: Baltimore’s Sustainable Revitalization Efforts, FOCUS 13, 2016.
2 Periodically, the ULI gives the Heritage Award to developments of excellence that demonstrated substantial contributions to their community’s well-being for at least 25 years. Only nine developments have received the award in the past 40 years.
3 That same year, Wallace and Thomas Todd partnered with William Roberts and Ian McHarg (the famous landscape architect) to form WHRT (later Wallace Roberts & Todd), that became one of the most celebrated and active planning/design firms in the US.

The Inner Harbor is Born

The city’s natural choice for the new initiative rested in the authors of the Charles Center Plan; David Wallace and his team. The Inner Harbor Project | Urban Renewal Plan was adopted in 1967. Approximately one-third of the plan area had to be cleared of all existing structures for redevelopment and to restore public access to the water and recreation, particularly due to the lack of such spaces downtown (Figures 1 & 2). The plan initially included a 240-acre one-block deep area around the water’s edge and predicted investments of $260 million over thirty years (Figure 3). Later, plans for Inner Harbor West and East were approved.

The Inner Harbor Plan included five major components: a) high quality commercial and office buildings along the waterfront; b) multifamily housing in the eastern and western areas; c) a low mandatory build-to cornice line for buildings in the block immediately surrounding the waterfront and commercial uses at the street level; d) no tall building would be permitted on the waterfront except for a few iconic towers; and e) the waterfront would feature parks, public areas and a wide promenade (Brambilla & Longo, 1979; Millspaugh, 1980, 2003; Wallace, 2004).

Generally speaking, the area’s development was coherent with the original master plan vision and principles despite several adaptations to community and market pressures over the years. Perhaps the major adaptations suffered by the plan were due to the unforeseen surge in the restaurant, recreation, and tourism industries, together with the worldwide renaissance of the idea of downtowns. Baltimore’s Inner Harbor plan was a pioneer in its vision, components, and implementation process, having received more architecture and urban planning prizes than any other similar project in the United States.
Two major phases marked the plan development process, corresponding to the city's political and economic needs. During the first phase, the process was dedicated to convincing the residents and the business community that Baltimore was a city worth taking part in and that the needs for recreation and open space could be provided for in the waterfront. In 1964 voters approved the emission of $66 million in city bonds for the Inner Harbor Plan that, together with $47 million from federal urban renewal grants, paid for the acquisition of land and vacant warehouses, site clearance, and a new bulkhead along the waterline.

Given the growing success of the city ethnic fair and other public events in Charles Center's Hopkins Plaza, the city decided to move them to the much larger waterfront and capitalize on the ethnic diversity of its neighborhoods. A strong publicity campaign –as in no other American city until then– started to attract crowds to events in the Inner Harbor, animating it and creating an awareness of its potential. This moment also represented an attempt by the city to start amending the deep social schisms that were still being felt from the racial riots and unrest of the late 1960s. Harvey (1991) observed that when the Baltimore's City Fair was moved from the Charles Center's Hopkins Plaza to the vacated spaces on the water's edge, it attracted nearly 2 million people, proving that large numbers could be drawn to the downtown.

Another important initial factor was the transformation of the Charles Center Development Corporation, the quasi-public corporation formed by the city to implement the Charles Center Plan. In 1964 it became the Charles Center–Inner Harbor Management, Inc. Corporation (CC-IHDC) to deal with plan implementation in both areas. It did so through a special contract...
supervised by the City: while the corporation managed the development process, the city paid for all operating costs, real estate purchases, and received the profits from all sales. According to Martin Millspaugh, CC-IHDC’s president from its founding until 1985, all real estate transactions involving third parties had to be approved in public meetings (Millspaugh, 2003).

The CC-IHDC’s dynamic performance was fundamental for plan implementation, such as: leasing land (clearing investors of a large starting cost), rents that were in proportion to profit (which made mortgages easier), flexible financing, and investments in the land’s public infrastructure (Wrenn, 1983; Wallace, 2004). It should be noted that private developments always had to pay for land and never ceased to pay local taxes. Only more recently did the city start to offer direct loans to developers, offer tax incentives, and promote profit-sharing ventures demonstrating the need for flexibility and responsiveness to the market over the long term (Millspaugh, 2003).

Millspaugh (1980; 2003) discusses the enormous political, technical, and administrative obstacles inherent in the process of buying almost 1,000 buildings, relocating 700 businesses to other locations (including the wholesale market), cleaning up toxic sites, and dealing with twenty city/state/federal government agencies which held, in one way or another, jurisdiction over some aspect of the Inner Harbor. One of the most difficult battles involved making the State of Maryland’s transportation authority drop a destructive highway project that would destroy historic districts, such as Federal Hill and Fells Point, and impose a 14-lane low-level bridge over the Inner Harbor. Wong (2012) recounts Baltimore’s victorious war against this project and the importance of the SOM team commissioned by the city assess the project’s impacts, combined with political pressure, advocacy planning, media campaigns, civic protests, and legal challenges.

In the early seventies, after obtaining initial financing, the CC-IH focused on attracting private investors and winning the confidence of Baltimoreans, generating what Millspaugh (1980) calls “critical mass”. The first designated attraction in the Inner Harbor was the replica of the historic US frigate Constellation stationed in a pier and open to visitation in 1969. By 1973, the new boulevards bordering the Inner Harbor and the waterfront promenade and parks were ready, and the Torsk –the US submarine that sunk the last Japanese ship during World War II– was moored in the Inner Harbor and opened to the public. During the 1976 Bicentennial celebrations, eight tall ships from different countries sailed from New York and docked in the Inner Harbor, attracting thousands of visitors. To this day, tall ships from navies from around the world moor at the Inner Harbor for days at a time, always resulting in attracting large numbers of visitors. With a constant and diverse array of events, tour and event boats, water taxis, paddle boats for rent, and the opening of almost 160 private marinas slips, the Inner Harbor had captivated the public, making Baltimore residents proud, and propelling a new positive city image nationally.

Since inauguration, the Inner Harbor is a lively and robust urban destination where the mix of commercial, touristic, leisure, and residential uses, the quality of public space and architecture, and the symbiosis with the water, produces a socially and economically sustainable place that attracts visitors, national and international tourists, residents, and the downtown working population. It is important to note that, even with the strong impetus for development and at least for the first two decades, the city tried to ensure that the Inner Harbor’s urban design and architecture was respectful of the remaining historical structures and preserved a strong relation to the waterfront, since physical and visual access to the water and maritime activities were unique attractions. Fundamentally, this was achieved through one of the plan’s major elements, the waterfront promenade: a pedestrian walkway along the water’s edge connecting districts and attractions and featuring seating, attractive landscaping, lighting, and educational signage.

The original plan promoted the waterfront –its promenade, public and open spaces- as the magnet for a lively and attractive mix of commercial, recreational, educational, and cultural attractions as part of the Inner Harbor experience. To understand the location of the projects mentioned in the next sections, please see map in Figure 3 and a recent aerial photograph in Figure 16.

The Initial Move

After building the bulkheads, infrastructure, and the promenade, and promoting public events, it was fundamental to attract developers and investors to the Inner Harbor. This became the CC-IHDC’s most important task, and new office buildings became a priority given the success of Charles Center and the
need for more modern leaseable space in the downtown. The Inner Harbor's development potential as shown in the plan and the support of the local business coalitions and organizations were fundamental.

After the plan's approval, the first commercial building in the new Inner Harbor was the US Fidelity and Guarantee Corporation (now the Transamerica Life Insurance Company) in 1975 (see #11, Figure 3). A brutalist-modernist 35-story tower located at the corner of the two boulevards that border the waterfront, it was soon followed by a 625-car parking structure, the first of many at the Inner Harbor. Subsequently, several office buildings were built in the 1970s, sharing desirable locations with views to the water, but following the plan's policy of staggering building heights along the boulevards to protect the Inner Harbor's viewshed and avoid excessive shadowing on the waterfront.

The Maryland's World Trade Center was finished in 1977 and became one of the Inner Harbor's iconic building: a 28-story modernist concrete tower with a pentagonal footprint, designed by I.M Pei for the State of Maryland's Port Authority (see #12, Figure 3; Figure 4). With a lobby dedicated to public exhibits, the building extends over the waterfront promenade with two of its columns resting in the water and features a viewing deck and a restaurant on the top floor. Interestingly, the Transamerica and the WTC towers are very similar architecturally—in style, detailing, and bulk—generating a unified waterfront profile. In the 1980s several important companies and banks moved into new buildings on or near the waterfront. In 1982, the Federal Reserve Bank opened its local headquarters at the edge of the Charles Center and only two blocks away from the Inner Harbor.

Over the last decades, a greater number of ventures went beyond simple office space to include a richer mix of uses. The first such example on a large scale was The Gallery at Harborplace, completed in 1987 (Figure 4). Occupying an entire city-block just across the boulevard abutting the waterfront's north edge it includes an office tower, a 620-room hotel, a four-story mall with retail and restaurants, and underground parking for 1,150 vehicles; a pedestrian bridge connects the mall to the waterfront just across the street. Unfortunately, development sacrificed several historic landmarks such as the 1910 art-deco factory building of the McCormick Spice Company, which used to add an attractive aromatic atmosphere to the waterfront experience (see #5 in Figure 3). After a long battle lost by preservationists, the building was demolished in 1989 to be replaced by a sixty-story tower including 225 hotel rooms, 150 apartments, and 86,000 square feet of commercial space.

Food and Shopping: The Harborplace

As discussed above, the clearing of the Inner Harbor site, construction of new bulkheads, promenade and marinas, the approval of the Inner Harbor Plan, and the public events agenda transformed the waterfront into Baltimore's most popular public space. The city needed to keep the momentum going and use it to attract private investments and commercial uses. The answer came in the late 1970s when local entrepreneur James Rouse proposed a project similar to the successful Faneuil Market Place which his company had recently developed in Boston combining the experience of eating and shopping in a historical context.

In the opposite direction of the shopping-center industry conventions of the time, with the Boston project, the Rouse Company had invented the concept of the festival marketplace: an open, attractive old-market-like design that could entertain middle-class buyers and make them feel comfortable, helping suburban residents rediscover the central city pleasures (Frieden & Sagalyn, 1991; Bloom, 2004). "A combination of good luck and good planning made the downtown malls into a near-perfect match for emerging public tastes in the 1970s— the time when the American public rediscovered food and history" (Frieden & Sagalyn, 1991, p. 200).

For Baltimore's Harborplace, the city signed a 75-year ground lease with the Rouse Company for $105,000 per year plus 25% of profits (Bloom, 2004). Opened in 1980, the Harborplace pavilions are considered the most important project in revitalizing the Inner Harbor (see #6, Figure 3 & Figure 5). Exceeding all expectations, they received more than 500,000 people on the opening day and more than 18 million in the first year (Levine, 1987; Kotler et al 1993; Wallace, 2004). Sales exceeded expectations by 60% and outperformed Boston's Faneuil Hall (Millspaugh, 2001; 2003).

Observing the Harborplace's importance, James Rouse noted that "more than 60% of (its) visitors... had no intention to buy or..."
eat something, they were there just for the fun of being there, for the spectacle which was thousands of people sitting, standing or strolling along the waterfront” (James Rouse in Bloom, 2004, p. 173). The Harborplace “injected new life into Baltimore’s downtown...stimulated the construction of new hotels, a major convention center, and a new aquarium, turning Baltimore into an important tourist city” (Kotler, Haider & Hein, 1993, p. 125). Being part of the “larger whole” made sense to visitors.

Located in the L-shaped corner site closest to the downtown core, Harborplace was required to maintain the vista to the water and limit height to 40 feet (Figures 4 and 5). The solution came in the form of two elegant, terraced, old-market-like pavilions that totalled 200,000 square feet dedicated to retail and food. A public plaza with a small amphitheatre marks the corner space between the two pavilions providing an animated linkage to the water’s edge. At the time of its opening, Harborplace included a food market, twelve restaurants, 37 small eateries, 58 stores (20 of which were food-related), and 35 kiosks and retail carts. The building’s transparency and the seating from the restaurants and cafe spilling to the outside provided a lively and inviting ambience to the waterfront promenade (Figures 6 & 7). The Harborplace helped popularize the festival marketplace typology in the US, and its design qualities were heralded by famous urbanist William Whyte (1988, p. 94).

Pertaining to Baltimore’s ambitious Skywalk system4, a footbridge originating at the Charles Center led to the Hyatt Hotel and the Convention Center before crossing one of the Inner Harbor main boulevards and arriving at the second floor of the Harborplace’s west pavilion, where the food market and most eateries were located (see # 9 in Figure 3). In the 2000s, the north pavilion was connected by footbridge to The Gallery mixed-use complex. The footbridges increased accessibility from the surroundings and animated the second stories, increasing their commercial value.

How the Harborplace came to be is an interesting story. As the Inner Harbor site had been cleared of all structures and remained as open space for public use since the late 1950s, the Rouse Company’s initial proposal to the city was strongly opposed by Baltimoreans. A strong campaign was launched with James Rouse engaging personally in negotiations with community and minority groups who granted their support in exchange of commitments for jobs and opportunities for small local businesses (Frieden & Sagalyn 1991; Wallace, 2004). Harborplace was approved with specific social goals: at least 10% of contractors, 25% of construction workers, and 50% of retail jobs had to come from local minorities, there would be job support services for minorities and a special effort to find and attract minority retailers. From 2,000 proposals submitted by merchants interested in the project, 140 were accepted, 91% of which were from the local community and 20% represented minorities. Of the 128 original stores, 22 were minority-owned.

In the beginning, the commitment to social responsibility proved to be good for business, generating an attractive mix of ethnic restaurants and retail that became one of Harborplace’s unforeseen success formulas. However, the Rouse Company’s inability and unwillingness to maintain the “small-scale capitalism” – particularly the increasing overhead costs and the complex demands of this type of business, the original mix disappeared over time: today most of the Harborplace’s stores and restaurants represent national chains and do not differ much from other shopping centers (Bloom 2004). Their appeal and sales capacity remain high but now focus on suburban residents and tourists visiting the Inner Harbor.

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4 On the downtown Skywalk system and its fate, see Part 1 of this essay in FOCUS 13, 2016.
Recreation and Culture

Attracting a collection of recreation and cultural venues was one of the Inner Harbor Master Plan’s original goals. In 1969, Baltimore’s Community College opened its new facilities only two blocks north of the waterfront. In 1976, the Maryland Science Center opened its doors helping to animate the Inner Harbor’s south-west corner (see #2, Figure 3) with 100,000 square feet of exhibition space and a 150-seat planetarium —today it also holds a five-story IMAX theater.

Baltimore’s most important of such venues is, by far, the National Aquarium, inaugurated in 1981. Inspired by Boston’s New England Aquarium, Baltimore’s National Aquarium turned out to be a spectacularly successful project and pivotal for the city’s revitalization efforts (Frieden & Sagalyn, 1990). Its initial $21 million price tag was covered by a voter-approved offer of city bonds combined with donations from corporations and individuals. The aquarium’s unique and complex architecture is attractive from every angle, and its location on the Inner Harbor’s most prominent pier makes it a highly visible landmark (see #13, Figure 3; Figure 8). The building’s design responds to an educational route, leading visitors through bridges and split levels around a central atrium, into rooms and over tanks that recreate different Maryland habitats and contain more than 5,000 live specimens.

Baltimore’s aquarium was so successful that even the most optimistic estimations for the whole first year of operation —400,000 to 600,000 visitors— proved modest: seven months after inaugurating it had already received more than 1 million people. In its first years, the aquarium was generating 3,000 jobs and $88 million to the local economy (Frieden & Sagalyn, 1989). In 1991, an annex was built on the next pier with a 1,200-seat amphitheater for aquatic shows.

Following the aquarium, a couple of piers to the east, a 1912 sewage pumping station became the Baltimore Public Works Museum, and the popular tent-like Pier 6 Concert Pavilion was installed. Originally built for 2,000 seated spectators plus 1,000 on the open lawns, in 1991 the pavilion was expanded and had its seating capacity doubled.

The story of Baltimore’s old Pratt Street Power Plant is a great example of how the city managed to reconcile historic preservation, the Inner Harbor Plan’s vision, and commercial needs. Located at the pier next to the National Aquarium and built between 1900 and 1909, this massive industrial complex of three contiguous red-brick buildings and three stacks had ceased operations in 1973. It remained vacant until 1985 when Six Flags adapted it into an amusement park that operated for only four years before going under and being replaced by a nightclub, another short-lived initiative. Finally, in 2001, a local developer successfully transformed the Power Plant into an entertainment complex with large tenants: Barnes & Nobles (where an atrium allows views up through inside the original stacks), an ESPN bar, and a Hard Rock Café (Figure 9). Beside it, on the same pier, a new six-story building offers loft office space over restaurants and a fitness center. Today, this pier is a strong commercial anchor to the east waterfront.

By 2005 Baltimore was hosting more than 35 festivals and events and had numerous attractions at or immediately around the Inner Harbor adding to its appeal and dynamism: a historic carousel, the Hippodrome Theater complex (including three restored historic buildings), the University of Maryland’s marine biotechnology center, and at least new six museums: the Port Discovery (an interactive children’s museum in the restored fish market), the baseball museum next to the stadium, a museum dedicated to the port’s history, the African-American Museum...
and, in 1995, the 1.1-acre campus of the American Visionary Art Museum, dedicated to new artists and experiential art.

In order to support the Inner Harbor uses, particularly to attend to tourists and shoppers, a trolley bus circulating on a dedicated lane and serving the downtown along the waterfront was started in 1985. The system was later expanded to other areas linking several amenities and offering sightseeing tours.

**Staying and Living**

Gradually, hotels and residential uses became two of the most important ingredients for the full implementation of the Inner Harbor Master Plan’s goals. Evidently, the most difficult barrier to cross was Baltimore’s downtown de-population and flight to the suburbs, the city’s troubled recent history, and the perceived lack of major attractions there in the 1970s—all still fresh in people’s minds, particularly non-Baltimoreans. Despite the success of Charles Center, there were not many quality hotels left in the city, and room capacity was low. Attracting new hotels was still considered an impossible leap of faith when the Inner Harbor Plan was traced. However, the Inner Harbor’s success would unexpectedly make Baltimore a tourism attraction and, fueled by its proximity to Washington D.C., a destination for national conferences and conventions. Fed by the city’s growing recreation and business industries, the hospitality industry would become one of the leaders in Baltimore’s revitalization, helping to consolidate tourism, supporting economic growth, and generating jobs.

The history of how Hyatt was convinced to build Baltimore’s first hotel in many years at the Inner Harbor is a great example of CC-IHDC’s fundamental role in implementing the master plan. The city offered to pay for all public infrastructure costs and a lot at Inner Harbor’s north-south boulevard, a major access to the downtown, in exchange for a lease based on profit-sharing (see #7 in Figure 3). Moreover, in 1977 the Hyatt group also received a loan ($10 million from a federal UDAG grant and $2 million from city funds) as a second mortgage that was not to be repaid until after all costs associated with the first mortgage, municipal taxes, hotel’s operations, and the lease were served (Milsbaugh, 2007; Pike, 2009).

Built in 1981, the Hyatt Inner Harbor is a 15-storey tower with mirrored facades and 488-rooms with great views to the Inner Harbor (Figure 10). It was connected by footbridges to Charles Center, to the convention center, and to Harborplace. It became “the chain’s best-performing facility immediately upon its opening” (Wallace, 2004, pp. 138), and the CC-IH’s loan was paid in full in only three years, rather than thirteen as originally expected. By the end of the 2000s, the city collected approximately $3 million a year in taxes and fees from the hotel (Milsbaugh, 2009).

Following Hyatt’s success, within five years the Inner Harbor had the Intercontinental Harbor Court (200 rooms, 165 luxury apartments, and a parking garage for 900 cars), the Days Inn (250 rooms), Sheraton (350 rooms), Marriott (350 rooms), and the Renaissance Harborplace (622 rooms). In 2008, on a former public parking lot, the 757-room Hilton Baltimore opened with direct access to the convention center, only two blocks away from the Inner Harbor, the Orioles’ Camden Yards baseball stadium, and a light-rail station. Today more than twenty hotels offer approximately 9,000 rooms within a mile from the Inner Harbor, many in restored historic buildings. By 2011 Baltimore’s hospitality industry was doing very well, and its room occupancy rate was 3% higher than the national average.

However, attracting residential uses to the Inner Harbor was tougher. Besides overcoming the area’s negative image, it was also a question of changing life styles which, at the time, did not favor living in the city. The original plan had envisaged upscale residential towers along the waterfront to boost the tax base, but developers were reticent to risk without the synergy of other uses (Warren & McCarthy, 2002).

The first step came in 1974 when the Christ Lutheran Church decided to build a 220-bed medical center, a nursing home, and a low-income 9-story 291-apartment building for the elderly, next to the church’s historic building and just across the waterfront boulevard (see #3, Figure 3). But the turning point came in the late 1970s when the city launched a pioneering urban homesteading project in Otterbein, an area a few blocks west of the Inner Harbor (see #4, Figure 3). The majority of Otterbein’s 120 red-brick town-houses with front-door marble

![Figure 10: Hyatt Regency Hotel, Inner Harbor. View from the pedestrian bridge looking back from Harborplace. (photo: V. del Rio)](image_url)
steps, typical of Baltimore’s 19th century architecture, were vacant, in ruins, or had been condemned to give way to the aborted state highway project discussed earlier. Left with the ownership of these structures, the city decided to sell them through a lottery for the nominal price of one dollar for local applicants. The winners received the houses with liens that included two important requirements: owners had to renovate their properties to a minimal standard within six months, and they had to live there for at least three years.

Relying on low-interest city loans and design guidelines to preserve the area’s historical character, the houses were rapidly restored (Figure 11). The process and the requirements in place helped populate and revitalize Otterbein, avoiding predatory speculative investments, particularly by out-of-towners. Local developers built new townhouses on the vacant lots and converted a vacant historic church into residential lofts (Figure 12). In his book The City – Rediscovering the Center, William Whyte acknowledges Otterbein’s success and called it a very attractive neighborhood, “a very Baltimore place and with front steps as white as any in the city” (Whyte, 1988: 326).

Depopulation was Baltimore’s and its downtown’s most difficult problem to solve. Census data shows that the city’s total population declined from 949,708 in 1950 –when it was at its peak– to 620,961 in 2010. However, by the late 1980s, the regional housing market was diversifying and expanding, particularly for single people and young couples without children, students, and retirees who preferred to live closer to downtown and the Inner Harbor attractions.

In 2003, more than twenty new residential developments were under construction or planned for the Inner Harbor, and 7,400 new units were projected to be made available by 2012 (Millspaugh, 2003). Besides serving new residents willing to be close to the waterfront, many of these developments served students and staff from the nearby University of Maryland at Baltimore and Johns Hopkins educational and health services (Millspaugh, 2003). Development included new buildings and conversion of historical structures, in new and old neighborhoods. Reversing historical trends, the number of downtown residents, particularly on and immediately around the waterfront, grew by 130 percent between 2000 and 2010 when Baltimore was ranked as the eighth densest metropolitan core in the US with 5,485 families living downtown (Bernstein, 2011).

Perhaps the most impressive of the newer developments is Harborview, a 42-acre, 2,600-unit residential complex at the old Bethlehem Steel Shipyard Graving Dock in the Inner Harbor’s south-east shore, outside the original plan area (Figure 13). Harborview includes the continuation of the waterfront promenade and a series of public open spaces, a 27-story residential tower, three six-story apartment buildings, townhouses on two piers, and a private marina with one hundred boat slips.
Although mostly for a limited clientele, the Inner Harbor's residential market became much stronger than the original plan predicted as people “rediscovered” central locations and the waterfront as desirable places to live. The sharp increase in the average household income in the area confirms a high degree of gentrification caused by a limited number of “back to the city” residents attracted by Baltimore's economic growth model, including from Washington and other cities, (Levine, 1987; Harvey, 1991 & 2009; Merrifield, 1992).

Convention Center

In the late 1970s, the city and the CC-IH decided for a high-quality convention center in the Inner Harbor’s vicinity. Due to the proximity of Washington DC (one-hour drive) and Baltimore-Washington International Airport (twenty-minute drive), and served by Baltimore’s Penn Station (5-minute drive), studies had shown that the downtown could capture a significant share of the convention market while generating business for the hotels that Baltimore needed. The convention center was built in 1979 through city-issued bonds just a block west from the Inner Harbor (see #9, Figure 3 & Figure 16). Featuring an award-winning modernist design, the state-of-the-art facility offered 425,000 square feet of exhibition and meeting space, and a public roof garden. It was connected by footbridges to Charles Center and to the Hyatt hotel and Harborplace's west pavilion. By the early 1980s, the convention center was booked for practically the entire year (Millspaugh, 1982) and, in 1986, it was expanded with its capacity tripled.

The convention center was never meant to generate profit but to be a catalyst for tourism, feeding the local hospitality and retail markets. In the early 2000’s, conventions and conferences accounted for more than 50% of the occupation rate in Inner Harbor hotels. Because of the increasing competition from newer and larger facilities in the region, in 2005 the city decided to expand it yet another time and add a city-owned 757-room hotel to the complex, the Hilton Baltimore. In the last few years, the city has been considering plans to replace the original 1979 structure with an even larger facility and another hotel. It is important to note that the convention center complex is now connected by light rail line to the airport and the suburbs, and is next to the Camden Yards Sports Complex, discussed below.

The Camden Yards Sports Complex

The Camden Yards Sports Complex proved to be a major catalyst for Baltimore’s downtown and Inner Harbor, attracting thousands of sports fans and tourists. The story began with William Schaefer, four consecutive terms mayor (1971 to 1987) and a key player in Baltimore's revitalization, and his efforts to prevent the Orioles from leaving the city for new facilities in the suburbs. He fought for the construction of a state-of-the-art baseball stadium that could add to the synergy of the Inner Harbor. When elected state governor for two consecutive terms (1987 to 1995) he was successful in having the state legislature approve the construction of such stadium with lottery money, keeping it under the control of the state's sports authority.

The city hired the local firm RTKL for a specific plan for a 40-acre area three blocks west of the Inner Harbor to accommodate the stadium (Figures 14 & 16). Known as Camden Yards, the land was originally owned by the Baltimore & Ohio Railroad Company and, besides underutilized rail yards, it included two historic buildings: a 1856 terminal station that still operated commuter trains to Washington, and a 1,116-foot long eight-story brick warehouse built by B&O in 1889 for the storage and distribution of merchandise but became mostly vacant by the 1970s. Considered East Coast’s longest brick building, this unique historical exemplar of railroad warehouse architecture inspired HOK (now Populous) in their solution for Orioles Park, inaugurated in 1992. The 48,000-seat major league baseball stadium was placed against the historic warehouse, renovated for Orioles facilities, box offices, retail, restaurants, and a private club in the upper floors from where spectators enjoy privileged views of the game (Figure 14). The warehouse inspired the new architecture and served as the diamond’s backdrop, creating visual impact and a sense of enclosure.

Following the success of the Orioles Park and replacing an adjacent parking lot, a 71,000–seat multi-purpose football stadium opened in 1998. The M&T Bank stadium, home to the Baltimore Ravens as well as other sports and music events, is considered by fans one of the best NFL stadiums. Besides the two stadiums, Baltimore’s Camden Yards Sports Complex include the Sports
light rail system. Dedicated lots and nearby public parking structures accommodate around 30,000 vehicles, and circulation is eased by having football and baseball games off-hours and on different days of the week.

**Light Rail to the Inner Harbor**

During the first couple of decades after initiation of the Inner Harbor Plan and like most large US cities, Baltimore did not have an efficient public transportation system. A 1966 plan projected six transit lines radiating from the downtown but, by 1983, only one had been built, the Baltimore subway. During his first term as the state governor, in the late eighties, former Baltimore Mayor Donald Schaefer was able to push the construction of a light rail system, under the administration of the state’s transit authority, facilitating access to the Inner Harbor and the Camden Yards Sports Complex.

The 22-miles of the project’s first phase where built relatively fast, inexpensively, and without any federal funding using a single track system on existing streetcar and commuter rail rights-of-ways. Connecting the Maryland State Fair, Baltimore County, in the north, to Anne Arundel County in the south, through Camden Yards, the lightrail started operating in 1992, on time for Oriole Park’s inaugural game. In the late 1990s the system was extended connecting the downtown and the Inner Harbor to residential suburbs, business parks, a shopping mall, the University of Baltimore, Baltimore’s Convention Center, Penn Station, and the international airport. Many stations transfer to MTA bus routes and offer free parking. The two stations at the Camden Yards Sports Complex (Oriole Park and M&T Bank Stadium), at the Convention Center, and at Charles Center are particularly important for downtown workers, tourists, conference attendees and game-goers, decreasing the need for parking (see Figures 14 & 16). The lightrail ride from the Baltimore-Washington Airport to downtown takes approximately thirty minutes.

Baltimore’s light rail system was built on a single-track system and used existing facilities to bring down costs, limiting its flexibility and leading to long headways (17 minutes), even at peak hours. In the mid-2000s federal funds were secured to convert the system to two parallel tracks, increasing its efficiency.

**Notes on Implementation**

The success of the Charles Center and the Inner Harbor plans relied on several human actors and administrative factors that helped sustain implementation, as commented along this two-part article: vision and willing to excel, integrated efforts, the involvement of the private sector, committed and dedicated public officials. The orchestrated efforts between city, Greater Baltimore Committee (GBC), and Charles Center-Inner Harbor Development Corporation (CC-IHDC) were fundamental for keeping plan implementation on track. As a powerful regional organization of business and civic leaders and promoter of the downtown renaissance since the mid-1950s, the GBC guaranteed the commitment of the private sector. Through agile, private-sector-like administration, the CC-IHDC successfully attracted investors and made sure development in those areas was prioritized and implemented according to the master plans.

An important factor to guarantee private development quality, particularly in the initial years, was Baltimore’s Design Advisory Panel. Originally formed in 1964 from a federal requirement to oversee redevelopment in downtown urban renewal areas, such as the Charles Center and the Inner Harbor, the panel was composed of six design experts appointed by the City. Later, the group was renamed Urban Design and Architecture Review Panel, and its responsibilities were extended to advise on significant development projects in the city and those requiring zoning changes or variances. Recommendations are issued for schematic and final projects and, although without power to veto projects, the panel’s work was fundamental for the implementation process and the design quality in both Charles Center and the Inner Harbor, particularly in the first decades.

As is usual with the success of any plan, the Inner Harbor Plan had many champions over the years. James Rouse (Rouse Company’s founder and very influential in the city’s business community), and Martin Millsbaugh (chief executive officer of the CC-IHDC for twenty years) were certainly two of them. But perhaps the most important player was William Schaefer, Baltimore city-council member for sixteen years, four-time mayor (1971-1987), two-term state governor (1987-1995), and two-term state comptroller (1999-2007). Schaefer was a driving force in transforming Baltimore into a model of urban renaissance and tourism, particularly the Inner Harbor, the centerpiece of his administration. Personal and charismatic, he used to drive around the city at night looking for problems to solve, and knew how to inject Baltimoreans with a much-needed sense of pride in their city. Schaefer was excellent in getting things done and in attracting businesses. But he was also criticized for his authoritarian style, for installing the corporate model in city management, and for an economic development model that did not help the most in need. Job opportunities decreased, the quality of public schools declined, poor neighborhoods got distressed, and crimes and drugs were not subdued (Levine, 1987; Harvey 1991 & 2009).
However, when Schaefer left city hall and the following administration moved its focus away from the Inner Harbor, the pace of downtown revitalization declined and life did not get any better for the most needy. The lack of commitment together with the 1990s economic crisis led Baltimore to miss investments, residents, and merchants moving to the suburbs, and to experience a significant increase in crime rates. In 1991, all Baltimore’s quasi-public agencies were merged into a single non-profit entity, the Baltimore Development Corporation (BDC), generating new problems for the Inner Harbor. Without CC-IHDC’s direct agile administration and the city’s special attention, the Inner Harbor became just another area dependent on the politics of different city departments, their budgets, and timing.

By the early 2000s successive city administrations worked towards stopping the downward spiral, focusing on attracting economic development and on increasing Baltimore’s quality of life as a whole (Millspaugh, 2003; Harvey, 2003). However, although the Inner Harbor Plan was updated in 2003 and private investments and new attractions were expanding, public spaces by the waterfront were deteriorating. In 2005, business owners, local institutions (such as the Maryland Science Center and the National Aquarium), and the City formed an alliance and funded the Waterfront Partnership, a non-profit with the mission of maintaining the public spaces along the clean, safe, and vibrant. However, the organization depended on city grants and donations from the private sector, and its scope of operations was very narrow.

In 2007, cognizant of the need for integrated management of the water’s edge, Baltimore’s City Council created the Waterfront Management Authority that operates through public grants and private donations, a small surcharge on commercial properties, and rents from the use of waterfront spaces. This move led to beautification, expansions of the waterfront promenade, and better maintenance, safety, signage and tourist facilities, including an award-winning visitor center at the west waterfront promenade, just south of Harborplace.

While the 2003 Inner Harbor Master Plan Framework confirmed the spirit of the 1965 plan, some of its recommendations and the lack of a stronger, comprehensive attention to the original vision by part of the city attracted much criticism, including from David Wallace, author of both the Charles Center and the Inner Harbor original plan (Wallace, 2004). The stronger competition with other cities also meant that Baltimore adopted a more aggressive approach to attract investment and developers, becoming more flexible in their demands. The city’s new development-oriented approach in the Inner Harbor was reflected in naming the new master plan a “framework”. From the mid-2000s, different from the Inner Harbor’s heyday, projects along the waterfront result from a much tougher negotiation between the city, the Baltimore Development Corporation, and developers. Although the pedestrian promenade, bike lanes, and small public spaces along the water’s edge continue to be implemented (Figure 15), the new architectural solutions, set-backs, and easements along the waterfront reflect a more “piece-meal” (Lang, 2005) urban design process and the plan’s original vision is in danger (see Figures 13 & 16).

The View from the Other Side

The positive impacts of the Inner Harbor redevelopment for the city’s life, image, and economy have been immense: from its first phase as a recreation ground for Baltimoreans, to its second phase as a tourist destination, and its current phase as a festival place and an exclusive residential destination. “The Inner Harbor Master Plan of 1964 was substantially completed in twenty instead of thirty years as originally projected, and with three times the amount of development as thought possible” (Millspaugh, 2003: 40). By the early 2000s the numbers for the Inner Harbor were impressive: 192 acres (76.8 hectares) of dilapidated and abandoned waterfront property had been redeveloped, real estate had appreciated by 600%, the city was collecting $60 million yearly from taxes, 15,000 direct and 50,000 indirect jobs had been created, and 20 million visitors and 6.5 million tourists were injecting $4 billion per year –a tourism industry previously nonexistent (Millspaugh, 2001, 2003).

The real costs involved in redeveloping the Inner Harbor are impossible to calculate given the numerous components, variables, and actors over such a long period. In 1964, when the plan was traced it projected $230 million in public and private investments, $55 million of which was to acquire, demolish, and prepare land for development (Wrenn, 1983). Peter Hall (1988) noted that the project took $180 million of federal
and $58 million of city funds while only $22 million from the private sector. Brenn and Rigby (1996) estimated that the cost of redeveloping the Inner Harbor’s 94 acres totalled $2.5 billion. According to Martin Millspaugh, CC-IHDC’s executive director for twenty years, 75% of the total investment came from the private sector and that project management cost taxpayers less than 3% of the public funds invested (Millspaugh, 2001).

Baltimore’s urban renaissance strategy and the Inner Harbor, particularly during the “Schaeffer era,” has its critics. Levine (1987) noted that while the industrial base was eroding, the city’s corporate-center redevelopment model and the new economy based on advanced services and tourism led to gentrification, an uneven pattern of growth, and the worsening of spatial dualities. For David Harvey (1991 & 2009), the corporate model worsened Baltimore’s widespread social erosion. He denounced the public-partnership model and the quasi-public corporations as a “shadow” government, noting that, while private investors received heavy subsidies, the quality of social services and education were decreasing significantly, and most of the city remained untouched by the glory of the Inner Harbor.

Planner David Wallace, mastermind of the original Inner Harbor plan, also criticized the lack of investment in poorer neighborhoods, the lagging behind of the public schools, and the few economic opportunities for the neediest (Wallace, 2004).

Martin Millspaugh, long-term president of the CC-IHDC, rebutted this type of criticism by noting that it would be a mistake to believe that the Inner Harbor’s revitalization could, on its own, solve all the city’s problems (Millspaugh, 2003). Through the Inner Harbor renaissance, hospitality, tourism, and the convention industry became vital components of Baltimore’s economy. By the end of the 2000s, the city had reverted much of the downward spiral (Millspaugh, 2003; Harvey, B., 2003). In 2017, Baltimore was ranked by Fortune magazine among the 20 best cities to find a job. In this same year, according to Baltimore Development Corporation reports, the city was involved with almost one hundred urban renewal, neighborhood, and specific plans, and 93 development projects, of which only four were located in the downtown—certainly an indicator that a significant amount of effort was directed to the city as a whole. One of these is a US$1.8 billion project for East Baltimore, one of the city’s most

Figure 16: Recent view of Inner Harbor and surrounding development (photo by permission Shutterstock)

1. Harborview residential complex
2. American Visionary Art Museum complex
3. Federal Hill and historic district
4. Maryland Science Museum
5. Lutheran Church complex
6. Otterbein Homestead area
7. Orioles Park
8. Camden Station
9. Convention Center
10. Hyatt Regency
11. Charles Center area
12. Transamerica Life building
13. Harborplace
14. The Gallery mixed-use complex
15. World Trade center
16. Aquarium (I & II)
17. Power Plant
18. Pier Six Music Pavilion
19. Interrupted state highway
20. Harbor East
distressed neighborhoods, that includes 2,200 new and rehabilitated homes, commercial spaces, a model school and childhood center, a food enterprise center, a science and technology park, and out-of-school, social, and health programs.

Lessons from Baltimore

Baltimore’s efforts through the Charles Center and the Inner Harbor plans discussed in the two parts of this article suggest some lessons. In Charles Center, an office-oriented redevelopment, the plan and its implementation were similar to many other examples in central cities, only of a more contained and, certainly, less destructive approach (Frieden & Sagalyn, 1989). On the other hand, the Inner Harbor Plan, although preceded by Boston’s waterfront revitalization efforts, became an international model and inspired several cases discussed in the literature (Breen & Rigby 1993, 1996; Gordon, 1996; Marshall, 2001; Stevens, 2009). After Baltimore’s Inner Harbor success, "waterfronts became associated with ways to recreate the image of a city, to recapture economic investment, and to attract people back to deserted downtowns" (Marshall, 2001, p. 5).

As noted by Gordon (1996), to a large degree Baltimore’s success with both plans seems to depend on six fundamental factors: construction of a city image, integration with context, reuse of existing structures, public access, small actions, and incremental planning. Although both plans in Baltimore shared these factors, particularly the Inner Harbor, they also prove that sustainable revitalization is a continuous process that depends on planning processes that are flexible to some degree while still pursuing the original vision and goals. The implementation of such projects is far more complex and takes much longer than normal development practices and various political and economic cycles, meeting many unforeseeable problems.

Baltimore’s path to reinvent itself from a city of decay in the 1950’s to one praised for the quality of the sustainable revitalization of its Inner Harbor was a long one. Looking back to the late 1950’s Charles Center Plan and the early 1960’s Inner Harbor Plan, this essay discussed how advanced services, events, tourism, leisure, and shopping represented the most important stimulants of Baltimore’s economic recovery. Rehabilitating investor’s trust in the downtown and the symbiosis between city and water were fundamental in this process, and particularly reconstructing the Inner Harbor’s image as a special place for recreation and, later, a place to live.

As with most successful plans, the fundamental factors in Baltimore were the long-term planning process and political commitment involved; the success of city leaders in attracting investment; the overall quality of the urban and architectural design; and the synergetic mix of land uses and attractions. From Baltimore’s experience, we can draw some lessons for a sustainable revitalization:

- A sustainable plan includes political commitment, timing sensitivity, marketing, management and monitoring processes that are strategic and sensitive to the market in short, medium and long-term. Plan implementation must be orchestrated by the city reflecting a consensus collaboration among stakeholders (governmental agencies of different levels, investors, developers, and community groups) in a transparent, well monitored, and democratic process.

- A quasi-public corporation may be an agile and effective way to manage the implementation process over a specific area but its actions must be transparent, fully integrated to the plan’s vision and city policies and, always responsive to the community interest over the long term.

- Plan and process needs to attend to rebuilding a place’s image and appeal, as well as stakeholders and investors confidence. Sustainability depends on the synergy between a critical mass of land-uses and attractions, and on catalytic developments (such as aquariums, stadiums, and shopping malls), particularly at the early stages. Although catalysts alone cannot guarantee the success of the revitalization as a whole, they have proved to be essential to jumpstart a process and its different phases.

- Sustainable revitalization depends on a careful mix of complementary lands uses in order to generate social, cultural, and economic dynamism. Retail and ground-floor uses, as well as temporary activities and public events, must feed and support active sidewalks and open spaces. The design of large facilities need to assimilate this notion and care for their impacts. Residential uses above ground level are fundamental, and preferably serving a large spectrum of socio-economic groups.

- Concentrating redevelopment priorities in a specific area, such as the waterfront, and using the corporate or recreational-tourism models, should not come at the expense of neighborhoods and local communities. The plan and the implementation process should take measures to avoid displacement and the negative impacts of gentrification, and make affordable housing part of the mix.

- Accessibility is a cornerstone of a sustainable revitalization process. The area needs to be well integrated and a living part of the rest of the city and region. Transit, pedestrian, and alternative mobility systems must be efficiently integrated. In Baltimore, efficient vehicular circulation integrated to the state highway system, several parking structures, subway and light rail, pedestrian promenades, water-taxis,

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5 See Part 1 of this essay in FOCUS 13, 2017.
Figure 17: The sustainability pyramid (based on Godschalk, 2004).

and alternative forms of transport (skates and Segways, for example) are reasonably well integrated and continuous.

• In Baltimore, attention was placed in the city imaging, aesthetics, and view corridors. In recognizing the waterfront as the most important asset, its continuous visual experience was guaranteed through the pedestrian promenade by the water’s edge and by a relative respect for viewsheds from surrounding development. The power of vision was also recognized through urban design and architecture of quality that help create a sense of place and belonging, and respect, to a large degree, local memory.

The two parts of this essay helped to demonstrate how Baltimore’s revitalization process has been successful and sustainable over time, particularly in the Inner Harbor area. Godschalk’s sustainability model represented by a pyramid with livability placed at the apex helps us consider Baltimore’s successes from an interesting perspective (Godschalk, 2004) (Figure 17).

Baltimore was very successful in the Charles Center and the Inner Harbor areas, as discussed in this two-part essay, economically successful, ecologically correct, and very livable—at least for certain groups of the population. Charles Center works well mostly as an attractive downtown business district albeit with little housing. The Inner Harbor is a unique place with an attractive and dynamic mix of uses, most geared towards recreation and leisure but with an increasingly stronger residential component. Despite the unavoidable consequences of economic and political cycles, Baltimore needs to continue investing in the quality of downtown revitalization, with a special focus on the uniqueness and the synergy of its waterfront. However, in the long run a sustainable revitalization will always be dependent on how these processes reflect on the rest of the city and contribute to make Baltimore a livable city for all.

Figure 18: Basic timeline of development in the Inner Harbor showing the major projects and facts discussed in this article.

- 2007 Waterfront Management Authority formed
- 2005 Convention Center expands for 2nd time and adds hotel
- 2004 Modernization and expansion of Science Center
- 2001 Marriott Inner Harbor East
- 1998 Successful repurposing of Powerplant
  Raven’s stadium
  Light rail connect to BW International Airport
- 1995 American Visionary Art Museum
- 1993 Harborview residential complex
- 1992 Orioles at Camden Yard
  Light rail
- 1991 Aquarium opens annex
  Baltimore Development Corporation formed
- 1987 The Gallery mixed-use complex
- 1986 Expansion of Convention Center
  Fells Point waterfront plan
- 1985 Powerplant repurposed for first time
- 1983 Inner Harbor East Plan
  Charles Center subway station
- 1981 National Aquarium
  Hyatt Hotel
  Pier Six Music Pavilion
- 1980 Harborplace festival marketplace pavilions
- 1979 Convention Center
- 1978 Otterbein Homesteading - historic district
- 1977 World Trade Center
- 1976 Maryland’s Science Center
- 1976 Tall ships sail into the Inner Harbor for U.S. Bicentennial
- 1975 Transamerica Life building
  Lutheran Church complex and apartments
- 1971 Inner Harbor West Plan
- 1970 First City Fair at the waterfront
- 1969 Baltimore Community College
- 1965 Charles Center-Inner Harbor Development Corp.
- 1964 Muniicipal bonds for implementation of Inner Harbor Plan announced
- 1962 First new office building in Charles Center
- 1957 Charles Center Plan
- 1955 Clearing of part of Inner Harbor and new bulkheads
Note
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References
The City of Rio de Janeiro, Brazil, a city of 6.5 million inhabitants, had several years to plan, invest, and prepare for the 2016 Olympic and Paralympic Games. A significant part of these efforts were in mobility infrastructure and operations, as they would become a fundamental legacy for the city. Silva, Maiolino and Torres, who were involved in these efforts in various capacities, discuss this experience and some of the challenges that go beyond investments in infrastructure such as behavior and operational changes.

The City of Rio de Janeiro experienced a 7-year period, from 2009 to 2016, of generous investments to the high capacity public transit system. The driving catalyst for these investments were the 2016 Olympic and Paralympic Games. These investments translated into new transit infrastructure. High capacity transit corridors, accessible stations, and transit hubs were built with newly available financial and land resources, ultimately becoming the Games' greatest legacy.

The new infrastructure not only provided an efficient means of travel for spectators during the Games, but more importantly, increased the availability of reliable public transit services and expanded access throughout the region for the resident population. In addition to the infrastructure upgrades, operational measures were also upgraded for the Games. Perhaps the most important of such measures was the operational integration of all public transit authorities (at state and municipal levels) and private operators focused on resilience, what still functions to this day. Fare integration across different modes of transportation in a single multi-trip travel card, was another measure which, however, was only implemented during the Olympic and Paralympic Games. The lack of a permanent solution for fare and funding affects the performance of the whole network and is a challenge yet to be overcome.

Infrastructure

In 2009, before the Games, Rio’s network consisted of five metropolitan rail lines extending over 270km with 101 stations (89 stations within the city limits), two Metro lines reaching 37 km and 33 stations, and three ferry lines. The infrastructure expansion of the mass transit introduced two new modes of transportation, 122km of BRT (Bus Rapid Transit) and 8km of LRT (Light Rail Transit), as well as adding 16 km of metro service (Maiolino, 2015). The implementation of a fully dynamic BRT System provided several multimodal transit hubs granting maximum flexibility to users and expanding access throughout the region (Figures 1 a & b).

To understand the impact of the transportation network improvement, the Institute for Transportation and Development Policy (ITDP) launched the People Near Transit Index (PNT), that measures the number of residents who live within a 1 km radius of a transit station (Marks, 2015). Utilizing the 2010 heavy rail – metro and train – transportation network as a base, the PNT determined that approximately 36% of the city population (2.2 million) were within a short walking distance of a transit station. The projected PNT in 2018 will reach 52% of the population, translating to roughly 3.5 million residents (ITDP, 2015). In addition to the 2016 transportation network mentioned above, by 2018 a fourth BRT corridor will be ready thus expanding the network’s reach (Figures 2 a & b).

The new network not only provided the expansion of public transportation corridors but also an increase of transit hubs. Consequently, this expansion required a government alignment on design and resources to provide a fully accessible

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1 It is important to note that the bus fleet and routes including the entire BRT System in Rio are run by dozens of private operators organized into four consortiums that operate in four different geographical regions. The metro, suburban rail, LRT, and ferries are also operated by different private companies. Buses, BRT and LRT are regulated by the city while metro, suburban rail and ferries are regulated by the state government.
integration between different modes of transportation.

Three primary types of solutions for multi-modal transit hubs were considered. The most common is one based on direct proximity. This occurred when the new station was located very close to the existing one, separated only by an at grade pedestrian crossing. Examples of this solution type include the LRT-Metro downtown connection (e.g., Cinelandia and Carioca stations), the LRT- Santos Dumont Airport connection, the LRT- Novo Rio Intercity Bus Terminal connection, and the BRT-Galeao Airport connection (Figure 3).

The second type of design solution considered was one based on a multi-level integration, primarily accessed by ramps, stairs and elevators between the existing mode, usually the heavy rail infrastructure, to the new BRT system. Prominent examples of this interchange are Magalhães Bastos, Vila Militar, Vicente de Carvalho and Madureira (Figure 4). With this solution, the users must access two distinct paid areas, which are connected by an open public area. The design of the stations underwent discussions among different operators and public authorities and presented only a medium level of complexity. The existing stations had to undergo small layout changes to accommodate the multi-modal integration, which posed minimal challenges. The main constraint, however, with this design solution was coordinating financial resources and land acquisition required to make these changes feasible.

The third solution was direct integration, which is both effectively functional and perceived by users as the smoothest and easiest transition between modes. Two clear examples are the Alvorada Terminal that connects two different BRT corridors and the Jardim Oceanico Station that integrates the new Metro extension with the new BRT corridor (Figure 5).
The direct integration between the two BRT corridors did not pose a problem institutionally nor complexities with fare collection and management. Here, the only true challenges were design and infrastructure because there was only one operator and one public authority. In the Alvorada Terminal, the users transition between corridors by walking a few meters to access a new staging area, where there are no additional turnstiles or fare collection (Figures 7 a & b). It is important to highlight that BRT system in Rio is highly interchangeable. While distinct corridors exist, the network provides integrations both at transit stations as well as through different BRT routes that smoothly transition from one corridor to the next. This flexibility in the system has garnered much approval since new routes have eliminated the need to physically transfer stations.

Unlike the Alvorada Terminal, the Jardim Oceânico Station is a multi-modal transit hub. This BRT-Metro connection was institutionally much more difficult to reach a design solution. Both
stations were completely new, ran by two different transit agencies and governed by two different levels of government (city and state). In addition to these complexities, the stations were integrated into an active, high-income neighborhood, also adding to the delay in reaching a solution. The final infrastructure design solution was developed considering various aspects like: future expansion of the metro line, avoiding a viaduct, a direct BRT-Metro connection, and a weaker connection to regular bus lines. To accommodate this solution, an operational scheme was necessary. An integration zone inside Metro’s paid area was provided to allow a smoother transition between the BRT station and the Metro station (Figures 8 a & b).

When land was available, transit hubs where a design solution included the integration of regular city buses were provided at the Recreio, Alvorada, and Olympic BRT Terminals. At these hubs, the users alight in a covered area equipped with bathrooms and other pedestrian facilities and then pass through a set of turnstiles to reach the BRT system. Still, in the other hubs, the regular city bus stops are located adjacent to the new hubs and users must traverse pedestrian bridges or crossings to reach the high capacity transit stations connecting to either the BRT or heavy rail.

Accessibility was integral among all design solutions. While types 2 and 3 posed a certain level of complexity between the transit agencies either with retrofitting stations or ensuring new stations were constructed to code, it was imperative that measures were taken to provide accessible transit stations for all users. Brazilian law requires that all new construction meet accessibility guidelines. Federal mandates together with the Games requirement to ensure accessible transit for all created the impetus that transit agencies needed to work together to design fully integrated and accessible transit stations. The main challenge when designing for accessibility was not at the transit station, per se, as all new transportation infrastructure provided level boarding, accessible turnstiles, and tactile paving, but rather with the multi-modal integration. To assure a fully accessible integration, sufficient elevators, escalators, and accessible ramps were provided at each transfer. Further still, each transit operator provides staff to help individuals requiring assistance navigating the transit station.

Despite the high level of complexity, limited financial and land resources, varying transit authorities, different transit service timetables, and a tight implementation schedule, some priorities were defined to reach good results. In the case of Rio de Janeiro, the priority was to provide the easiest access for users between transit modes.

**Coordinated operation, communication and contingencies - CIMU**

The new transportation infrastructure added yet another layer of complexity for Games Time and post Games Time transit operations, communications and contingencies. Since 2011, the city managed transit and traffic operations via the Rio Operations Center. This operational command center included the participation of the regular bus operator and the two rail operators as well as other necessary city agencies. While the command center had been effective in its operation, little had been done to coordinate integrated communications and contingencies between the transit operators and the city. Just prior to Games Time, two new transit operators, namely for the BRT and LRT systems, were introduced in the command center.
The addition of these two new transit modes combined with the complexity of operating an already saturated public transit network as well as managing the Games Time demand required effective institutional integration to provide efficient service. In addition to the complexities that arise when converging four different transit operators, timetable integration was also one of the biggest challenges during Games Time. The BRT and rail-based systems have different operating hours. While the BRT operates 24/7, the metro and train do not, complicating after-hours integration within the complete transit network. To mitigate potential crises during Games Time, a coordination unit (the CIMU, Integrated Center of Urban Mobility) was created for the exchange of information between transit operators and coordination of contingencies (Detoie & Martins, 2016).

Communications between the city and the different transit operators were essential for efficient public transit service for spectators and residents alike. Just as important were communications with the users of the public transit. The city utilized this mega event to establish partnerships with companies running digital apps for trip planning in order to maximize communication for the daily users of public transit. These companies were invited to take part in the CIMU to advertise the most up-to-date digital tools such as multimodal trip planning and “push messages” to spectators and daily users, and voice over/talk back for individuals with visual impairments. During the event, approximately 3.5 million alerts with geolocations were sent to transit riders using CIMU unit. These partnerships went beyond trip planning and became a real-time communication tool for CIMU for public transit users during and after the event (Silva et al., 2017). This unit has since been adapted to function in the city’s post Games daily routine, mainly for big events such as music festivals, New Year’s Eve, Carnival, etc.

Fare integration

The main challenge was and still is fare integration. During Games Time, the City and State provided a solution of a daily, multi-trip Games Transit card, accepted by all modes, except ferry and intercity buses, for approx. $8.00 USD. The original agreement, as per Bid documents, to offer free public transit services to spectators (IOC, 2008), was cancelled. The agreement of this cancellation was made between the local RIO2016 Organizing Committee and the City.

It is important to highlight that the public transportation communications plan for the Games only included the high capacity network, namely the BRT system, train and metro. Access to the four Olympic zones were provided within this high capacity mass transit network, though depending on the origin of the spectators a transfer between modes was necessary. The Games Transit Card became highly useful as it not only provided swift transfers but also granted access to Games Time services restricted to spectators and workforce. Due to the late inauguration of some transportation infrastructures, the necessary tests to run at maximum load were not completed. As a result, Metro Line 4, BRT Transolimpica and the final section of BRT Transoeste had services dedicated exclusively for the Games demand.

The cost and revenue of Games Transit Card solution were shared between the public transit operators. This solution also helped with the issue of free flow at stations that experienced heavier crowds. The shared revenue allowed transit operators to provide free flow at the departure of venues and the Olympic Park without affecting their individual revenues.

The operational actions associated with introducing the Games Transit Card included new points of sales with bilingual assistants, a technological solution to provide access to the turnstiles of the different transit modes, and a communications plan. Approximately 800,000 transit cards were sold during Games Time. Fare integration between the modes was deemed successful as the train, metro, and BRT systems reached peak levels of passengers several times throughout the Games period (Prefetirua do Rio, 2016).

While the Games Transit Card solution was economical for Games spectators, fare pricing and integration remained a financial burden for the daily user. It is important to highlight that ticket fares are in accordance with the related mode. There are independent agreements between each system and level of government, like Bus-BRT, Bus-LRT, BRT-Train, BRT-Metro and Train-Metro. The Bus-BRT fare integration was and continues to be cheaper than the bus-rail integration, which affected the performance of the whole network, post Games Time. Unfortunately, discussions about financing infrastructure and operation are not on the political agenda yet. Still, it would be easier if all modes of public transportation were under the same governing authority.

Conclusion

Providing adequate public transportation goes beyond infrastructure delivery. Construction and expansion of the high capacity transit system and multiple accessible transit hubs are a starting point. Once the infrastructure is in place, it is important to have integrated operations and communicate to users using the most up to date tools. An integrated and affordable fare solution for the whole network is also important to provide alternatives for users. The first two points were completed successfully for the RIO2016 Games and Legacy.

Infrastructure and operational solutions are definitive, while others are still at distinct stages of improvement. Coordinated
operations and communications, which started before the mega event, is still in progress. On the other hand, fare integration was temporary and only provided during Games Time. This remains the biggest challenge for the city and its metropolitan region.

Even with fare constraints, the new public transportation network changed users’ behavior and also the management of public authorities and transit operators. An urgent discussion for suitable fare governance that allows users to travel based on their needs, travel time, and convenience and not on the money spent, is necessary. It is time for politicians to embrace this agenda and for the society to demand it.

References


Home Sharing: An Important Housing Option for US Cities

Anne Wyatt
MCRP (Cal Poly, 2005); housing policy planning consultant; program coordinator for HomeShareSLO.

The housing crisis in the US is fundamentally an affordability crisis, particularly in larger cities and in expensive real estate markets. Planner Anne Wyatt has been a strong advocate for affordable housing in San Luis Obispo for many years. In this article, she discusses the importance of home sharing in helping to tackle the affordability crisis, its advantages, the problems that may rise, and the need to include it as a formal option in the General Plan’s Housing Element and in affordable housing action plans.

Home sharing is a living arrangement in which two or more unrelated people share a house or apartment. A homeshare program provides a service that helps to match a person who has an extra room or separate unit available (a provider) with a seeker who is looking for a place to live. Home sharing is an increasingly important component in the quest to use existing housing stock more efficiently.

As program coordinator for the nascent non-profit housing agency HomeShareSLO—which facilitates matches between San Luis Obispo County residents with an extra room and residents seeking housing—I have grown accustomed to Doubters smiling ambiguously and giving me those looks while thinking: Really, naïve…or dangerous, sharing a home with a stranger. Doubters include policy makers, planners and the substantial percentage of Americans who have never shared housing with non-family members before—and those who have had negative experiences sharing housing or remain fixated on 1950s household composition.

According to Annemarie Pluhar, author and homesharing consultant, “by far, the greatest obstacle to home sharing is fear” (Pluhar, 2011). Home sharing has risks. Many risks are more perceived than real, and can be minimized. Fear and lack of skills and information should not leave home sharing neglected as an option.

Why as planners should we call Doubters out and try to win them over? Simply, we need every available option on the table to house Americans. We cannot afford to ignore any tools in the box. An increasing number of Americans are locked out of housing now or are on the edge --a check away from homelessness, and challenges will increase with these demographic and economic trends:

• A continuing increase in single-person and nonfamily households: due to longer life spans, later marriages, smaller family sizes, more childless women and more single people, more Americans live alone.

• The senior population is increasing, particularly single senior women: senior single women make up almost 7% of American households, with single senior men making up 3% (Census 2010). According to a recent study by Harvard University’s Joint Center for Housing Studies

Home sharing can be defined as common residence in a dwelling unit by unrelated persons (not family members). Generally, home sharers use common interior spaces (kitchen, bath, living room), but they have their own bedrooms. In some instances, home sharers may have separate interior spaces, with only shared exterior spaces or peripheral space (such as a garden area, laundry room, access ways, and parking). Often the terms “roommate,” “housemate,” and “home sharer” are used interchangeably. One sharer or both sharers could own the home, or sharers could rent a home together, or a sharer could pay rent to the owner.

Note: Anne Wyatt is a frequent contributor to the Planning magazine. See her writing on housing in FOCUS 11, 2014. She can be reached at: a.reneeywatt@gmail.com
(2016), the number of people age 50 and over is expected to increase 70% from 2000 numbers in the next 15 years, and by 2030 one of five Americans will be older than 65.

- The disconnect between house size and household composition: although the average home size has increased over the last several decades, the average number of persons in households has decreased.
- The increasing number of low-income renters struggling to find and pay for affordable housing: according to the U.S. Department of Housing and Urban Development, the nation’s 10 million low-income renters are facing a shortfall of 5.1 million housing units.
- The supply of affordable units is shrinking: existing affordable housing units are removed from the affordable housing stock more quickly – due to demolition and remodel – than new units are added.

Construction of new affordable housing units can help. Given the high cost of construction, however, building our way out of the affordable housing shortage appears unlikely. Practical solutions include being smarter about working with existing infrastructure and housing units.

**Shared housing on and off radar screens**

Aside from the fact that home sharing is not new to students and Millennials, eight million households are already nonfamily home sharers (2010 Census). Although sharers may mostly be a younger set, the American Association of Retired Persons (AARP) also recognizes benefits of home sharing. Nancy LeaMond, AARP’s Executive Vice President of Social Impact, writes: “AARP recently conducted a survey to find out where people want to live when they retire. You may think a warm-weather climate topped the list, but the No. 1 place was right where they are now. More than two-third of respondents — 69 percent — said they want to stay in their homes and the communities where they currently live…. To help defray these costs, a growing number of older Americans are seeking out alternative living arrangements”, such as homeshares (LeaMond, 2016).

Sharers, young and old, enjoy multiple benefits, aligned with the more general Sharing Economy:

- **Economic** - Extra income helps people cover housing costs. Small, shared, less expensive units allow those of modest means, often students and low-wage service workers, to live in the communities where they would like to live. Municipalities save money by using housing infrastructure more efficiently.
- **Social** - Shared housing can be a means to share lives and connect with others. It can provide security as well as companionship, a sense of helping others, and provide a mechanism to help seniors age in place.
- **Sustainability** - Infrastructure related to each house has a fixed environmental cost, regardless of how many people live there. When that sunk cost, as well as maintenance costs, are spread among more residents, the environmental footprint of each house decreases. Fewer housing units would be needed to house a growing population.
- **Flexibility** – Home sharing is often undertaken on a month-to-month basis. This benefits those who favor flexibility and avoid commitment to long-term arrangements, often required by conventional lease terms.

According to former HUD Secretary Henry Cisneros, it is a “community-focused solution that fosters social connectedness and creates mutually beneficially relationships… particularly well-suited for supporting the elderly, veterans, single mothers, individuals in transition, and other vulnerable groups” (Cisneros, 2012). In addition to vulnerable populations, home sharing can serve those who seek to minimize housing-related environmental impacts, enjoy simple living and flexibility, and want to boost social connections. Also, both house-rich and cash-poor home owners benefit.

**Why homeshare programs?**

Recognizing multiple benefits of shared housing, several communities, including San Luis Obispo County, already have home-sharing programs. The National Shared Housing Resource Center lists over 60 homeshare programs in 22 states, including several in California. HIP Housing in San Mateo, California, one of the largest homeshare programs in the US according to program director Laura Fanucchi, matches as many as 350 individuals and oversees 750 ongoing matches a year. In addition to serving clients, HIP offers technical assistance to newer housing programs, such as HomeShareSLO.

Many reading this and looking to share a house know they can log onto Craigslist, search an area of interest, click “housing” and then “rooms and shares” to post or find a place. A simple on-line search in San Luis Obispo’s Craiglist on June 29, 2017 revealed 36 room listing posted on the same day and 8 listings for “rooms wanted.” While there are many mainstream do-it-yourself options, matching services through non-profits most often provide needed assistance to elderly and special needs populations, who may be less able to negotiate transactions because of technological limitations or inexperience. The majority of senior women that non-profit HomeShareSLO

2 See: www.nationalsharedhousing.org
staff talk to in San Luis Obispo County have not shared their home with a non-family member before and do not use the internet. This suggests that senior women, the population with the most to benefit from home sharing regarding needs for security and income, also require the most assistance to set up and maintain shares.

HIP San Mateo’s director Laura Fanucchi sums up the program’s value: “It adds a level of security to transactions and a resource for backup.” Programs assist with a full range of services promoting success: articulating needs, qualifying suitable homes, matching and screening, providing rental agreement and house rules assistance, dispute resolution and mediation services. At HomeShareSLO, as with other programs, we take the welfare of vulnerable senior clients seriously, and a high level of care goes into safety and screening protections and monitoring during the duration of the match.

The successful sharing of home spaces can and often does happen without advance work and planning. Yet, chances for success increase with advance planning and communication, ongoing management, and occasional intervention. Lease agreements should spell out financial arrangements including rents, deposits, and bill sharing. House rules should detail cleaning tasks, pet rules, acceptable noise levels, standards for sharing personal items and food, guest privileges, smoking, and parking allocations. All this can be challenging—even for the most capable.

Beyond the complexities of contractual agreement, homeshare organizations help discern what participants seek upfront. This dramatically increases the potential for clients to have their needs met and share in a rewarding experience. “Why are you interested in home sharing?” is among our first questions to clients. Answers run the gamut from companionship and financial needs (the most common) to interests in living simply, living sustainably, flexibility, and helping others. Careful consideration of stated needs and interests, without judgment, increases potential success of the housing match. While lavish common living areas can bring benefit for those seeking entertainment and social interaction, others with different goals—reducing their environmental impact, for example—may find that less space may best meet their own needs. Some may feel safe only with private living spaces or in small rooms. Given these realities, shares of multiple types should be considered and provided for, outside of the one-size-fits-all bin.

Creating comfortable, safe, efficient spaces for home sharing takes skill, yet can be quite simple in many cases. As in any community, well-designed spaces provide for basic needs and allow people to come together when they want, while providing adequate privacy when needed. Where the existing dwelling layout provides a couple of entry areas and a few bedrooms with attached bathrooms, separate living areas and privacy may be created inexpensively by installing a lock on a door, a door across a hallway, or visual dividers demarcating spaces (Figure 2). Simple, non-structural screening with textiles or, in exterior areas, vines, trees and shrubbery, can both beautify and create inviting, pleasant private areas in even the smallest spaces. In an era with tiny homes popping up everywhere, homeshare for persons wanting privacy may be described as creating tiny homes within existing homes.
Beyond the physical layout, notions such as hospitality play an important and often overlooked role in homeshares. Particularly in the case of the older women I survey, an overly accommodating nature can lead to an all or nothing mentality. There is an illusion that if the home is open to sharing, everything and the entire home must be shared. This belief likely stems from a lifelong ideal, or indoctrinated homemaker training, to provide all that guests require for a comfortable stay in the home. Counterintuitively, this highly conscientious sense of accommodation means possible participants rule out home sharing. Being highly accommodating for a “guest” who stays for months, possibly years, would be challenging, at best, and more likely, impossible.

**Being homeshare advocates involves training the public and potential sharers alike**

Home sharing is not for everyone; often, Doubters seem to believe that I am in the room suggesting everyone should homeshare. Nothing could be more wrong. Home sharing is not for most Americans. Part of our job as program staff, in fact, is counselling the potential clients that home sharing may not be a good option for them; for instance, if they are exceedingly worried about the protection of personal possessions or if they are highly sensitive to household noises.

However, just because home sharing may make sense for only a small segment of the population does not make it irrelevant. In San Luis Obispo County, for example, if only ten percent of the existing 11,000 single person senior households would share an extra room, a thousand housing units would be created with no costs and no new construction impacts, while generating $7,000-$12,000 yearly income and companionship to the senior home providers, as they age in place.

Doubters out there, one and all, take note of the economics—fuzzy warmth, companionship and other notions aside—the income from sharing homes can effectively double the incomes of many American seniors and help them age in place, as statistics suggest the vast majority wish to. The average studio or one bedroom apartment in San Luis Obispo costs as much or more than the average social security income for a senior woman ($1,095/month, Social Security Administration). Without options, this means an increasing number of senior women will be locked out of even modest homes.

To further increase the pool of potential home sharers and the range of benefits, HomeShareSLO program staff and volunteers help potential clients understand that sharing is not an “all or nothing” proposition. It is in the best interests of all involved not to share everything, and to clearly articulate boundaries on both physical space and personal interactions. We provide tools to help articulate these boundaries, and we
assist in this process. For example, our program utilizes scaled questions to find participants’ interest in interaction and in sharing spaces, meals, and lives, balanced against needs for privacy. For instance, one of the questions, “Do you consider shared housing to be an opportunity to learn new things?”, reveals much about what clients expect and what they are looking for.

Additionally, helping to explain realities that are different from those that people know can go a long way toward creating housing out of empty rooms. After concerns about security and privacy, one of the most common obstacles to home sharing is unwillingness to share the kitchen.

The look of surprise, and then the sheepish acknowledging nods from audiences of hundreds of persons at presentations over several years, clearly indicate that, after the initial shock, many realize that those who do not cook (estimated at as many as one in seven Americans) do not need a full kitchen. They may be well served by a kitchenette with a microwave and a mini-fridge (both of which can be purchased for under $200 and fit into small rooms and even a closet) (Figure 3). In many situations, comfortable, safe, affordable shared housing, which maintains privacy for parties—even possibly separate cooking areas—may be created for less than one month’s rent.

In this first phase of operations at HomeShareSLO, we find most of our clients, primarily seniors, seek companionship as a first priority, with financial concerns secondary. Other reasons for home sharing are sprinkled in: “I feel guilty for having this empty bedroom and not doing anything to help people who need a room,” one client told us. While this home provider is not in need of income or companionship, he may certainly benefit from both, sharing his home with a carefully vetted person. Indeed, the high level of personal interaction and sharing of lives, bringing improved security and quality of life to our initial program participants, is heart-warming.

Scaling up: Why not more of it?

Although homeshare organizations have operated successfully in the U.S. since the 1970s, helping to match and safely house tens of thousands of clients, there are still less than one hundred of them. Several reasons explain this:

- Funding for prevention: Preventive assistance programs such as homeshares, with high labor costs, are challenged to prove and measure value regarding the crises that are avoided.
- Marketing and the hip factor: Home sharing doesn’t sound cool; other words are used, such as co-living, yet still lack traction outside limited markets.
- Definition and Work-trades: Questions about what home sharing remain, including who the programs serve, and if it means having a live-in housekeeper or caregiver. While some programs assist with setting up work-trade agreements where the home seeker assists the home provider as part of the rent, HomeShareSLO only arranges market or below market shares. Work trades are difficult to organize and to sustain, and often doom the match to a short-term duration.
- Privacy and Provider Protections: Currently, most homeshare organizations build connections between the sharers. To expand the pool of willing home providers, privacy will need to be accommodated at a higher level, as many of potential providers may not be interested in companionship. Screening and other protections must be put in place to entice providers to take the risk of asking a stranger into their homes.
- Training: Given that over half of the seniors interested in our program have not shared housing with non-family members, it becomes unrealistic to think they know how to do it. More extensive research, outreach, and training programs will help to explain the benefits of sharing and build the skills to successfully do so.

At HomeShareSLO, we continue to work the angles on these challenges, aiming to serve our San Luis Obispo County clients and to scale up home sharing to expand benefits nationwide. In addition to seeking funding from local partner non-profits, cities, the county, and private and business donors, we partner with other homeshare organizations and senior-serving state and national organizations and foundations, such as HUD, Archstone and the AARP Foundation. We hope to create a model co-living, training, and office complex in San Luis Obispo in the near future to join existing co-living models, such as The Establishment and residential hotels, including the Wineman and Anderson in San Luis Obispo.

Multiple organizations have proven that facilitated homeshare matching provides safe, secure housing for seniors, as well as extra income, companionship and ability to age in place. Homeshare matching services will be scalable—thus able to assist more seniors with basic needs—with an innovative, integrated model acknowledging: 1) Privacy needs, 2) Necessity for skills training, and 3) Provider focused services and incentives promising high level of security and support.

Action for planners

As these angles are worked out at HomeShareSLO and other homeshare organizations, we look forward to increased support from our community of forward-thinking planners.
Ways you can help are:

- **Work with us/join as a research assistant or intern:** tools and strategies for streamlining operations; quantification of financial benefits of home sharing; marketing and outreach strategies; capital funding and planning for a HomeShareSLO Hub; research on kitchen use and cooking.

- **Assist home owners to become successful home sharers:** by providing information and technical assistance on local homeshare programs and conversion of existing residences to efficient shared residences with explanation of zoning, building, and permitting codes.

- **Provide upfront cost-assistance programs:** when home providers lack financial resources to make home improvements to facilitate shares, upfront funding can help.

- **Flip common thinking and make the case for homeshares:** Planners can take the lead in reframing the public perspective: bring Doubters around to think “choice” and “smart”; consider the costs of too few people in a house (community infrastructure costs, lack of affordable housing, health and pollution costs of long commutes to work, etc.).

- **Include the definition of homeshare in housing elements and affordable housing action plans:** expand the accepted definition of homeshare to include shares with common space and shares with little or no inside common area. For example: “A homeshare is a common residence in a dwelling unit by unrelated persons (not family members). Homeshares include situations with common living areas in a single unit and situations with separate living areas within a single housing unit.” An operable door between living areas may make the single unit a homeshare. A permanent wall between living areas, on the other hand, may qualify the set-up as two units.

- **Demand and start homeshare programs in areas where there are none:** Provide training and informational programs to help potential home sharers manage expectations, clarify goals, and overcome fears; provide matching assistance services, security screenings, deposit pools, mediation and dispute resolution services; provide lease and house rules forms; provide guidelines on codes relevant to shares; and provide follow-up monitoring to communicate, promote, and replicate success.

forward-looking planners and communities should recognize and leverage the rewards of home sharing, and promote it. Home sharing offers the benefits of affordable, sustainable, diverse housing, aligned with our new sharing economy. It could get millions of renters into affordable, decent, already existing homes while assisting a growing number of older Americans to age in place.

**References**


Harvard Joint Center for Housing Studies (2014). Housing America’s Older Adults: Meeting the needs of an aging population. Retrieved from http://www.jchs.harvard.edu/research/housing_americas_older_adults


**On-line resources**

AARP statistics related to senior isolation: http://connect2affect.org/

National Shared Housing Center: http://nationalsharedhousing.org/

HomeShareSLO: www.HomeShareSLO.org

HIP Housing: www.hiphousing.org

HUD, on home sharing and case studies: www.huduser.gov/portal/casestudies/study-09282016-1.html
Windows are a fundamental element for both architecture and urban design. Ivor Samuels discusses the impact of daylight on housing practice, particularly in the United Kingdom. He claims that while the focus of research and regulations seem to be on sustainability and energy conservation, cultural context, privacy, and surveillance are equally important in planning and urban design. He calls for more interdisciplinary work in the study of the relationships between daylight, architecture and urban form.

In June this year, a symposium was held in the department of architecture at the Royal Institute of Technology (KTH), Stockholm, to mark the start of a project Perceptions, daylight and urban planning. This project is a continuation of Bengt Sundborg’s work which has resulted in a book published last year. Given the extremes of daylight exposure experienced in northern latitudes, the focus of the work is the way daylight penetration can be improved in urban areas to save energy by deformations of the urban street grid, modifying the building section, and creating openings in continuous facades.

In Figure 1, Sundborg (2016) shows how a straight grid street can be cranked in plan, and the sections and profiles of its defining buildings modified to improve the daylight penetration. The focus of the symposium was on work carried out by researchers and practitioners on a range of specialised topics relating to daylight; from the effect on the perception of colours to the use of smartphone applications for evaluating daylight.

I am by no means specialised in the topic, but the invitation proved a stimulating opportunity to consider the impact of daylight on housing practice in different contexts. This essay is primarily concerned with the UK although reference is made to other European contexts.

It is noteworthy that the symposium was concerned with ordinary buildings and, in particular, housing which of course makes up by far the greatest part of our urban fabric. While it may seem self-evident that housing should be the main focus of discussion on daylight it is surprising how much energy is put into the problems of daylighting special buildings like offices, which are often set in landscaped spaces away from any neighbours and certainly not in urban streets. The cover of Tips for Daylighting with Windows, published by the US Department of Energy and the Lawrence Berkeley National Laboratory, revealingly demonstrates this point (O’Connor et al. 1997).

Since daylight enters dwellings by the windows, their configuration to achieve the optimum conditions at different times of the year and different latitudes will differ by location. However, there is a range of other factors that impact on window design in addition to their efficiency in transmitting daylight. These include local regulatory systems and energy saving and, less tangibly, attitudes of different cultures towards privacy and overlooking which are significant factors in window design.

Regulation

In the context of deregulation which obtains in the UK, questions of room layout and size, directly connect to the design of windows through the system of building regulations. Britain has seen a bonfire of the regulations over the last decade by neo liberal governments which have decimated the planning system as, in their opinion, is the greatest obstacle to building more houses. However, some regulations are still relevant. In particular, the one which states that “glazing to all habitable rooms should be not less than 20 % of internal floor area of the room” (Kent Design Guide 2017, p. 5.5). This might seem generous, but we have to consider that the UK not only has the smallest average size of rooms among fifteen European countries (Evans and Hartwich, 2005). This enables the size of windows to be considerably reduced. Figure 2 shows the windows of a new three-storey town house built for sale in the last eight years in Oxford, where the small windows correspond to the small size of the rooms.
they illuminate. Even if these windows meet the building regulations, their small size obliges occupants to switch on the electric lights as early as 5 pm on a June afternoon.

These small windows have been encouraged by a concern to achieve the qualities of vernacular housing promoted, among other things, by the Prince of Wales and the development at Poundbury (Samuels, 2013). This fashion has been enthusiastically embraced by developers because of the suspicion that it is much cheaper for them to use small windows than larger ones which achieve the same thermal performance of the surrounding solid walls. Thus developments have been built which, because of their small windows, resemble prisons rather than homes (Figure 3).

Energy Saving

The Perceptions, daylight and urban planning Swedish project is driven primarily by a desire reduce electricity consumption by optimising on daylight penetration. However, there are different climatic locations where energy is conserved by reducing daylight and, particularly, sunlight penetration, which may indicate smaller windows. In all latitudes, the performance of windows can be enhanced by their design, and this generally involves higher costs as has been noted above. Another climate controlling function of windows is that of allowing air circulation which may contradict measures to ensure heat retention by reducing the loss of heated internal air, and again this depends on their detailed design.

Privacy

Privacy is another important factor in determining the characteristics of windows. British regulations suggest a distance of 21 metres (app. 69 feet) between new and existing homes to ensure the privacy in the existing buildings. However, privacy is not only a function of window design, but it also depends...
on the nature of the space immediately outside the window. In the new apartments illustrated in Figure 4, the ground floor windows adjacent to the public footpath are always shrouded in blinds. Any assessment of window efficiency must, of course, take this into account.

A recent demonstration of how new development can breach expectations of reasonable privacy in an existing building comes from the South Bank of the Thames in London. The residents of a block of apartments for the super rich (which now sell for around 20 million pounds sterling each) are suing the Tate Modern Gallery in the law courts. This is because Tate Modern has erected a tower block adjacent to the apartments which have a public viewing platform at a high level which gives spectacular views across the capital but also complete surveillance of the glazed living accommodation in the apartments next door (Figure 5).

These are British examples and attitudes towards privacy vary across cultures. In Muslim countries under the hot climate of the Middle East, culture and climate combine to render small openings most desirable. But even in European countries with similar temperate climates, cultural norms can foster very different attitudes. In contrast to the British, the Dutch invite passers by to examine their home interiors (Figure 6). To quote a popular, non-technical web site:

"Why don’t people in Amsterdam use blinds or curtains in their houses? Do they feel free to do whatever they want even if they can be seen by everybody? When you walk around the city, especially at night, it’s shocking to see so many street level houses with big windows fully illuminated which doesn’t (sic) have any kind of privacy. This would be unthinkable in most countries. Don’t Dutch people feel uneasy with that level of openness?!" ¹

**Surveillance**

Windows not only allow daylight to penetrate into houses but also allow its dwellers to communicate beyond the dwelling. Together with doors, they are the link between the private realm of the home and the semi private realm of the garden and the public realm of the street. Under the heading of privacy, the needs of people inside the house have been discussed. However, there are also the needs of those who pass by the house. The extent to which the public realm is overlooked from neighbouring dwellings increases its safety has been widely recognised in England, including by a police led initiative under the label of Secured by Design. Among a range of other recommendations,
their guidance for new homes states that "it is important to avoid the creation of windowless elevations and blank walls adjacent to public spaces" (Secured by Design, 2014, p. 20).

As noted above there may be a conflict between privacy and the potential for surveillance. In the traditional bourgeois urban housing of the 19th and early 20th century, this was overcome by constructing basements with the main dwelling floor raised above street level. This solution offered surveillance of the street while ensuring an adequate degree of privacy (Figure 7).

Different cultures and construction methods may impact the traditions of windows differently. The US example in Figure 8 shows that the timber frame construction allows for larger windows. Also, the house in this case is raised about the level of the sidewalk for privacy; in the UK, raised ground floor arrangements are now hard to find due to the regulations for universal accessibility.

Conclusion

The importance of daylight for homebuyers is confirmed by the results of a recent study including 25 consumer surveys, 900 online interviews, and six focus groups who "identified high ceilings and good daylight as the most sought after qualities for interior spaces" (Samuels, 2015, p. 2). That most familiar of building elements—the window might seem a simple target for the quantitative assessment of its performance. These can be very sophisticated, but in the field of housing, an evaluation of a window's daylight functioning cannot be based solely on quantitative measurements. It must take into account the different roles and functions the window performs and, in order effectively to carry out this work, boundaries must be crossed. These include those between physics, with respect to the behaviour of light, sociology and anthropology, for the cultural mores of different contexts, law for the legal powers and impact of regulatory systems and economics for an understanding of construction costs and the housing market.

This all might seem obvious but in today's academic context where, under the pressure of research reviews that tend to favour work which is ever more specialised, it is increasingly difficult to achieve cross boundary work. The study of daylight and urban form is a clear case where this type of interaction is necessary.
References


Between the One and the Other

Aruane Garzedin
Architect-urbanist and plastic artist; PhD in Fine Arts; Associate Professor, School of Architecture and Urbanism, Federal University of Bahia, Salvador, Brazil.

The contemporary city is a polarized environment with increasingly strong divides between the public and the private realms. Public space has lost quality and does not stimulate new social practices; there is little surprise and diversity in the landscape. Aruane Garzedin has been using art interventions to provoke new urban perceptions and public engagement, encouraging a different city poetic.

"Once the barbarians who attacked civilization came from outside the walls. Today they spring from our own laps, raised in our own homes. The barbarian is that part of us to whom the city does not speak, that soul in us who has not found a home in its environs."
James Hillman (1993, p. 42)

The city, image and representation of the humankind’s intervention on the environment, seems to be in a constant state of crisis. Its reason to exist comes from a history of desires and conflicts, a constant relationship between the individual and the collective, between the one and the other, and between culture and nature. The history of the city is a constant relationship between the individual and the collective, between the one and the other, and between culture and nature. As a territory of public and private practices, and a place of complexities, for me the city has ever been a source of inspiration. The public space and the urbain landscape are essential themes in my work, before, at the university, and actually, at the pictures on the walls of my home town, Salvador, Brazil.

In the contemporary city, beauty has found shelter in private spaces. Comfortable, decorated, and technologically prepared, these spaces now exert functions that used to belong, almost exclusively, to public spaces and have become refuges for busy citizens searching for their own individual happiness (Bauman, 2006). Tapestry, silk cushions, pets, scents of spices, curtains, light and temperature control, insulated double-gazed windows, fluffy furniture, down quilts, and so many more elements composing sceneries that revere good taste. Exquisite and delicate webs, their spiders at the center. Proximity to the other occurs in the midst of clouds of infinite space—a simulacrum of common life. But a life that is fragile, light, and delicate as a soap bubble in its free but insecure flight, threatened by any rough and less homogeneous surface in its way. These are the expanded and turbinated webs of on-line connections.
Differently from the bubble, the real city is heavy: highly functional and boring structures, inhospitable and uninspiring public spaces, discouraging pedestrians from interactions. Even today, city making ignores the effects of these grey cityscapes in the psychological quality of the world we live in. As if a more profound relationship with our environs could be possible without the richness of diversity, the complexity of details, and the active presence of those who are living those spaces, constantly providing them with new meanings.

The frontier between public and private spaces are mediated by glass surfaces, fences, walls, private guards, CCTV, and alarm systems. Walls that grow in height, solidity and, in most cities, are extended to include urban voids and exclusive territories--from private lots to blocks to whole neighborhoods. Around them, the desert of expressways and rivers of concrete, weeds growing wild in their margins. Large pastures invading the city. Urbanity retracting to dormancy.

Silence, solidity, red lights—it is the mathematics of subtraction, of the less, the little, the void. The opacity of images that are not seen, the silence of unspoken words, and certitudes that are not confirmed by dialogue numb our senses that rest untrained for surprises and enchantment. But the equation never resolves itself, and history teaches us that all walls have breaches. Leakages between spaces occur and, through them, affections and negotiations can augment even the small apertures. Equally, opacity may be an invitation for a non-verbal and open communication between strangers: a poetics which meanings are elaborated during the duration of the art work in its context and conditions of visibility and social interaction.

Art pieces or mere images? It doesn’t really matter as in the city environment they will always be only flashes, like adjectives and exclamations breaking the hegemony and banality of most urban texts. Their perception by the city user may produce a plurality of meanings and new combinations of senses. In this article, text may accompany the pictorial reproduction of this art—ephemeral in its own nature—trying to explain them, but they will be only one of so many possible discourses.

References


These three images show the "Bovines" series painted in left-over spaces. With multiple meanings, they reflect on the urban-rural dichotomy.
Deconstructing Howard through the Lens of Hall: Lessons from the Garden City Reformer.

William Riggs
PhD; Assistant Professor, City and Regional Planning Department, Cal Poly.*

In this provocative essay, William Riggs discusses the lasting legacy of Ebenezer Howard’s and Sir Peter Hall’s work and who it challenges us to think our solutions and deal with familiar issues like protecting green belts, equitable jobs and housing. The author notes that the resurgence of a stronger focus on physical design and the sustainability and eco-towns movements will help us move towards a Howard-inspired “Peaceful Path to Real Reform”.

The work of reformer Ebenezer Howard had a specific and lasting vision on city design, the legacies of which we see today. Like many planners today, Howard was deeply concerned about social issues and problems and saw the design of a good city as a way to correct this. He outlined a city, and explained how it could expand growing cluster by cluster, in little pods connected by the railways, yet maintaining the same concordance with city/country feel by making sure to insert rings of green space within the growing clusters and preserve the countryside. He favored a design that used a series of rings attached by radials that would unite “the factories, warehouses, dairies, markets, coal yards, timber yards” on the outer ring of the town with the elegant garden and crystal palace in the center (Howard, 1965, p. 55).

These principles still resonate today, to a large degree shaped by those such as Peter Hall and his book Cities of Tomorrow (1996). Hall reinforces the trajectory of Howard’s vision, how it was “sustainable” and “green,” but also how it connected to the historic development of cities. The smoke from the city would be kept down through the use of all-electric machines for industry and inter-town travel limited mainly to rail. The trash would be “utilized on the agricultural portions of the estate” limiting waste that would be generated and providing an additional resource for farmer fertilization (Howard, 1902, p. 55). Large green belts would be preserved for agricultural production and to draw from the advantages of the country environment as well as the benefits of the town. This article deconstructs the lessons of Howard through the contextual lens that Hall provides. It focuses on tacit lessons urban planners and policy makers might realize today and integrate into their own thinking or practice. The also provides reminders of key design lessons and principles that still resonate when we look at our most desired spaces and places. These include a focus on design, behavior, social and economic change—things that planners can consider in projects that they work on every day.

Focusing on Design

On the simplistic level of physical design, Howard’s series of bent rectangles to subdivide plots that radiated from the center of town is a common theme today. While Howard may have borrowed plans for a city center with a strict grid formation and divided by two crossing radials from colonial planners such as Sharp, he implemented them in a way that took advantage of green space and encouraged efficient transportation while navigating the grid layout of modern towns (Sharp, 1794). In cities such as Louisville, KY with Bardstown Road, and Oakland, CA with Telegraph Avenue, they can be the create unique architectural features because of the way they dissect lots. Many buildings end up with oddly shaped triangular backs as they attempt to fit storefronts onto these oddly shaped lots.

We also see Howard’s themes evidenced today in our formulation of parks, streets, developments and new sustainable “eco-towns” across the globe. In parkways such as those in Louisville, KY and Riverside, IL we see radial streets surrounded by green space. The agricultural green belt and many of

Dedicated to Sir Peter Hall who challenged me to become not only a planner thinker but to be a thinking planner.

* From September 2017, Dr. William Riggs is Assistant Professor, School of Management, University of San Francisco.
the planned cities around London still bear direct relevance to the designs outlined by Howard in Garden Cities, despite their limited role as individual economic generators within the region, and their increased reliance on the automobile rather than rail (Howard, 1965, p. 153).

Globally we see a surge in the design of small, sustainable towns that are “off the grid” and have a very limited environmental impact, directly echoing Howard’s thoughts. Recycling many of the Garden City ideals, these towns are being designed to be “green” with the integration of parks as well as the functional use electric power and produce zero waste. Being worked on by those such as Harrison Fraker, former Dean of Berkeley’s College of Environmental Design, these new towns are small, autonomous communities, and eco-friendly. They are being referred to as eco-towns, eco-villages or eco-blocks that truly balance town and country (Ecotowns Prospectus, 2007). Towns such as Dongtan in China are providing individual, eco-sensitive agricultural plots within a sophisticated urban community of 500,000 (McGray, 2007). These towns focus on recycling, reduction of waste, and power generation through means other than fossil fuels – all factors that correspond to Howard’s very sustainable concept of the Garden City.

**Considering Behavior**

These visual reminders of the Garden City are very evident, but while it may be easy to make a case for Howard’s legacy in the physical design of our communities, what about the theory behind those designs and how they have been governed and implemented. Some might say that the theoretical concept that urban form can modify behavior is dramatically different today than it was 150 years ago.

Howard believed that creating a better environment might create a better individual. This belief was common to many at that time, who saw the poverty and illnesses of the industrialized city as correctable. Authors of the City Beautiful Movement, such as Daniel Burnham and Fredrick L. Olmsted, would make planning more professional and more pleasing aesthetically while still curing many of the social ills of the city. Olmstead believed that in large cities were to be “well distributed public playgrounds and neighborhood parks become one of the urgent needs if the health and vigour of the people are to be maintained” (Olmsted, 1911, p. 15). As a relative contemporary of these planners, Howard ascribed to this belief in a sort of social Darwinism; that a human being would adapt to his or her environment. Thus a better environment would result in grand societal improvements of the kind that he outlines in his Town-Country diagram. Many would say that the idea that environment dictates behavior is centrally flawed as it was based on the concept of physical determinism; that improved conditions somehow would change the morals of residents and that this central assumption is unfounded and wrong. They might argue that the central theme of many early cities was poverty and this poverty ended up resulting in conditions that would create crime and immorality.” Howard’s community model assumes
the absence of poverty and a virtually classless society.

This fact, however, discounts years of behavioral research that does show that the environment does impact behavior and even physical health. For example, studies have shown a decrease in mental stress when viewing green space vs. a dense urban scene (Ulrich, 1984). Others show increased health impacts from interaction with Nature (source). We can also see examples of behavior through daily life, such as how an individual acts when in a church vs. a sporting arena, and how thus many schools have begun requiring a standard, professional dress code to bring equitability to the learning environment. Even two of the most recent planning movements, New Urbanism and Crime Prevention Through Environmental Design (CPTED), ascribe to the thought that city form does truly matter, and impacts behavior. So, although class equity may play a role in the likelihood of crime, one cannot simply discount the impact of the physical environment.

One can also not discount Howard’s intention – which was to reframe the social construct and work to eliminate poverty through social reform. He envisioned a utopian world where there was a place for every person and every profession in the “marriage” of the benefits of the town and the benefits of the country (Howard, 1965, p. 48). These ideas have the same basis that we ascribed to in the Urban Revival and Advocacy movements in the 1960s and 1970s.

Social and Economic Reform

But what about this concept of reform; who was to say that society, needed reform or wanted it for that matter; and in curing the “morals” of those in society, why were the morals of the country seen as the cure to the ills of the city? Yes, Howard did desire to cure the “morals” of society and bring the benefits that he saw from the country and agrarian life to the city. However, this was the predominant view of the time. Jacob Riis and other social reformers fought to clean up many of the results of cramped and unhealthy conditions in the city. The Garden City added the element that was many of these cramped early cities were missing – the concept of any amount of open space. This idea is not unlike the romantic view many Americans have today in the glorification and financial subsidy of rural life and agrarian communities – despite the fact that many of these communities are financially and environmentally unsustainable. Many humans see it as one of the purest (and therefore more moral) lifestyles, yet Howard recognized there were disadvantages to the country and that it had its own disadvantages and problems with poverty and lack of opportunity. His solution was the combination of town and country.

But this town-country “solution” is not perfect. It has some weaknesses. Many would argue that the Garden City has no applicability today; that even at its’ origination it was wholly flawed. It is true that Howard’s socialist ideals may have caused to underestimated three main factors in the design of Garden City. These include: (1) the skill set of those who would create his local economy; (2) the use of different transportation modes; and (3) the assumption that his community would be a self-producing or basic/local economy.

First, Howard assumed what one would describe as almost a classless society and that people of many income brackets and skill sets would locate there. Again, this may have been an embodiment of the socialist principles and the positive view of human nature held by many at the time, yet he still assumed that a broad swath of people with varying skills who would have to occupy these new towns. It may have been foolhardy to believe that a concentration of people with such skills from varied social classes would just descend on a new town. We see manifestations of this in Post-War communities that were created by Abercrombie and Unwin, and filled by a population of middle-class suburbanites and troops returning from the war (Hall, 1996, p. 168).

Secondly, Garden City discounted changes in transportation and the concept of the satellite city, suburb, and urban sprawl. Ultimately it took a static view of transportation. Garden Cities may not have been built specifically as the suburbs of large towns, but based on commute patterns and the ease of transportation, they ultimately became nothing more than the bedroom communities. With the advent of the cheaper automobile and the focus on it as the primary mode for intra-
city transit, the train simply became defunct. It could not (and cannot) compete with a device as efficient as a personal auto for individualized point-to-point transportation. This was painstakingly evident in London where Garden Cities that took shape became refuges for the upper and middle-upper class working in London and commuting to Garden City suburbs. This puts even more pressure on protecting the green belts that were a part of Garden City. Especially around London in the Thames Gateway, it has become increasingly hard to preserve as the city grows in breadth and threatens to expand into such protected land.

Lastly, although Howard’s desire was to create the perfect city for happiness and health, but economic viability was not in his scope. In his vision, jobs would be located in Garden City, and he outlines both industrial and service sector jobs riddled throughout the city with housing and government functions. For Howard, the town could be virtually self-sufficient and provide for almost all of its needs having manufacturing and agriculture within its bounds, something rarely planned for before when towns had been planned as either one or the other, modern or agrarian. He may have been influenced by the thinking of Marx and Engels because his work embodied altruism to the core. In his mind “the people in their collective capacity own the land on which this beautiful group of cities is built, the public buildings, the churches, the schools and universities, the libraries, picture galleries, theatres” and thus this would be the great equalizer in his commune of pods making it of a “magnificence which no city in the world whose land is in pawn to private individuals can afford.”

This simply has not happened. The concept of local economies never materialized, possibly because of the transportation related factor mentioned above. Furthermore, the economic structure of his communities was never realized. The concept of community trust ownership of land is still used but on rare occasions. Both in Europe and the United States, land ownership is seen as an unalienable privilege that cannot be denied. Many people see it as the only true way of amassing wealth. A large portion of land is held by the government, but a socialistic structure in which land is not allocated on a transactional basis was a critical weakness of Howard’s vision that may not have been feasible in the real world.

Concluding Remarks

While some of these weaknesses are not wholly unfounded, it is indisputable that Howard’s thinking impacted generations of planners and architects, and still provides a pre-eminent vision of a utopian community that we can learn from. With his vision, Howard desired to promote an achievable, social hierarchy of his day that could be obtained without conflict, and we also see some of that manifested through the historical narratives of Hall. Physical aspects arising from both Howard’s and Hall’s work are still seen today, their legacy still resonating with all planners. This legacy challenges us to think hard about our solutions, and grapple with tough but familiar issues like protecting green belts, equitable jobs and housing. And these efforts relate exactly to what the subtitled of Howard’s book underscored: A Peaceful Path to Real Reform.

References


FOCUS 14
Faculty and Student Work
Successful Planner/Developer Collaborations for “Workforce” Housing in California

Hemalata Dandekar
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Housing affordability is a significant barrier to social and economic growth in California. In this article, Dr. Hemalata Dandekar reports on her research on successful housing projects for low and moderate-income families by private sector and non-profit developers in collaboration with city and county planning departments. The research was funded by the California Department of Housing and Community Development.

Affordable housing that is proximate to places of employment is crucial to sustaining California’s economic competitiveness.1 A significant barrier to this is particularly so in highly impacted metropolitan California communities, located in high amenity regions such as coastal and scenic recreation areas, is borne out by the high median price of housing in these areas. Here the demand for housing is met at the higher end by conventional market driven residential development. But this market rate housing is out of reach for and renders “housing burdened” a significant number of working but low and moderate income families. And these low and moderate-income families are increasingly displaced from, or voluntarily leave, amenity-rich high cost coastal areas for less expensive housing markets in the region. They have thus inherited or taken on long commutes to and from job centers and the related impacts of these commutes on families and on their local communities.

In the San Francisco Bay Area’s Silicon Valley, the growth of the high technology industry and its impact on regional housing markets has been widely noted including in the popular media.2 And ongoing academic researchers have examined the resulting gentrification and potential for displacement on the health and economic wellbeing of communities.3 The urgent need to seek housing solutions for low and moderate-income households in California, loosely referred to as “workforce” households, through private sector initiatives is reflected in data on housing prices.4 A study supported by four key state agencies analyzed the cost of building multifamily housing in California listed as its first conclusion (pg. 5) that:

“Local factors have an impact on costs. Specifically, projects with more community opposition, significant design changes imposed by local design review requirements, or that received funding from a redevelopment agency cost more, adding 5 percent, 7 percent, and 7 percent, respectively, to the cost per unit, on average.”5

The above observation, that housing is quintessentially defined and enabled by local realities, is the underlying premise that was explored in a study led by the author and supported by a grant from the Division of Housing, Policy Development


4 The term “workforce” housing has been ill defined and used to denote various income levels and family types throughout California. For this study, the term “workforce” was not used, lacking as it does a specific definition. However, families in low and moderate-income categories are generally families where one or more of the household has work. The term is used here in this somewhat imprecise fashion.
5 For example, the Center for Housing Policy’s first quarter report for 2014 lists 13 California metros in the 15 highest metro median home prices in the US. The top four California metros (San Francisco, San Jose, Santa Anna and Santa Cruz) outrank Hawaii and New York.
of the California Department of Housing and Community Development (CDHCD). It provides some hopeful findings, namely that private sector and non-profit developers in collaboration with city and county planning departments have constructed, without deep state or federal government subsidy, housing for low and moderate-income “workforce” families.

Identifying such successful projects was not easy. The examples that were found are “demonstration projects” and attributable to the tenacity of many individuals - developers, city and county planners, construction managers, architects, urbanists, real estate agents, executives of non-profit organizations and housing trust funds and their commitment to seeing these buildings to completion and occupancy. They provided the detailed information of on-the-ground realities that only those who are directly engaged with construction know intimately. And as such their insights offer valuable lessons to both planners and developers seeking to expand the units of housing for low and moderate-income families in a climate where only scant federal and state support for such production is available and perhaps not cost effective.

Research Method

The study’s goal was not only to identify exemplary projects but also distill from them the “take away” characteristics that made for success and thus help others to replicate such efforts in other communities and contexts.

The experience of some eighty-two experts, many of them planners at the city and county levels and developers, was tapped in that initial effort to identify successful projects. They responded to an on-line survey developed by the Cal Poly CRP research team that helped define the context of housing in various regions of California. The survey consisted of fifteen questions aimed at identifying:

- Perception of need for low and moderate-income housing;
- Location of housing projects that demonstrated innovations in design, regulatory practices, and/or, finance.

A total of 82 responses were received between mid-March 2015 to end of June 2015 from individuals employed in the following sectors: 71% Public; 14% Private; and 15% Non-Profits.

Question 7 of the survey asked if there was a need for housing affordable to low and moderate-income households in their region, and to estimate the level of need. 52 respondents answered as follows:

- 65% High
- 25% Moderate
- 6% Low
- 4% None

Thus, some 90% of respondents identified a high or moderate need for housing for the low and moderate-income group. And respondent comments corroborated this overview indicator. The survey responses also helped identify potential case studies that had promise of meeting the stipulated criteria – housing for low and moderate income families constructed without benefit of state or local subsidy.

Twenty-three planning and architecture students in the CRP 442 Housing and Planning Spring 2015 class taught by the author also identified suitable cases and developed preliminary descriptions. Eight of these were further researched as selected case studies in the final report. The research team developed a matrix of 38 successful projects located throughout California which were winnowed down to ten projects that scored highest for innovations along the following parameters:

- Design: The design categories examined included smaller by design, manufactured homes, modules or components, flexible design, and, adaptive reuse. The design analysis also included examining projects for design strategies such as mixed use, small lot, multifamily and higher density.

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8 A planner from the City of Cupertino, South Bay Area said: “Housing for moderate income workers in Cupertino is virtually nonexistent.”

Another planner from the City of Lindsay in the Central Valley noted: “Our local projects that are targeted for the low to moderate income population are generally backed by some sort of assisted funding mechanism. Without assistance, home ownership and sometimes even apartment rental is incredibly difficult to achieve for the low to moderate income population.”

This planner went on to pinpoint some pitfalls inherent in the approach that is taken by local planners in the face of few incentives for incentives to create housing for workforce households: “When the preference to target low to moderate income population is over-exercised we neglect the development of moderate to high income housing. This leaves communities over saturated with a population that struggles to obtain basics like food and clothing for their families and thus have virtually nothing left over for extras like movie theaters, shopping malls, new cars, etc. that increase local tax dollars and the need for new businesses that could also provide new jobs.”

9 Low and moderate-income thresholds were adopted from those defined annually, regionally across California by CDHCD. The Regional Housing Needs Allocation (RHNA) calculations and setting of targets for mandatory inclusion in Housing Elements is described in detail. See "http://www.hcd.ca.gov/community-development/housing-element/index.shtml"
Regulation: The regulatory categories examined included relaxation of parking requirements, density and height increases, setbacks and plot size reduction as well as streamlining approvals and deferring fees.

Finance: Financial strategies considered include innovative ownership, tenancy and rental arrangements such as shared ownership/occupancy in co-ops/co-housing, house-sharing, ancillary dwellings and live-work arrangements.

The 38 selected projects were analyzed on their innovations in design, regulation and finance in a matrix format (Figure 1).

Findings

The successful housing is recent, built in the last decade, and primarily located in regions of California where housing and land prices have escalated, employment has increased, and the demand for housing is extremely high. These successful projects offer an alternative approach, predicated upon the convergence of entrepreneurial design, responsive government and shifting housing preference. They vary greatly, responding to local needs in high cost areas, to fill the affordability gap between subsidized and market rate housing.

Our Designing Affordability study features ten cases that underscore the localized, context-grounded nature of housing choices low and moderate-income households are making to obtain housing close to work that is not a burden on household budgets. The developments track trends in housing preference more recently attributed to young professionals - an acceptance of smaller housing, closer to amenities, with a reduced dependency on the automobile. The trade-offs in housing consumption that these preferences represent, and the ways in which some entrepreneurial developers and local governments are responding, provides useful lessons.

These lessons are not a blueprint for project-specific replication, but identify opportunities for housing households not typically served by public investment yet priced out of the competitive high amenity housing markets in California. Featured case studies showcase rental and ownership projects located near work and public transit, student housing near educational facilities, and shared open space residential development within walking distance of jobs, recreation, shopping and services. They highlight key planning and development strategies:

Key Attributes of Identified Projects

- Changes in land use regulations that enable increased density, lot coverage, and smaller units.
- Flexible space configuration to respond to changing market demand and client preferences.
- Pragmatic attention to detail, aesthetically designed for environmental sustainability and long-term functionality.
- Cross subsidy from units sold at market rate.

Areas of Innovation in Ten Selected Projects

1. Small by Design (90%)

Smaller size units reduce the cost of entry to housing (Figure 2). These units have been accepted and are selling in the market which supports the building professions’ sense that in high land value contexts smaller, denser, minimalist housing, shared amenities and open space with neighbors, is gaining acceptance. Young urban professionals are the demographic that is most receptive to these units.

2. Flexibility in Unit Design and Mix (70%)

Projects feature unit designs that can be easily be modified by connecting adjacent units, dividing rooms to yield more bedrooms, deploying rooms and spaces so that they can be converted for multi purpose uses (bed room, study, office

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Address</th>
<th>Developer</th>
<th>Architect</th>
<th>Non-profit, for profit, cooperative Type</th>
<th>Area Median Income</th>
<th>Project Affordability</th>
<th>Rental or ownership</th>
<th>Cost of Project</th>
<th>Proximity to workplace</th>
<th>Proximity to public transport</th>
<th>Length of Project (mo/yr to mo/yr)</th>
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Figure 1: The information items column from the research project’s innovation matrix.
space, storage or workshop), or put to a different use (nursery, guest room, accessory dwelling unit). This flexibility promises to provide a hedge against obsolescence (Figure 3).

3. Green by Design (80%)

Projects designed to exceed California (CalGreen) building standards and/or adopt adaptive reuse strategies yield energy and cost savings that might allow units to retain greater affordability into the future. Repurposed units also restrain costs when the project is reconfigured on a smaller-by-design and/or mixed-use footprint.

4. Parking Reduction or Elimination (80%)

Projects strategically located near sites of employment, education, recreation, and services encourage residents to use alternative modes of travel including bikes, electric scooters, and public transport (Figure 4 & 5). Low or no parking requirements are extremely important in the success of almost all the featured projects.

5. Density Bonus (90%), Height Increases (80%), Setbacks Concessions (90%)

All projects have benefitted from one or more regulatory concessions on the maximum allowable built-up area, setback requirements, density bonuses and allowable height. These have at times enabled a doubling or more of the total square footage built.

6. Cross Subsidy from Units Sold at Market Rate (70%)

Profits from sale of units at market rate, as well as from commercial and retail/service space sold or leased at market rate have cross-subsidized the price of units for low and moderate-income households (Figure 6 a & b). In one case, direct transfer of in lieu fees captured from a commercial development to land held in trust for affordable housing provided interim financing for predevelopment costs, allowing
a public non-profit developer to obtain a conventional loan to construct shared-equity townhomes for local workers.

**Summary**

There is insufficient publicity about creative solutions such as these projects. Clearly they are still being tested by the market. The fact is that the projects described in the study such as Parc on Powell in Emeryville, Moylan Terrace in San Luis Obispo and the Panoramic in San Francisco and others have received favorable publicity and won awards. They deserve to receive wider recognition for their innovations and what they have been able to achieve. This study navigated local planning, design and building channels in order to gain access to how creatively bundled incentives can work. For each location included in this study the successful project development team analyzed local risk, market, interest, and collaboration to formulate an investment strategy that has worked for specific sites under circumstances particular to local conditions and prevailing construction costs — land, labor, materials and finance. Developers did not seek tax credits and other federal or State public funds for these projects. They note as deterrents the underlying costs of reporting, documentation, labor constraints, and timing when funds become available to apply to projects.

The ideas and innovations represented in these projects are not radical or particularly new, but they were creatively assembled, implemented and timed well. In most cases, reduced parking requirements, zoning and building codes that supported smaller building footprint and design, set back reductions, height increases and density bonuses, allowed for more units to be constructed on expensive land so as to restrain cost per unit and provide a cross subsidy for affordable units.

The manner in which the partners resolved the inevitable tensions that arise amidst planning and design, regulatory oversight, evolving and proprietary investment, escalating housing prices and broader market fluctuations sets these projects apart. The variety of ways in which these experts, in their separate fields, teamed up to identify barriers and created strategies to navigate the local planning process, governmental regulation and economic uncertainty is worth understanding. Their efforts have made it possible to offer market-rate affordable housing options to middle income workers who are ineligible for government subsidies but unable to afford conventional housing in high cost areas. These examples offer some good news in a bleak landscape of housing inaccessibility for low and moderate-income families. They should encourage local governments and housing developers to find their own winning strategies to build housing that meets the needs of these “workforce” households in Californians.
Sketching in the CRP Department

Vicente del Rio
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In this article, Vicente del Rio reflects on the importance of sketching for planners and urban designers, and reports on an elective offered in the CRP department in 2017. Sketching is understood as a skill and a tool to help observe, analyse, represent, and conceptualize spaces and places, as well as to communicate with other professionals, the clients, and the public.

Professional practice and the research literature both indicate that city planners, particularly those dedicated to physical planning and urban design, need basic sketching skills. For the purpose of this article, I will be using the words sketching (which generally means a quick, informal drawing) and drawing interchangeably.

Although the use of technology and computers are now intrinsic to all professions and human endeavours, I believe that sketching skills remain fundamental for three major reasons directly related to place making. Consider also that, today, sketching and drawing by hand do not necessarily involve pencil and pen on paper (although it still does for me and most designers), as there is a growing number of such applications for tablets and other interfaces.

Firstly, sketching buildings and places help us observe them analytically, understand and remember their dynamics, aesthetics, and composition. Sketching a place or a building means that we have to learn to observe and think analytically in order to identify all their components (physical, social, cultural, and temporal) in their essence, and to choose what and how to represent. Throughout modern history, architects and designers kept sketchbooks during their travel for this purpose. A great example is Le Corbusier’s legendary diary *Journey to the East*, filled with sketches, personal impressions and visual notations from his travels during his formative years (Le Corbusier, 2007). In his seminal book *The Architecture of the City*, famous Italian architect and urbanist Aldo Rossi noted that to understand a city as an artefact--its order, scale and structure-- one must first draw it (Rossi, 1982). For famous architect and educator Michael Graves, each drawing serves to remember or to study something; each drawing a part of a process, and not an end in itself (Graves, 2012). Drawing, in this sense, can be seen as an intellectual effort.

Secondly, sketching helps design through a process called graphic thinking, when “thinking and sketching work closely together as stimulants for developing ideas” (Laseau, 2001, p. 1). “Drawing by hand stimulates the imagination and allows us to speculate about ideas, a good sign that we are alive” (Graves, 2012). Juhani Pallasmaa defends that “sketching and drawing are spatial and haptic exercises that fuse the external reality of space and matter and the internal reality of perception” (apud Sheer, 2014, p. 6). Drawing allows us a “visceral” understanding of things through the relationship between mind and hand. Sketching as a thought process is important in other professions too. Peter Smirniopoulos, a business professor at George Mason University in Washington, makes his real estate finance students sketch their solutions because by making them think and form a ‘mental image and then translate it into the paper space’ their brains work in ways they normally do not (Smirniopoulos, 2016).

Thirdly, hand drawing is a fundamental skill that allows us to communicate with other professionals, the clients and the public in general. It allows us to think in representational terms and to represent ideas (Sheer, 2014, pp. 3-4). Sketches on translucent paper, for instance, expose the thought process clearly, help compare ideas, and include changes and suggestions on the go. Sketching for a solution as a creative and participatory process is similar to musicians jamming together: the process includes intonations, intentions, and speculations of all participants in the construction of a collective product (Graves, 2002). Participants stimulate one another along this ideation process. Nothing can substitute the physicality, the emotions, the sense of collective achievement, and the realization that the idea was rounded up, and that it can evolve, involved in sketching. Clients and the community appreciate hand-drawn sketches, particularly in the conceptual phase, because they look just what they are: ideas in development; not as the precise, finished aspects of hard line technical drawings.

Drawing can be pleasurable because it unifies eye, mind and body, bringing ideas and material together, lending coherence to our experience (Sheer, 2014, pp. 82-83). “Drawing gives imagination immediacy, engaging the full range of our faculties as perhaps no other medium can do” (Sheer, 2014, pp. 83). It is a medium that brings together the right and left sides of our brains into an expressive, physical product that will keep engaging your imagination and inviting changes. Renowned artist and illustrator Richard Scott writes that “sketching
is much about the experience as it is about the sketch, and that he always emerges from sketching feeling pleased, centered, and reju-venated for having engaged in a creative process (Scott, 2013, p. 4).

Perhaps that is why in the last years, parallel to the pervasiveness of computers in our everyday lives and in planning and design, there has been a world-wide renaissance of hand drawing with design pro-
grams re-emphasizing its importance, and an increasing number of people practicing it. A good example is the growth of ad-hoc on-line organizations such as the Urban Sketchers who currently has more than 185 regional chapters in the world including 41 in the US.1 This year, the Urban Sketcher’s 8th international symposium in Chicago had almost 600 attendees from all parts of the work, who spend four days involved in sketching events and workshops.

One way to practice these skills is by keeping sketchbooks as diaries. Having one always handy helps us acquiring the habit to write down thoughts, observations, diagrams, and ideas about places on the go, and develop our skills in graphic thinking. One can prefer to use “state-of-the-art” sketchbooks, tablets or Ipads, as long as you have a good digital pen to help you do the job. Sketchbooks, as record-keepers and visual diaries, help us to remember but also to think, and they become important means for intellectual and design development. They are more interactive, holistic, interpretative, fun, and humane than simply taking photographs of places you visit. Sketchbooks as diaries will also help you become an effective flaneur of cities as you discover, experience, annotate and learn from urban qualities in an orderly manner (del Rio, 2016). Nobody expects sketches to be art pieces (although they can be!): they are representations of what you observe (analytical) and what you imagine (idea). Above all, drawing and keeping a sketchbook should be pleasurable and fun!

In the design disciplines keeping a sketchbook comes from a long tradition, but unfortunately not so in planning programs. Although since its foundation Cal Poly’s CRP Department has been emphasizing the design studios and freehand and technical drawing skills, only last year we decided to encourage students to embrace the sketch book in the design studio series.2 CRP 201 Basic Graphic Skills –offered in the sophomore year’s first quarter-- continues to teach free and technical hand drawing but now it requires students to keep a sketchbook and promotes a series of exercises and field sketching events when students develop their skills and understanding of places through observational sketches, diagrams, and impromptu sections and plans. This year we will be consolidating the sketchbook requirement throughout the rest of the sophomore years design studios. We observed that students go a long way –some more than oth-
ers- and they all take pleasure in the learning process involved in the class, developing not only their representational skills but also their capacity to observe a place or a building and represent it on paper (3D, section, and plan views).

In the winter quarter of 2017, I offered a one-unit elective class on sketching that involved ten sessions, most of them on Saturdays. Eleven CRP students registered for the class plus one architectural student from Germany. In this class I did no formal teaching but recom-
mended a couple of readings and Youtube videos, and provided hints to participants during the sessions. The class met in the field to sketch for one hour or so: Monterey Street at the Fremont, Railroad Square and Station, Belo Mundo Café, Poly Village, Mission Plaza, Campus Arboretum, and Monterey at Osos streets. Students that missed a section for a good reason had to submit a substitute sketch. The class was also offered the opportunity, which some of us took gladly, to participate in an excellent two-sessions watercolor workshop taught by Ricard Scott, landscape architect and illustrator.

This was the first time CRP offered an elective on sketching, and I believe the results were very positive. I was very happy with the inter-
est raised among students, and it got me start a CRP Facebook page

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1 Created ten years ago, the Urban Sketchers is a global forum to foster the practice on-location drawing. See www.urbansketchers.org

2 Besides this author, the instructors involved in this effort are Amir Hajrasouliha, Beate Von Bischopinck, and Woody Combrick.
del Rio: Sketching in the CRP Department

Fremont Theatre, San Luis Obispo, by Eric Sindel (above) and Willow Urquidi (below).

dedicated to sketching and related issues. The next pages feature some representative sketches from this elective. They demonstrate that, once inherent inhibitions are overcome, planners can sketch and are able to use this means to help them think about places. And that they can also have fun in doing it too!

References


Watercolors by Kirsten Anaya (two faces) and Ana Padilla (flower).
San Luis Obispo rail station by Caroline Chen (above) and Nina Hofmann (below).

USC campus tower, Los Angeles, by Emily Huang.

Court Street, San Luis Obispo, by Austin Forde.

San Luis Obispo Rail Road Square by Kirsten Anaya.
**Cal Poly’s Arboretum.** Pencil sketch and photoshop by Nina Hofmann.

**Watercolor by Kristen Anaya at Cal Poly’s Arboretum.**

**J. P. Andrews building, San Luis Obispo, by Caroline Chen.**

**Vista Grande student dorms, Cal Poly.** Above, watercolor by Marissa Tietz. Below, sketch and photoshop by Justin Wong.
Monterey and Osos street corner, by Ana Padilla (above) and Austin Forde (below).

Monterey Street from Mission Plaza, by Caroline Chen.

"Cow" art installation at Mission Plaza, by Emily Huang.

San Luis Obispo Mission, by Nina Hofmann.

Court Street from Bello Mondo Cafe in Monterey Street, by Justin Wong.
This article describes the MCRP first-year studio project for Newark’s Old Town, considered by the Association of Bay Area Governments (ABAG) as one of the region’s Priority Development Areas. In collaboration with the city’s Community Development Department, the proposal includes a vision and a development strategy to revitalize Old Town through mixed-use, development opportunities, and vibrant and memorable environments.

The development of Bay Area cities that are in the sphere of influence of the greatly accelerated job growth in Silicon Valley has varied. It has depended on many factors including relative distance from concentrations of highly desirable and well-paying opportunities in the Information Technology industry. Low housing inventory throughout the region has driven up prices to unprecedented highs bringing national attention to the housing crisis in the State of California. It has made it virtually impossible for families with even moderate incomes to afford a median priced home or absorb the escalating rent increases. And the region’s traffic congestion problems continue to worsen.

The City of Newark, in the East Bay, surrounded by the City of Fremont and is conveniently located at the eastern entry to the Dumbarton Bridge that links it to the heart of Silicon Valley. It has experienced growth in business, an increase in hotels and the hospitality industry, a leasing up and repurposing of vacant industrial space, and a strong growth of higher end residential development, but one falling short of meeting affordability needs. A renaissance of retail growth and new housing is in process at the revitalized NewPark Mall at the Eastern edge of the city on highway I-880. And areas along SR 84 on the northern edge of Newark have seen growth in medical-related industry and suburban-style single-family housing development.

Old Town Newark, located along Thornton Avenue (a three to four-lane arterial road) that cuts through the city and links SR 84 to I-880) between Elm Street to the West and Cherry Street to the East has languished as a commercial and retail venue. Historically, Old Town growth was based around the train station, constructed in 1870, near the intersection of Thornton and Sycamore Street (now a major arterial two lane collector that parallels the railroad which cuts Newark along its West side. The hotels, shops and industries that populated this area formed the historic economic and commercial core. Today Old Town languishes, serving as a neighborhood center. Many businesses and industries have moved out leaving behind underutilized parcels and vacant lots. Old Town has been identified by the Association of Bay Area Governments (ABAG) as one of the Priority Development Areas (PDA) in the region, located as it is within an existing com-

Figures 1 & 2: The project area (above) and existing conditions (below) along Thornton Avenue, Old Town, Newark.
The City of Newark Planning Department’s contract with CRP challenged thirteen CRP first year graduate students in the Spring 2017 CRP 553 Project Planning and Design Studio-Lab and their instructor Professor Hemalata Dandekar to develop pre-planning insight, urban design concepts and development strategy for Old Town. The work was to be completed within the time frame of the ten-week Spring quarter. Rising to this challenge the groups investigative and design work was undertaken in three phases of discovery and visioning.

**Phase One:** Study of existing regulatory and design factors underlying the site. This included analysis of planning documents and the implications of regulations for site development, individual lot survey and documentation of lot conditions, and interviews and surveys of community members and businesses.

**Phase Two:** Development of concept plans organized around three discrete design themes and priorities:

1. The Historic Group - featuring concepts that surfaced and reinforced the underlying historic significance and character of Old Town (Figure 3).
2. The Design Group - featuring investigation of architectural styles to complement the existing buildings and activities (Figure 4).
3. The Housing Group - featuring investigation of the optimal capacity of the project area site to support housing units, both mix and types, to address the need for housing in Old Town (Figure 5).

These concepts were complemented by Thornton Avenue streetscape redesign and road dieting in order to accommodate multi-modal traffic, reduce vehicle speeds and create a “bikable” and pedestrian friendly environment. The visions offered by approaching the site through the lens of history, design and housing complemented each other and helped highlight key elements that would inform the final concept designs.

For Phase Three, the project area was divided into five design blocks. The solutions for each block contributed to an integrated overall redevelopment vision to create a diverse housing mix, a central plaza and performance space surrounded by commercial, retail and housing as a “heart” to Old Town, a Hispanic-themed Mercado complex to resonate with existing ethnic diversity, an “upscale” residential block and a civic area featuring a library, museum, and other public improvements yielding an east gateway into Old Town.

To provide vibrancy to Old Town, its heart and focal point is a pedestrian-scale plaza named Old Town Square. Created as the neighborhood centerpiece, it is designed as a cultural and commercial center, providing space for eating, shopping, socializing, and a venue for community gatherings.
The square is designed as a gathering space with a welcoming feel. Currently, the spaces in Old Town Newark that can be considered a part of the public realm are few. Therefore, the design of new public spaces must attract, not overlook, how individuals are drawn to them. To make the governing principle a reality, Old Town Square is designed with the following features and amenities (Figure 5):

- Two sides of Old Town Square have direct access to shops, restaurants, and other establishments. This allows Old Town Square to connect directly with the buildings surrounding it. By removing the barriers between the public realm of the square and the private realm of businesses, interaction is encouraged, helping enliven the square and the neighborhood.

- A stage in one corner of the plaza gives this public space utility and versatility. Possible uses include featuring live bands during farmer’s markets, movie nights, and community events that require attention on a speaker or a presentation.

- Tables and chairs encourage people to relax, consume food, and mingle. Spaces to do are provided making the space inviting.

- Trees provide both shade and visual breaks along the sides of the square. Strategic placement of trees also helps direct the eye and improves the visual character.

Appropriately sized buildings around the square embody a variety of architectural styles that interact and contrast with each other to create a diverse but harmonious built environment. Their massing and architectural qualities help define the open public space and help concentrate activity within Old Town Square. Importantly, these buildings are mixed use with the potential to make the plaza active throughout the day.

Another key feature of the plaza design is that building height and density decrease with distance from Thornton Avenue. Next, to the existing single-family residences, building heights are no more than two stories, and feature landscaped buffers. Buildings are up to five stories in height and help define the visual scale of the plaza. Frontages along two of the Square’s sides provide a natural interaction space for businesses.

The design of the block is formulated to connect the surrounding neighborhoods with the Thornton Avenue corridor and also preserve Old Town Newark’s history. Keeping the ‘old’ in Old Town is a recurring theme throughout the concept designs for all of the five blocks. The design of the Mercado Block, for instance, reflects the community demographics. The residents in the blocks around Old Town are predominantly Hispanic, and several of the business establishments on Thornton Avenue cater to their tastes and preferences. And, the Mercado Block reflects this neighborhood characteristic. The buildings feature the architecture of California’s missions, and Spanish revival architecture made prominent during the 1915 World’s Fair in both San Francisco and San Diego. The buildings are predominantly mixed use, and, given the proximity to Old Town Square add vibrancy to the core. As with the buildings in Old Town Square, the Mercado Block buildings also increase in height and density as they approach Thornton Avenue and their massing and intensity of use decrease with distance from Thornton.

The major feature of the Mercado Block is a central enclosed courtyard surrounded by arcades and shops provides a second focal area to Old Town. It is an enclosed space that emulates the traditional Mercado found in Latin American cities. The Mercado is connected to the neighborhood by several paseos with covered arcades that provide smaller scale places for people in the community to come together and mingle. Parking is contained in a multi level garage facing Sycamore Street, and, there is additional ‘tuck under’ parking for units that front the surrounding residential streets.
The concepts for the five blocks of Old Town work together. The civic center block provides space for civic amenities and acts as a gateway from the east, the mixed-use residential block diversifies the housing types built in the area and offers smaller scale public spaces and the housing block acts as a western gateway and adds a range of multifamily developments to the mix. Collectively the blocks create a visual focus and core for Old Town and offer creative options to increase housing, jobs and activity in the city.

Building on the efforts of the CRP 553 Masters studio BSCR senior Gabriel Ward’s senior project helps make the work of the studio accessible to parties interested in future investments in the Old Town. It adds design alternatives and options to the 3D model developed in the CRP 553 class amplify and diversify the concepts. These alternatives can assist developers with interest in this area of the city to assess feasibility for various options that meet existing needs. The visualization can encourage developments in Old Town that are feasible and benefit the surrounding neighborhoods.

The City of Newark California has potential for development of both residential and commercial spaces. It has spearheaded this effort by implementing a mixed-use zoning district starting on Sycamore street continuing through Thornton Ave and ending on Cherry Street. This rezoning has made possible the next step in the City’s transformation. But tools are needed to interest residents and developers in exploiting its full potential. Ward’s model is constructed to encourage such interest. It provides design options for proposed facades and public spaces enabling developers to visualize alternative ways to meet building and zoning requirements and achieve their own goals.

The 3-D models, a design for development guidance document, and The Old Town Urban Design Concept Plan provide the City of Newark tools with which to attract development that will bring new life to the area. This partnership with the City of Newark Community Development Department has provided the CRP students with an invaluable opportunity to contribute to solve a real problem and enhance a place with great potential to meet the development needs of the region.
Urban Design Visions for Riverside, Paso Robles

Vicente del Rio
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Hemalata Dandekar
PhD.; Professor, City and Regional Planning Department, Cal Poly.

Following the CRP Department’s tradition of community-oriented projects with real clients, the authors discuss their studio work for the City of Paso Robles Community Development Department. The students explored development scenarios and urban design ideas for the area between the Salinas River and the railroad tracks, including more memorable, walkable and livable spaces, and stronger connections to the downtown and the rest of the city.

In the Fall Quarter 2016, the City of Paso Robles Community Development Department charged the third-year design studio (CRP 341 Urban Design III) at Cal Poly’s CRP Department to develop pre-planning urban design visions for public and private lands between the Union Pacific Railroad tracks and the Salinas River, from 1st Street to 24th Street. During this ten-week period, the 35 students enrolled in the studio engaged in rapid information collection and data gathering, analysis, conceptualization, and visioning, leading them to develop specific urban design proposals.

Initial discussions with the city indicated that the student work would be a pre-planning phase, a rich and broad-ranging visioning exercise in which the energy of twenty-nine undergraduate planning students would be turned to imagining creative and dynamic options for selected areas of Riverside Paso Robles. The hope was that these ideas might capture the imagination of various constituents in the city and stimulate follow-up commitments that could result in the formation of a new identity and imageability for this area of the city.

This article can only comment on a small part of the bulk of the work submitted to the client in the form of posters, a powerpoint, and a 386-pages final report. The main goal of the work was to provide an array of possibilities that stakeholders, community and city might assess and judiciously select from for further exploration.

The Project Site and Process

The project site is adjacent to Paso Robles downtown core, but it is disconnected from it by both the railroad tracks and Highway 10 (Figure 1). The railroad and highway run north-south and separate the project site into long, somewhat narrow, land segments that are connected east-west at only a few streets. Each intersection offers varying levels of safety and security of crossing.

Most economic and recreational activities in the project area are not oriented to or are unable to take full advantage of, the proximity of the highway and the thousands of motorists and tourists that use it and pass by this site. The existing hodgepodge of city-serving, industrial, and highway-oriented land uses, vacant properties, together with poor development conditions results in a visually unattractive and underutilized environment despite the fact that the site is in a prime location and contains six access points to the city that are designated as gateway sites in the City’s Gateway Plan.

The area is perceived to be lacking in legibility and failing to add to Paso Robles’s image and identity. Currently, there are many land uses and services in the area that are useful to the city and its economy, but, some present challenges when examined in the context of the area’s long term potential and fit with the city’s development vision.
Students assessed, in some detail, the strengths and weaknesses of the overall project site and the needs of the community to identify the opportunities and constraints the site offered for the future development of Paso Robles. The assessment considered the project area within both the neighborhood and the region. Interviews with target stakeholders and the community at large were carried out by the students in the project site (74 individuals), besides an on-line survey with the support of the local newspaper (152 responses).

Following the overview analysis, the class identified six specific focus areas forming the site, and sub-teams were formed to deal with each of them. The student teams did a thorough investigation of their focus areas including a survey of existing conditions (through a pre-designed lot survey form), and identified catalytic sites where changes might potentially be most transformative and easily attained in the next ten years. Elements examined included land ownership, the quality of the built environment, and the desires of stakeholders.

The concept plans for the focus areas seek to offer design visions that would contribute to the City of Paso Robles’s effort to revitalize the Riverside area and strengthen its connections to the Salinas River and the rest of the city, overcoming the existing barriers. These visions can be achieved in the short and medium terms, and would help the overall area to realize its full development potential in the long term. Next, very brief descriptions and illustrations representing the ten project visions developed for each of the six focus areas.

**Area 1 - Team 1A: South River Gateway**

*Austin Forde, Mariah Gasch, Daniela Koeller, Yliana Ortega*

This plan envisions an attractive gateway to the Paso Robles Street corridor from the Highway 101 exit by providing a mix of commercial and residential uses that are visible as one drives along Paso Robles Street. It strengthens both automobile access and pedestrian and bicycle connections to the Salinas River. A roundabout intersection will serve to calm traffic and give access to a new Frontage Road, running parallel to Paso Robles Street, which forms the backbone of the residential component of the project. Facing the road will be first-floor townhouses and multi-family apartments over ground floor parking which minimizes potential damage in areas of the site which are within the 100-year flood prone zone. There single-family homes zone is located at the South end of the site. A plaza facing the roundabout provides an open and welcoming entrance to commercial enterprises and will serve to attract visitors into the development.

**Area 1 - Team 1B: Salinas Equestrian Commons**

*Lindsey Klein, Sabrina Meleo, Kenzie Wragge, Amy Gunn*

This alternative vision for Area 1 is based on an equestrian facility and equestrian-oriented development to cater for both residents and tourists, meeting a regional need. The proposal includes a barn-shaped building for equestrian-related activities that can be converted into a space for events such as weddings, fairs, and other social gatherings. Adjacent to the barn there are boarding and exercise areas for horses, and an open recreational field spreading out towards the Salinas River. Equestrian events and polo games will be hosted in this field, but also music concerts and other outdoor gatherings. A small boutique hotel and equestrian-oriented shops are located along Paso Robles Street. A roundabout helps direct and calm arriving traffic, allowing access to parking lot designed to accommodate horse trailers and overnight rental occupancy. These facilities are complemented by a public park and a pedestrian trail leading and along the Salinas River corridor, serving as a gateway to restore vitality to the floodplain.
Area 2 - Team 2A: Paso Robles Riverfront District
Cro Pilato, Hunter Kelly, and Sam Hughes

This proposal envisions a live-work and multifamily residential area and pedestrian friendly gateway to the Salinas River at the intersection of 13th Street and Paso Robles Street (Municipal Public Works site). This corner gives access to a plaza fronted by two-storey buildings with public use and retail on the ground floor with residential above, and industrial live-work buildings. Food carts, coffee shops, public seating and landscaping provide vitality to the plaza. A riverwalk connects it to adjacent focus areas and to an attractive open central plaza along Paso Robles Street. This second plaza opens up to the Salinas River and the mountains beyond. The facilities surrounding the plaza provide services to local workers and tourist/visitors, including a theatre style community center, an art incubator, leasable spaces, and mobile food stations. Public seating, shade structures and pathways to walking and bike trails along the river further open up this area to the river front.

Area 2 - Team 2B: West River Village
Sam Camacho, Alyssa Chung, Rob Etter

This proposal includes a first phase with investments to enhance the existing streetscape and pedestrian facilities, introducing a consistent aesthetic along Paso Robles street and developing a trail system along the Salinas River. Public/private partnerships are called for. Phase two consists of three mixed-use developments linked along the riverfront by the multiuse trail. The first features commercial and retail along Paso Robles including uses such as a neighborhood grocery store with multifamily residential above that could accommodate senior housing. The second site provides a linear park that opens up views of the hills, recreational space for residents and ground floor commercial uses with live-work units and offices on the second floor. The third site offers ground floor space for commercial and light industrial uses such as wineries, commercial services and small-scale operations with minimal freight traffic, plus the unusual suggestion of multifamily residential on the second floor to help support the existing industrial uses and to and generate a distinct identity for the area.

Area 3 - Team 3: The Crossings
Ian Connolly, Heather McCoy, Marco Romagnoli

As the south gateway to this narrow, long, strip of land, The Crossings creates a restaurant/retail district on a city owned lot that enhances the Derby Wine Estates and nearby businesses. Additional developments include mixed-use housing and retail, commercial, and a building for start-ups (the MakerSpace) to complement the adjacent downtown. Site improvements include redesigned streets for better vehicular and pedestrian circulation, improved linkages to Downtown, new parking, and accentuating a “green” image. The Crossings
is a pedestrian friendly district with the urban character of the downtown. Physically disconnected from the downtown this concept prioritizes improving the physical linkages across the railroad. A new pedestrian crossing is created from the railroad station to a newly proposed plaza on Riverside Avenue. The current southernmost rail crossing on Pine Street is moved and reconfigured as a new at-grade crossing on 4th Street. Design includes elements such as pedestrian safety gates and rubber track inserts with flangeway fillers and a continuous design identity between the two sides of the railroad tracks.

**Area 4 - Team 4A: Corridor to the Oaks**  
**Hannah Chiu, Maddie Pritchard, Willow Urquidi**

This proposal includes key elements such as a gateway linking eastern and western Paso Robles, improving circulation along 13th Street from Pine to Creston, stimulating catalytic transformations on seven lots, and facilitating biking and pedestrian movement. Streetscaping is enhanced with attractive, native, and water conserving landscaping. A protected central bike lane along 13th Street continues south on Railroad Street providing a safe alternative to downtown. The northwest corner of 13th and Railroad streets features a kiosk for bike services and products. Bike racks designed as artistic pieces enhance place identity, and art murals and centerpieces are encouraged. New commercial/office buildings fill empty and underutilized lots and plenty of pocket parks are provided. A pedestrian greenway will connect 13th to 12th Street with plenty of seating. New and redesigned parking lot help alleviate local needs and an indoor shopping center/market place and retail outlets on the corner of 13th and Paso Robles Street accent this important gateway, strengthening the linkage between east and west Paso Robles.
Area 4 - Team 4B: Paso Robles Downtown Corridor
Tornia Wilson, Ana Padilla, Lauren Gaul

The first, five-year phase of this plan, executed in a five-year period, implements basic infrastructure and intersection improvements. The historic downtown in the west and modern residential areas of the city in the east are linked by 13th street which crosses Highway 101 and the Salinas River to be intersected by Riverside Avenue and Paso Robles Streets. This grid serves both tourists and locals, linking them to the businesses and cultural sites such as the fairgrounds and Pioneer Park in northern Paso Robles. The second long term phase, encompassing 10-15 years, consists of a new pedestrian bridge linking 12th street over Highway 101 which is fronted by mixed-use buildings. A river lookout/plaza at the end of the pedestrian boulevard celebrates a transition between the natural environment of the river and the built environment of the city. It features a look out that faces the river and hills beyond.

Area 5 - Team 5A: North Riverside Corridor
Audrey Ogden, Melina Smith, Connor Lavi, Kaileigh Johnson

This proposal enhances destination places such as Pioneer Park and Museum, creates diverse housing, augments green spaces, and increasing walkability. Design includes improved sidewalks and paseos with pedestrian lights, new crosswalks, bike lanes and a formal railroad crossings to connect foot traffic directly to downtown. Pioneer Park is enhanced with a new design and accesses, and pocket parks in selected street blocks and along the railroad tracks contribute to a stronger sense of community. Proposed zoning changes increase opportunities for live-work spaces, mixed use, and affordable housing and will help attract commercial businesses. Reconfiguration of various existing lots are proposed to facilitate vehicular and pedestrian traffic, better access to residences and business and help create an inviting and lively environment.

Area 5 - Team 5B: Pioneer Greenway
Eric Martinez, Megan Miller, Jorge Nozot, Gabriel Ward

The Pioneer Greenway establishes a commercial node at the intersection of Riverside Avenue and the 17th Street exit off Highway 101, marking the arrival into the city. Two-storey buildings with welcoming urban corners for pedestrians offer retail and commercial on the first level and residential apartments on the second. Clear wayfinding features will direct the public to nearby landmarks. In the second phase access to Pioneer Park and Museum is improved with street signage, improved sidewalks, crosswalks, and pathways to enhance the pedestrian experience. Redesign and improvement of Pioneer Park and its facilities, a walking and biking path around the park, redesign of the museum to add a community facility will make this complex a community center. New housing, community gardens, and pocket parks along Riverside Avenue strengthen the residential areas. Landscape medians and traffic calming elements on Riverside Avenue soften the transition between the street and the developed areas, and strengthen the connection between the Fairgrounds and Downtown.
Area 6 - Team 6: 24th Street Gateway Improvement
Michelle Huang, Ashley Wong, Matthew Fluhmann, Samuel Love

Providing a welcoming and memorable introduction to Paso Robles from the North this plan creates a pleasant and engaging entrance gateway to the city and develops three focus area. The focus area is the corner of 24th Street and Highway 101, and its major existing element is the Midstate Fairgrounds. Our concept features signage and public art with a pioneer theme, a playground, a visitors’ center, a redesigned gas station, new commercial space, and the redevelopment of the existing parking lot along Riverside Avenue with a parking structure with commercial on the ground floor facing the street and residential above. The visitor’s center will include a meeting room for welcoming functions and community events. Commercial buildings and a small plaza occupy the corner of Riverside and 21st Street. The intersection of 24th Street and Park Street an underutilized lot will now feature a new community park and two mixed-use buildings or a small boutique hotel serving the Fairgrounds.

Logo developed by student Eric Martinez to represent Paso Robles Riverside Area.
Developing a Resiliency Index for CSU Campuses

William Siembieda
PhD.; Professor, City and Regional Planning Department, Cal Poly.

Sustainability and resilience have become intrinsic to good planning and are particularly important to Cal Poly’s Master Plan. Professor William Siembieda discusses his interdisciplinary elective Hazard Mitigation Planning and Design, and describes the students’ efforts in developing an index to measure campus resiliency.

Over the past decade, many college campuses have tried to become more sustainable and lower their carbon footprint. In the last five years campuses have also asked, how do we become more resilient? The national think tank Second Nature along with carbon and climate adaptation commitment, has added a new focus on resilience with links between campus and community.1 Just how does a university determine it’s resiliency?2 What type of metrics are needed to do this? What actions can you take, once an index is created? How are these metrics need to be linked to the system under consideration? These are valid questions that usually take a long time to answer, and require a lot of resources to create metrics, to understand them, and to actively manage them.

This essay describes how students in the interdisciplinary elective Hazard Mitigation Planning and Design: Towards Resilient Communities constructed indexes to measure resiliency at CSU campuses. Offered by the City and Regional Planning Department, the class also included students from Landscape Architecture, Construction Management, and Natural Resource Management.

In constructing an index, one needs to start with defining the metrics. ARUP, the global architecture and engineering firm, has a City Resilience Index (CRI) for use in establishing resiliency in medium and large cities around the world. The CRI uses 172 indicators, grouped in four domains. The ARUP index provided a basis for this campus index. A partnership with ARUP’s San Francisco office was formed with the College of Architecture and Environmental Design’s National Resiliency Initiative Program to establish a campus index tool. The ARUP city approach requires large data sets, and metrics suited for city analysis, but not campus scale analysis. The city approach was modified to focus on a campus and its surrounding community. This modification process became the Campus Resiliency Index (CaRI). ARUP professional staff worked to redesign the index and assisted the student’s who were collecting the index data.

The CaRI identifies a university’s naturally occurring and human-made stressors, and gages the strengths of preparatory actions to address the disturbances and possible shocks. The impact of these disturbances and stressors are examined using four main (domains) categories representing the campus system. These are health and well being, infrastructure and environment; governance and leadership; and education and business. The CaRI narrowed the indicators to those relevant to campus life such as health services, facilities, research, etc. A major difference between the CRI and the CaRI is the inclusion of community factors. The CaRI recognizes that the campus has a relationship with its surrounding community that does influence the way a campus provides for its students, faculty and staff.

To obtain information about the 53 indicators chosen for the campus index, a trial of seven campuses was conducted by teams of three students per campus. The campuses ranging in size from 7,000-40,000 students, located in urban and rural settings, were within the California State University campus system. Using an initial list of campus contacts, the student team spoke on the phone to campus staff people, such as sustainability coordinators, and IT managers; read campus documents, looked up information on the web, developed campus profiles, established a qualitative score for each of the variables, summed the scores, and provided an index for the four main categories. They then developed their own “CaRI Wheel” to illustrate the index. This wheel replicates the ARUP wheel for cities. The students scored each variable on a 1-5 scale. Most scores clustered near the middle of the range, with some lower scores, reported.

While keeping to the ARUP four-domain model, the students were able to customize their Resiliency Wheels to express how they wished to display the information. The student team report included

2 Resiliency, as defined in this instance, means the capacity of a system to absorb disturbance and reorganize to retain essentially the same function, structure, and feedbacks, to have the same identity.
spreadsheet score sheets, a narrative on conversations about the campus interviews, and sources of information consulted. Instead of taking 18-24 months to complete, as is the CRI practice, the student teams did their work in four weeks. The seven campus trial was a “proof of concept” effort. It demonstrated the validity of some metrics, a method for information collection, and a sense of where each campus stood regarding its resiliency. The students gained a deeper understanding of what resiliency is, differences between campuses and the need for establishing a “spatial” context. Their work provides a benchmark for the campuses to move from resiliency thinking to resiliency practice.

The student teams were allowed to create their own wheel figures using the ARUP CRI as a model. The CaRI wheel shown in Figure 1 places the four domains on the outside rim and shows the scores in the grey rings. The CaRI in Figure 2 places the four domains on the inside ring and shows the scores radiating to the outer edges. The Type 3 wheel has the domains outside of the center and brackets the domain three goals, and visually emphasizes the goals. Lower scores appear in the inner rings, while higher scores appear in the outer rings. For this campus, the Infrastructure and Built Environment domain scores received the best scores. Note that these are student scores derived for educational purposes only.

The next step in this projects is to work directly with campus staff to choose the more important metrics for them and to determine the dominant threats; and how to construct thresholds levels (for education, research and safety) that need to be consistently monitored and attended to.
When I was invited to write a piece for Focus's alumni spotlight, putting forward for all to see my "professional" adventures, I was both honored and incredibly nervous. My career trajectory has felt stunted at times, and not necessarily the typical path of a CRP graduate. However, I happily agreed because, while not traditional, my career has been challenging, rewarding and captivating, and was all kickstarted by my undergraduate degree from Cal Poly. So here it goes... Where am I now, what have I learned, and what can I share with you?

Cal Poly was always my number one choice, and the only university I applied to- despite my high-school counsellor's plea to "extend my horizons". I wanted a degree in architecture. The summer before applying to college, I spent four weeks with Cal Poly’s College of Architecture and Environmental Design in a summer career workshop. The Workshop provided me with hands-on experience in studio design exercises, gave me opportunities to attend lectures, participate in projects and go on valuable field trips. I learned about architectural design and history, structural engineering and site planning. It was during this workshop that I was first introduced to city planning and urban design. I applied to CalPoly, still with every intention of becoming an architect, but was accepted instead for my second choice degree, CRP. I ended up loving my classes, classmates, and professors and quickly realized it was a perfect fit. I had the privilege of graduating from Cal Poly's City and Regional Planning Program in 2009 with two minors, one in Sustainable Environments and another in the French Language.

Up until graduation, I was convinced and determined to become a successful employee with a reputable private design firm. This did not happen. Instead, I took a part-time internship with a non-profit active transportation advocacy organization, worked in a restaurant, and in my free time, trained for a marathon. My time with the Alliance for Biking and Walking allowed me to work independently across the country and also provided an introduction to the inner-workings of a national non-profit. The non-profit publishes a biennial Benchmarking Report summarizing data on bicycling and walking in all 50 states, and the 51 largest U.S. cities. The Report includes government data on bicycling and walking levels and demographics, safety, funding, policies, infrastructure, education, public health indicators, and economic impacts. This unexpected work drove, or rather rode, home the importance of healthy and equitable change in the places where we live, work, pray, and play. This ultimately catalyzed pursuing a complimentary Masters degree in public health (MPH). I packed my bags, left California, and headed to Oregon State University.

While studying at Oregon State, I was fortunate to work in the academic research sector through a two-year grant funded low-income rural youth garden project. As the program coordinator, I engaged in collaborative work with diverse groups of people. The Community Based Participatory Research (CBPR) collaboration was designed to provide training, work experience, and improved health outcomes for vulnerable youth between the ages of 16-24. It offered opportunities for adults from the community and faith-based congregations to address issues of social justice by partnering with vulnerable youth. It created strong youth and adult partnerships leading to a sustainable youth garden entrepreneurship program. One of the garden sites continues to be active to this day!

Then, and still simultaneous to my time in academia, I took an internship within Oregon's public government sector with the Health Impact Assessment (HIA) Program. HIA is defined as “a combination of procedures, methods, and tools by which a policy, program, or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population”(Gothenburg Consensus Statement, 1999). HIA is prospective in its approach, meaning that the health impacts of a proposal are assessed before a final decision is made, allowing the results of the HIA to be considered in the decision-making process. HIAs utilize objective information to minimize the negative health impact and maximize the positive health impacts of a project or policy. HIA continues to grow in practice and is applied to all sorts of projects from transit-oriented developments to park revivals, and even greenhouse
gas emission reduction policies. My work with HIA provided the validation I needed that my degrees were, in fact, complementary in the real world!

However, at the time, I was not completely aware of the fragility of public health funding both at the state and federal level... after a couple pauses in work, a short-term contract with a local county to work on chronic diseases and food insecurity policies, and some temp contracts with the state, I eventually got hired full time at the Oregon Public Health Division and continue to work with the Oregon Health Authority (OHA) to this day.

In my time with OHA, I have been involved with various environmental health programs. No week is like the other... Through funding uncertainties and legislative curveballs, I have gained exposure to the world of grant proposals, applications, management, reporting processes, and state policies. I have worked on health education, evaluation and data analysis projects with the Climate and Health Program, the Oregon Environmental Public Health Tracking program, the Domestic Well Safety Program, the Oregon Radon Awareness Program, and most recently the Environmental Health Assessment Program. While I may not be directly analyzing the impacts of community design and the built environment on public health, I now work with communities, agency partners, and other state and local programs to assess and prevent human exposure to toxics found at Superfund and other contaminated sites in Oregon.

I routinely conduct community outreach and engagement activities, convene public meetings, open houses and community advisory committees, and identify and prioritize overburdened and underserved groups within communities where we work. I also conduct site assessments, use InDesign and GIS to create useful and meaningful materials, and talk to planners about environmental data and health outcomes. Some are more obvious than others, but there are still so many elements of my CRP degree that are reflected in my daily work, even if I do not have the title of Planner in my professional accolades.

So, long story short, a few wisdoms I can confidently pass along as a state level Environmental Public Health Educator, with a planning background...

- Be open and adaptable. Expose yourself to opportunities—especially the ones you did not plan for.
- It is ok to feel like an imposter. You are not going to know what you are doing all of the time, but instead, strive for clarity around why you do what you do—then the how.
- Your network is perhaps the most valuable tool in your toolbox. Put yourself out there and communicate, communicate, communicate!
- Lastly: Practice mindfulness at home and the workplace. Take a pause, breathe, and then respond. It might be easy for some and hard for others, but a good deep breath never hurt anyone.
FOCUS 14
Spotlight

Conversations with Alumni
Back to Basics: Planning in the Peace Corps, Rwanda
Michael Heater
Master in City and Regional Planning, Cal Poly, 2013

Before studying planning, Michael worked as a professional photographer, primarily in the newspaper industry. He served as a Peace Corps volunteer from 2014-2016 in Rwanda with his wife. He is now working as a Realty Specialist with the General Services Administration. He and his wife currently live in Philadelphia with their adopted Rwandan cat. Check out Michael’s article with Brian Harrington “Creating more than a Snapshot: Photography for Planning and Design”, in FOCUS 9 (2012).

Armed with a Masters in City and Regional Planning, I found myself in neither a city or a region, but in an isolated village in the western mountains of Rwanda. I was a Peace Corps Volunteer. I graduated with a Master degree in City & Regional Planning at Cal Poly in 2013. A year later I found myself travelling 7,000 miles to what the Peace Corps calls “the toughest job you’ll ever love.”

At the time, I didn't know if I made one of the best decisions of my life or the dumbest. I was leaving behind the SLO lifestyle—wineries, beaches, beautiful hiking trails, as well as running water, electricity, internet and Jamba Juice. But what I did know is that I wanted to use my new set of planning skills in areas without a planning structure where the public planning process is foreign.

The U.S. Peace Corps is a government program where volunteers work for two years (24 months of service along with three months of intense cultural and language training) immersing themselves in a community abroad by living alongside the nationals of their host country and making a salary that meets basic needs. To date, there are over 7,000 Peace Corps volunteers serving in 65 countries around the world.

My country of service, Rwanda, is a small but dense country (the second densest in Africa) about the size of Maryland and has a population of 12 million, double that of Maryland. Located just a few degrees south of the equator and highly elevated, its geography is dominated by green mountains in the west and savanna in the east and dotted with lakes throughout the country. Rwanda’s economy is based on subsistence agriculture. According to the World Bank, Rwanda’s agriculture makes up nearly 40% of the gross domestic product, accounts for 80% of the country’s employment and provides 90% of the country’s food needs. Its exports depend on coffee and tea crops although the tourism industry in increasing: it is one of only three countries where tourists can visit mountain gorillas in their natural habitat.

The country has transformed itself since the 1994 genocide that left more than 800,000 people dead. Today, Rwanda is secure and stable and has gone through significant economic and social changes making the country a model in development. Rwanda has become a major participant in intra-regional trade among the East African Community.

After three months of rigorous training in the east of Rwanda, my wife and I were placed in a rural village called Murunda in the mountainous west. Murunda is located on top of one of the many picturesque hills of the country, covered in banana trees and roaming goats and cows. Our house was sandwiched between the boarding school that I taught at and the public school where my wife worked. It was modest, with a pit latrine, no running water but rather consistent electricity. We cooked on a charcoal stove. Life was simple, and rains came often.

*Michael teaching English through a lesson of Feelings.*
Our primary assignment was to teach English to high school students. I taught 10th grade, and my class size was small in comparison to other volunteers, between 15-40 students. The students had pens and notebooks, and the teachers had chalk. We had no books, and no way of printing anything - notes, diagrams, passages, and tests are all written on the board. If there was something we wanted to use for our classes, we would write it on a rice sack so we didn't have to copy it six times. We could only dream about handouts and projectors.

I didn’t join the Peace Corps just to teach English; I wanted to put my planning degree to good use. But I wondered how I could plan without the comforts of AutoCAD or SketchUp. I had to ditch the computer and get back to the basics—talking to people, listening to their challenges and their visions of the future. Community-based planning in Peace Corps simply means using a bottom-up approach. A volunteer usually takes at least a year to start even the smallest of projects. Time is needed to understand the community and build relationships.

The Peace Corps approach to development is similar to lessons learned during Cal Poly Community Planning Studio. Peace Corps volunteers get training on the principles of Participatory Analysis for Community Action, or PACA as it is known. PACA is a guidebook for planning, managing, and evaluating community development. The core idea of PACA is capacity-building. Priorities of development are identified by the individual members of the community. This approach empowers local people to be the decision-makers, use their own resources, and help develop the skills to improve their lives.

A village bar also served as the community center. It was a respectable place that served warm beer and goat meat. Local government officials, business owners, headmasters, priests, teachers, and farmers all frequented the place. With a mediocre understanding of Kinyarwanda, the language of Rwanda, and a very helpful counterpart, I chatted with patrons about their visions for a future Murunda. Ideas were tossed around, some more practical than other (I couldn’t justify buying a photocopier and then using the proceeds from copies to buy chickens), but enough for me to create a Needs Assessment with priority ranking. These informal discussions helped me collaborate with the village leaders and determine the desires, wants, and needs of the community.

The idea that we settled on, one that generated excitement from the start, was to improve the community basketball and volleyball courts. We agreed that sports are very important to the health and well-being of people, so we identified and prioritized this area as one that could solve a pressing need.

The basketball and volleyball courts were in poor condition before the renovation. Both of the courts were made of dirt
and had exposed brick to mark the lines on the court, which players would often trip over. The volleyball net was torn in many places and the basketball backboard was made of wood and needed to be replaced almost as soon as a new one was put in. We wanted to focus on basketball and volleyball courts to promote healthy living, bring economic development to the village through tournaments, to give another sports alternative than soccer, and to provide a public space for people to gather.

I worked closely with a Rwandan counterpart, and we brought together multiple community and government stakeholders from the beginning of the process. Since Rwandan culture is very respectful of authority, we needed permission from several key stakeholders of Murunda: local government officials, the head priest, two school headmasters, and the local bar owner who served as the community leader. These people helped select the local contractor who would procure the materials, recruit the labor, and design and build the project. We evaluated project designs, created and managed a realistic project timeline, acquired the necessary permits and approvals, received a grant, supervised the construction of the project as well as managed all project funds. I focused on capacity building and project sustainability, ideas I learned while at Cal Poly.

To demonstrate community ownership and initiation of a Peace Corps grant project, as well as to enhance the long-term sustainability of the project, the community must contribute a minimum of 25 percent of the total project cost. This contribution can include the costs of manual labor and transportation of materials as well as direct contributions of raw materials or cash. In Murunda, the community donated sand and stones and even helped with the labor, which had the added benefit of generating needed income for local families.

By involving the community at the very beginning of the process, we were able to identify how they could contribute to the project. A fully engaged community partner is a crucial element to any successful project and signifies the first step in promoting community ownership of the activity. If the community had not been behind it, the sustainability of the project could come into question.

Once I had the grant funds, the community stakeholders wanted to start the project three months ahead of schedule. The first phase of the project was to dig up the current dirt volleyball and basketball courts, remove any exposed bricks, and widen the courts on all sides. During the second phase, community members carried stones on their heads from the riverbed at the bottom of the mountain up to the top for the foundation of the courts. In the third phase, community members collected and carried sand and gravel (also on their heads from the bottom to the top of the mountain), and the court was cemented to
complete the foundation. Finally, skilled laborers painted and erected poles and nets on the courts.

The community as a whole benefited from this project, just as the community as a whole contributed to it. The users of Murunda sports field include the students and teachers, the staff at the Murunda Hospital, and the community members in general, as well as people from other villages. Even after our biggest challenge, when the project construction was suspended due to a lack of cement to finish the surface of the court, the community came together, and Murunda’s School Association stepped in to fund the remaining cost.

Community members and organizations acquired important new skills while planning and implementing this project. The outside technical assistance that was brought in, the process of purchasing materials, the experience gained in design and construction, and the entire process of planning and monitoring this project assisted individuals in attaining skills and knowledge necessary to improve their standard of living (as well as the enjoyment of playing and watching matches!).

Development is considered sustainable when it is able to continue on its own without outside support. According to Peace Corps, sustainable development is a process in which men and women learn to build on their own strengths, to take charge of their lives, and to address their expressed needs. To address sustainability of the sports courts, we created a memorandum of understanding with the responsibilities of each stakeholder. The local government agreed to provide support in the form of umuganda—a monthly government program involving all citizens in nation-wide community service that contributes to the overall development of Rwanda. Umuganda takes place on the last Saturday of each month and lasts for about three hours. The Murunda parish agreed to continue to provide sports equipment, as it had for years. The schools agreed to use the youth in the community to maintain the property and serve as advocates for the grounds. Murunda was able to host more district sports tournaments that brought in more economic activity as well as general sociability to the area. With this increased activity, the community and local government were compelled to support the maintenance of the sports fields.

Once the courts were completed, people used them to play basketball and volleyball from 6 am to 6 pm—all available daylight hours. The biggest change I noticed was that now, by having the concrete base, people were allowed to play soon after a rain. Before, especially during the rainy season, the court would be full of mud and useless for games. Now, pickup games can start immediately after a storm.

What an outsider might see as just a sports court, the locals see as a new opportunity. When the courts aren’t being used for sports, students practice traditional dance on the cemented surface, young primary students are taught lessons through games, and the community hosts meetings and general gatherings. Recently, the court started to serve as a drone delivery point for emergency medicine supplies, like blood, to the Murunda hospital!

This community development project demonstrated the importance of involving the end users in planning, design, and construction of the project. Community ownership can only be truly successful by including local leaders and the public throughout the process.

Rwanda may have lacked technology and resources easily found in the US. However, the hands-on, learn-by-doing education I received through the City & Regional Planning program at Cal Poly helped me to navigate a planning project, even in a developing country.

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**The Peace Corps Mission** is to promote world peace and friendship by fulfilling three goals:

- To help the people of interested countries in meeting their need for trained men and women;
- To help promote a better understanding of Americans on the part of the peoples served;
- To help promote a better understanding of other peoples on the part of Americans.

When establishing the Peace Corps in 1961, President John F. Kennedy described the volunteer experience as: “Life in the Peace Corps will not be easy. There will be no salary and allowances will be at a level sufficient only to maintain health and meet basic needs. Men and women will be expected to work and live alongside the nationals of the country in which they are stationed – doing the same work, eating the same food, talking the same language.”
Learning from California:
Highlights from CRP Studios 2016/2017 AY

These are some highlights of the studio projects from both BSCR and MCRP programs during the 2016-17 academic year. The studios are fundamental in the learn-by-doing pedagogy embraced by the department, and help shaping students into professionals that are fully engaged with their communities.

**Undergraduate Studio:** CRP 201 Basic Graphic Skills (Fall 2016). Professors Vicente del Rio and Beate Von Bishopink.
This studio is responsible to provide students with basic graphic communication skills and urban design concepts. Students learn freehand and technical drawing including perspectives, site analysis and design through the developing a concept for the redevelopment of a parking lot in downtown San Luis Obispo. They are also required to fill in a sketch book with a series of on-site drawings and 10-minute sketches. They are also introduced to InDesign and Photoshop, and have to mount a final portfolio of their major work in the quarter.

**Undergraduate Studio:** CRP 203 Urban Design Studio II (Spring 2017). Professors Vicente del Rio and Beate Von Bishopink.
The studio builds on the knowledge acquired in CRP 201 and 202, advancing students understanding of the planning process, and of graphic, written, and verbal communication. Working in teams, students refine their skills in three-dimensional spatial design, program development, and computer applications. Students focus on problem solving and on think critically. This year the studio focused on issues of post-industrial development and waterfront development by developing ideas for the mixed-use redevelopment of a large parking lot in Avila Beach’s downtown that resulted from the remediation of a large oil spill.

In this studio students expand their design skills and their understanding of the urban design process. Working in teams of two, they develop a project for a one-two block area of San Luis Obispo. Assignments reflect the phases of a design process (analysis, conceptual development, final design) and lead to chapters of a final professional-looking report. Students are introduced to AutoCAD and SketchUp, and to functional, regulatory, economic, and social factors. This quarter they developed ideas for the redevelopment of properties composing two corners at the intersection of Nipomo and Higuera streets in downtown San Luis Obispo.
**Undergraduate Studio:** CRP 341 Urban Design Studio III (Fall 2017). Professors Hemalata Dandekar and Vicente del Rio.

Partnering with the City of Paso Robles, Community Development Department, ten student teams developed urban design visions for six focus areas of public and private lands sandwiched between the Union Pacific Railroad tracks and Highway 101 and the Salinas River corridor. The designs sought to create stronger links to the downtown and the rest of the city, attract motorists and tourists, enhance the city’s identity, and create walkable and memorable environments. The proposals enhanced and added to the existing land uses to realize the area’s full economic potential, and based development on catalytic sites. The final concepts were presented to the Planning Commission in PowerPoint and posters, and detailed in a final report. *(See the article on this project by V. del Rio and H. Dandekar in this issue of FOCUS)*

**Graduate Studio:** CRP 553 Project Planning Lab (Spring 2017). Professor Hemalata Dandekar.

Old Town Newark Urban Design and Development Plan

Through a partnership with the City Of Newark’s Planning Department, the MCRP first year students developed concept plans to revitalize Old Town, the city’s historic center, into a vibrant mixed-use area. Field studies, interviews and surveys of community members and businesses informed preliminary concepts around three themes: the historic character of the site; the architectural styles that complemented existing buildings; and housing optimization. Thornton Avenue, the main street, was divided into five discrete segments which focused on: the development of a rich and diverse housing mix, a central plaza and performance space for community gatherings to function as the center of Old Town; surrounding commercial retail with housing above; a Hispanic themed Mercado complex; an upscale residential block; and, the development of a civic area featuring city amenities such as a library, outdoor recreational spaces, patios and dining areas. *(See the article on this project by H. Dandekar, D. Christie and G. Ward in this issue of FOCUS)*

**City of Lemoore General Plan Update**

Working for the City of Lemoore, this two-quarters long MCRP studio prepared a comprehensive revision the city’s decade-old General Plan. Collaborating with residents, stakeholders, and city leaders, the studio formulated a development scenario to accommodate aspirations for growth in population, housing, and jobs by 2040. After comprehensive community surveys, SWOT analysis, as well as public feedback, students developed a General Plan with long-term goals, objectives, polices, and programs to inform future development on twelve Elements: Land Use; Circulation; Conservation; Housing; Economic Development; Public Facilities; Safety; Health; Open Space; Noise; Community Design; and Air Quality. The preferred growth scenario promotes vibrant and attractive neighborhoods, preserves the City’s character, provides an adequate and diverse supply of housing, and increases job opportunities. As shown in the Proposed Land Use Map below, development is focused in seven key areas: (1) Northwest Lemoore; (2) Northeast Lemoore; (3) West Hills College area; (4) the Nest; (5) Downtown; (6) the Canal; and (7) New Heights Park. Development within these areas is centered on: (a) neighborhood commercial centers to create compact, walkable, and accessible neighborhoods; and (b) major employment locations to boost economic development.
Theses and Professional Projects: 2016/2017AY
Master of City and Regional Planning
City and Regional Planning Department, Cal Poly San Luis Obispo

For fulfillment of the MCRP degree at Cal Poly’s CRP department, the student may choose between developing a thesis or a professional project, or a specific individual project in a final planning studio.

The following abstracts are from master’s theses and projects defended in the 2016/2017 AY. They are available to download from Cal Poly’s Kennedy Library at http://digitalcommons.calpoly.edu/theses.

A Geospatial Assessment of Social Vulnerability to Sea-Level Rise in Coastal San Luis Obispo.
Jesse A. Carpentier
Assessment of social vulnerability to sea-level rise in the unincorporated coastal area of the County of San Luis Obispo (County) using geospatial and statistical analysis to inform local climate adaptation efforts now required by state legislation. A social vulnerability index was generated at the Census block group level using 32 variables positively correlated with social vulnerability. GIS software was used to map social vulnerability scores and building footprints attributed each block group in the coastal planning area. To provide a preliminary assessment of exposure to sea-level rise hazards, social vulnerability and buildings are overlaid with existing spatial datasets for inundation, bluff erosion, dune erosion, and wetland migration induced by sea-level rise in the year 2100. Implications for existing plans and further research include the incorporation of sea-level rise vulnerability into the general plan (safety, land use, and environmental justice elements in particular), local hazard mitigation plan, and local coastal programs.
http://digitalcommons.calpoly.edu/theses/1765/

Ecosystem-Based Management in the Morro Bay Watershed and Estuary.
Lucas E. Crandall
Discussion of the implementation of ecosystem-based management in the Morro Bay watershed and estuary as a solution to problems associated with human interaction with the natural environment. The theory behind ecosystem-based management challenges many tenets of existing natural resource management. This thesis finds the concept of ecosystem-based management as favorable despite tradeoffs and impacts of changing status quo. The preliminary research question asked if key criteria of ecosystem-based management were integrated into existing management plans of institutions such as the Coastal San Luis Resource Conservation District, Morro Bay National Estuary Program, and the San Luis Obispo Science and Ecosystem Alliance. Survey and interviews were used to assess inconsistencies between management plan goals and on-the-ground implementation in the Morro Bay ecosystem. The results were used to incorporate tenets of ecosystem-based management into the Coastal San Luis Resource Conservation District’s five-year and annual strategic plan update.
http://digitalcommons.calpoly.edu/theses/1723/

The following are projects developed in the final planning studio; Spring Quarter 2016/2017AY. Most result from policy recommendations from the general plan that the class developed in CRP 552/554 Planning Studio (Fall 2016 & Winter 2017).

Transfer of Development Rights: Analyzing alternatives for conserving agriculture and open space to keep the small-town feel for Leemore.
Noe Contreras
An analysis of the feasibility of a transfer of development rights (TDR) program as an additional tool to support the permanent conservation of agriculture and open spaces in City of Lemoore. Which location might be best suited if TDR is a planning tool? Analyzing alternatives for conserving agriculture and open space to keep the small-town character, several TDR sites are identified as “receivers and senders. Criteria for choosing the sites include improving downtown development, location near major employment areas, and conservation of agriculture and open space.

Leemore Water Management Plan Update.
Shane Mahoney-Barnett
This report was prepared in order to assist Lemoore in future
development of an Urban Water Management Plan. The report describes the City’s water supply, infrastructure, and some design and policy solutions in order to better conserve water.

City of Lemoore Farmers Market Feasibility Study.
Justin Guan
The City of Lemoore Farmers’ Market Feasibility Study explores city potential to support a community farmers’ market. It provides an approach to defining the demand for a market through analysis of select indicators, delineates the size and scope of the market according to projected demand, and, if deemed a prosperous venture, suggests factors to consider in determining how the market should be organized and where it should be located for optimal success.

City of Lemoore Downtown Revitalization Plan
Kimia Kiani
The City of Lemoore Downtown Revitalization Plan focuses on D Street to identify development opportunities which can create a vital main street for the City. The goal is to serve residents and tourists with attractive places to gather, recreate, and shop. The Plan includes site analysis of the focused area to identify potential sites for development, comparable case studies, goals and programs, design guidelines, a proposed concept map and implementation strategies to improve the vitality and local economy of D street.

Man-Made Hazard Amendment to the 2013 Kings County Multi-Jurisdiction Local Hazard Mitigation Plan for the City of Lemoore.
Caitlin Miller
Requested by the City of Lemoore, this an amendment to the 2012 Kings County Multi-Jurisdiction Local Hazard Mitigation that focuses on decreasing vulnerability to both natural and manmade hazards specific to Lemoore. This plan includes an analysis of man-made hazards, risk assessment, and mitigation actions with input from a public community-wide survey.

Strategies for Diversification of Housing in the City of Lemoore
Caitlin Milich
This report analyzes current demographic trends and future population projections in the City of Lemoore to ensure there is adequate housing for future decades. The document takes information outlined in the current County of Kings Housing Element as well as the 2040 General Plan Update develop innovative strategies for improving on and expanding existing housing stock to meet future demand.

Lemoore Strategic Parks Plan.
Aaron Peth
The Lemoore Strategic Parks Plan (LSPP) provides guidance for the development of future park space in Lemoore. The LSPP presents three unique park types that should be prioritized for Lemoore to meet the current and future needs of the City’s residents: pocket parks, a wetlands park, and a canal linear park.

The Lemoore Bikeway Master Plan.
Benjamin C. Rady
This plan provides improvements to bicycle infrastructure development for the City of Lemoore. It includes an exploration of existing conditions and describes performance measures are also described to monitor the city’s progress. This plan is guided by goals and policies for facility design safety, education and enforcement, and implementation and funding.

Urban Agriculture Strategies for Lemoore.
Ryan Russell
Urban agriculture is becoming more recognized as an important solution to a variety of health, environmental, and economic issues that are arising in cities globally. This report analyzes existing conditions in Lemoore, the various methods of urban agriculture, and implementation tools. From these, strategies specific to Lemoore are recommended.

Lemoore Economic Development Strategic Plan.
Allison Rustick
This Economic Development Specific Plan is intended to provide guidance for future economic development in the City of Lemoore. The Strategic Initiatives seek to focus on priorities identified as the following Initiatives: Safe and Vibrant Community, Growing and Dynamic Economy, Fiscally Sound Government, Operational Excellence, and Community and Neighborhood Livability.

2040 Annexation Plan, City of Lemoore, CA.
Carol Ziesenhenne
A factual analysis of annexation feasibility for unincorporated parcels to the North of Lemoore’s city boundary. This project features a summary of procedural considerations for annexation, as well as recommendations for the City. Two annexation alternatives are presented that most closely support the long-term vision of the General Plan Update.
How do I get there?

I have no idea. I was born on this side!

Urban Isolation
by Eduardo (Dedé) Rocha

Architect and professor at the School of Architecture and Urbanism, Federal University of Rio de Janeiro, Brazil. Dede teaches drawing and design, and is an accomplished architectural illustrator.