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I am proud to introduce this edition of FOCUS, the Journal of the City & Regional Planning Department, that highlights celebration of the department's 50th anniversary. Many 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.



Each year in FOCUS I present several priorities for CRP that I want to share. This year they are:

- Ensuring that our program 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California's most pressing problems including housing affordability, urban growth and livability, overburdened and outdated infrastructure, the climate change crisis, and natural hazards.
- Providing financial support to students in need by increasing our endowed scholarships; we believe that everyone who wants to be a planner should not be held back because of their financial situation.

This year the City & Regional Planning Department celebrated 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 practicing planning in California and beyond. Our big celebration was a two-day event in San Luis Obispo on April 27-28, 2018 which included a symposium on the future of planning, a retrospective on the department's history, campus tours, a luncheon honoring retired professors Paul Wack and Zeljka Howard, and dinner at Edna Valley Winery. I want to thank everyone who helped make this a special weekend, especially our department staff members, Melanni Wiedrich and Janet Murrietta, donors and sponsors, and the members of our City and Regional Planning Advisory Council (CIRPAC): Ray Hashimoto (Chair), Bruce Baracco, Geoff Bradley, David Carbone, Michael Codron, Lynette Dias, Paulo Hernandez, Pam Johns, Peter Koetting, Steve Lynch, Martha Miller, Lisa Ring, Leeanne Singleton, Delvin Washington, and John Wilbanks. The CIRPAC did the majority of planning and implementation for the events and deserve a big thank you!

As we reflect on our history and successes, we looking forward into 2019 and the future. The new year will begin with a site visit from the Planning Accreditation Board. Two faculty members from other universities and a practitioner will review our self-study report, visit the campus for three days, and assess the state of the program. These assessments are useful for getting an external perspective on how we are doing and holding us accountable for providing a quality education. We will use the visit and report to help launch a full assessment of the curriculum to ensure that it meets of the needs of a 21st century planning education. We will solicit your input and advice in an upcoming survey.

- Increase enrollment in the graduate program and increase the diversity of students in the program through marketing, scholarships, and commitments to inclusivity.

I hope you will embrace these goals as well and partner with us; we welcome your advice and help. 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 draw your attention to the section in this edition written by four of our former department heads. On behalf of the Cal Poly family I want to thank them for their service and for building a great city and regional planning program. Our students are bright and enthusiastic, our alumni are successful and influential, and our faculty are innovative and dedicated. What an incredible legacy! #CalPolyProud

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

2018! The CRP Department is now half-a-century old—a significant accomplishment by all standards, particularly considering it continually ranks among the best planning programs in the US. Both the undergraduate and graduate programs get better every year by any measure—the quality of students and their work, the faculty accomplishments, or the feedback from industry. FOCUS serves as one of these measures and as faculty, founder and managing editor I am very proud the journal has been up to the challenge; so much so that we are now celebrating its 15th anniversary! Readers seem happy and the journal is continuously expanding its reach. In fact, according to Cal Poly library's Digital Commons platform, FOCUS readers are counted by the thousands in the US and countries as diverse as Australia, Canada, Great Britain, Chile, Brazil, Nigeria, South Africa, Iran, Turkey, Norway, Japan, Russia, China, and South Korea! Unfortunately, not all were good news this year, as we unexpectedly lost Sierra Russell, one of our most beloved and brilliant alumnus; FOCUS celebrates her life with a modest eulogy.

This issue's Special Events Section starts by highlighting CRP's anniversary celebration with images of its many happy moments, complemented with notes by four former department heads. Next, CAED's 2018 Resilient Design Symposium is discussed by its organizers professors William Siembieda and Margo McDonald. The symposium brought together leading professionals in the industry to present and discuss resiliency practice and future trends, and to reflect on implications for the profession and for design education.

The Peer-Review Section includes two interesting articles. Alex Quintero, from Florida State University, discusses how an age-friendly community initiative in Tallahassee was limited by weaknesses in its planning process, noting the importance of ensuring that these types of initiatives have broad participation and inclusive foundations from the start. Amir Hajrasouliha, a faculty in Cal Poly's CRP department, discusses his study of how students' perceptions of the campus physical environment reflect in academic performance and graduation rates.

Seven exciting contributions are included in the Essays Section. Town and landscape planner Randall Arendt elaborates on the critical elements necessary in form-based design standards for small communities, based on his significant design and research experience. Barbara Ribeiro, a doctoral student at the University of Auckland, discusses sustainable and inclusive food processes in cities, and the importance of bringing production and distribution to parks and public spaces. Cal Poly professors Daniel Levi and I discuss public attitudes towards the preservation of historic religious sites through a study of three California missions. Ivor Samuels and Anna Kantarek, faculty at the Universities of Birmingham and Cracow respectively, discuss how the modernist introvert city block contributed to the erosion of

the street environment and evolved into today's gated communities. Amir Hajrasouliha discusses the importance of adapting left-over campus spaces as flexible areas for academic and non-academic uses. The Essays Section ends with two contributions by Portuguese architects and urban sketchers. Filipa Antunes, an accomplished artist and teacher at Lisbon's Lusofona University, discusses her approach to urban sketching and the importance of training the eyes and the heart to see and feel places. Carlos Almeida, a Portuguese architect and urban sketcher now practicing in the US, presents a beautiful series of his line drawings that are poetic explorations of suburban morphologies.

The Section on Faculty and Student Work opens with an essay by Amir Hajrasouliha and his CRP 512 graduate students on a studio's design explorations for a driverless future in San Luis Obispo's downtown. Aliza Herzberg, an Anthropology/Geography student minoring in CRP, writes about the social and economic implications of urbanization and urban water scarcity in Sana'a, Yemen. Dr Hemalata Dandekar and I contribute with two essays on our graduate and undergraduate studios: one on redevelopment concepts to face sea level rise at San Francisco's Embarcadero, and another on revitalization concepts for the downtown and the railroad district of Dinuba, a small town in California's central valley.

The CRP department continues to emphasize the importance of international education, and encourages students to study abroad. In the International Session, seniors Laura Traffenstedt and Justin Wong write about their experience in studying urbanism at Copenhagen's famous Danish Institute for Study Abroad. Professor Diogo Mateus, from the Lusofona University, and I discuss a two-week summer workshop in Lisbon that included CRP graduate and undergraduate students.

As customary, the Spotlight Section includes interviews with alumni, featuring Ray Hashimoto (BSCR class of 1981) and Kevin Valente (BSCR class of 2011), followed by *Learning from California* highlighting this year's studios, and the abstracts of thesis and professional projects from this year's MCRP class. Also as customary, FOCUS's Cartoon Corners include planning-related cartoons by Eduardo Rocha, an architect and faculty in Brazil, and artist and CRP alumnus Blaze Skyra.

I hope our readers enjoy this issue, and I take the opportunity to invite your participation either by letting us know your opinion or by contributing with an article for peer-review, an essay, or a personal account of your experience since you left Cal Poly. Happy plans, and happy 2019!

Vicente del Rio, PhD.
Professor, City and Regional Planning
Founder and Managing Editor

Retirement

Chris Clark

J.D.; Adjunct professor, City and Regional
Planning Department, Cal Poly San Luis Obispo.

Abraham Lincoln put his arms around Richard Henry Dana Jr. and held him for a long time. Dana, a Boston Brahmin, lawyer and author of "Two Years Before the Mast", had successfully argued the *Prize Cases* before the Supreme Court. Dana's success eliminated a potentially crushing burden upon the U.S. during the Civil War.

If the devil is in the details, the *Prize Cases* held him. Prize is a term in maritime law for a vessel seized during war. One nation may seize, and take ownership of or proffer to another, a ship benefitting the belligerent nation—the one they are at war with. The United States was not at war with a *nation* when the Civil War was fought. Lincoln did not want war declared by Congress, as that would imply the southern states had sovereignty, that they were an independent nation. Rather he concluded that it would best serve that nation—the Union—if the aggression were against an *insurrection* within the United States.

War, prosecuted by a formal declaration, would carry other technical risks, including having some countries begin to recognize the southern states as a separate nation, and even take sides in the war. But the President was also damned if he didn't make the formal declaration.

Lincoln had established blockades on the southern ports as part of the effort to weaken the control of the southern insurrectionists. The government had seized vessels of all types entering these ports, and they were claimed as prizes. If the Supreme Court decided that the Civil War was not a war, that such could only occur between nations and at least must be declared, then the U.S. could become liable for the ships it seized and required to pay enormous sums as recompense. An amount estimated to be possibly crippling to the Treasury.

During the Civil War, when lawyers brought cases to court to reclaim the ships or their value, the law was in a conundrum—one that was sustained to the Supreme Court. In a divided (5-4) opinion, it decided that "The President was bound to meet [the aggression] in the shape it presented itself, without waiting for Congress to baptize it with a name; and no name given to it by him or them could change the fact." Whether or not it was called a War, it should be treated like one. A rose, by any other name.

Richard Dana, a last-minute addition to the President's legal team, developed the argument that the majority bought. His capacity to do so came in no small part from contracting measles in his teens. He represented one of many generations of Danas to enter Harvard College. His family had long been part of the Boston Establishment, his grandfather had been Chief Justice of the Massachusetts Supreme Court. One of his grammar school teachers was Ralph Waldo Emerson and his son would marry the daughter of Henry Wadsworth Longfellow, a next-door neighbor—it doesn't get more New England than that.

Before Dana was deep into his studies, he came down with the measles. The disease, remember this is long before vaccines and other modern medicine, afflicted his eyes and especially his ability to read. That was not a disability that could be overcome sufficiently to study.

So, he went to sea. At age nineteen in 1834, Dana boarded the *Pilgrim* as a common seaman. Its destination was the west coast of Mexico, including the ports of San Diego, Santa Barbara, Monterey and San Francisco. Mexican ranchers in California had cow hides (in the tens of thousands) to sell to manufacturers in New England and the *Pilgrim* was dispatched to haul them.

Dana crewed in the forecabin, a small and rancid compartment located in front of—before—the mast of the ship. On his way to Cape Horn he witnessed a flogging of a sailor that set a cornerstone in his career. So disproportionate and cruel was the punishment that he vowed to assist sailors in any way within his means.

Those means would come with a law degree after his return and resumption of studies at Harvard. But he also experienced something else on this voyage that would set his course. Crew members were often a diverse group. The fictional *Pequod* of *Moby Dick* had Africans, Persians, Native Americans and Polynesians. Dana encountered, worked with, and established bonds with blacks, Mexicans and Sandwich Islanders. This contrasted with his university cohort, mostly the Brahmin class of Boston, who associated only with others of their kind.

A caste system, like any class system, has established rules of behavior and interaction with "lower" classes. Dana's voy-

age eliminated the distinctions for him. When he returned to Boston, he was different from the other members of society. In 1840, when he was admitted to the bar, he published his memoirs of the voyage.

His law practice was principally maritime. Sailors sought his representation, wanting to be counseled by the author of *Two Years Before the Mast*. He won numerous cases against vessels, officers and the companies that controlled them. This put him on an odd footing with those he was associated with in society.

Later, he began to defend clients—blacks—against the Fugitive Slave Act, considered America's most draconian law. The act made it illegal to harbor escaped slaves, or otherwise assist them, or to not affirmatively assist in their recapture. One case, in defense of Anthony Burns, brought him international note, and an attack on his life. This also angered many Bostonians.

While the North fought the Civil War to end slavery, before the war New Englanders were not uniformly abolitionists. In fact, the textile industry, which overtook whaling as the principal portion of the economy, was dependent upon slave-picked cotton to manufacture their products. The end of slavery would dramatically alter the supply chain.

For the industrial class of Boston, blacks were no less mechanisms of industry than the loom. For Dana, however, captured Africans were not a commodity. They were fully human, in spite of what many southerners and northerners, or the Constitution, said. His experience at sea dissolved the barriers that separate people. This was not an intellectual observation, it was the grounding of his soul.

Dana defended blacks from acquisition and forcible return to slavery under the Fugitive Slave Act. He was ostracized for doing so, and nearly got killed. He did not do it for money, and he did not do it because it was politically expedient—it was far from both of these. He did it because in his mind and his heart he had had experiences that could afford no other course. We know this because of his extensive journal. Robert Lucid's presentation of this journal is referenced below.

From the experiences of a privileged college boy aboard a brutal vessel and landing on a Pacific shore, Dana developed principles that, it is argued, helped set the Civil War in motion and allow Lincoln to continue it. This argument is articulated in a recent biography of Dana by Jeffrey Amestoy, also referenced below.

So, you have wondered, what does any of this have to do with city planning? Well, I suppose, in the particular, not much. And why is this article titled Retirement?

On a thirty-hour bus ride from college in Eugene, I was returning home for the first time in the winter of 1972. As we rounded Pismo Beach on 101, I saw a large construction site that would become the shopping center at Oak Park Boulevard. I had grown up in Grover Beach (nee City) looking at the hills north across the freeway. No structures had been built on those hundreds of acres of ranchland. K-mart would be the first.

I remember feeling sick to my stomach. How could this get torn up? What authority did anyone have to change this landscape? The last question was not something I could articulate at the time. Only the emotion of the destruction of the natural area was at hand for me. However, it permeated and precipitated some of the decisions that led me to planning. If I am an environmentalist, then that is the source trauma, still vivid in my own memory.

But let me assure you, this is not intended to conflate my career with Dana's. It is only to draw a parallel to something I've identified as a defining moment. And to ask you to do the same. Careers are always drawn by expediciencies: money, location, society and personal ability. However, there is usually something more, something deeper, that drives them and sustains them.

But let me end any further lecturing and suggest to you some readings which I have only recently done. They are great, though there will be others more closely aligned with your experience.¹ For me, one of the great joys of these discoveries is that they came at the close of (this portion of) my career, on the eve of my retirement. Check these readings out:

Dana, R.H., Jr. (1840). *Two Years Before the Mast: A Sailor's Life at Sea*. New York, NY: Harper Brothers.

Amestoy, J. (2015). *Slavish Shore: The Odyssey of Richard Henry Dana Jr.* Cambridge, MA: Harvard University Press.

Jeffrey Amestoy was Chief Justice of the Vermont Supreme Court and his book brings back to us the life and importance of Dana. Most people, if they have heard of Dana, know only of his book. Justice Amestoy brings us his life.

Lucid, R. (ed.). (1968). *The Journal of Richard Henry Dana, Jr.* (Three volumes). Cambridge, MA: Belknap Press of Harvard University Press.

Prize Cases, 67 U.S. 635 (1862). This can be accessed at <https://supreme.justia.com/cases/federal/us/67/635/>.

As a lawyer, I am comfortable reading legal opinions. As a scholar, you should become comfortable as well. Judicial opinions can be read as essays, by great minds, on issues of import. Consider the case of The Amistad at: <https://supreme.justia.com/cases/federal/us/40/518/>.

Sierra Russell

J.D.; BSCRП Alumna, 2004
1982-2018

Sierra Summer Russell, Esq., unexpectedly passed away in February 2018 during a minor illness. Sierra was a devoted wife, mother, dog mom, attorney, and friend.

Throughout her life, Sierra was a star student; the valedictorian of her high school, graduating at the top of her BSCRП class in 2004, and with honors from law school. She was compassionate, curious about the world, and hardworking. At Cal Poly, Sierra participated in Associated Students in Planning, the CRP Shermanators Softball Team, numerous other campus activities, and was the first CRP student to study abroad in Rio de Janeiro. There, she quickly learned conversational Portuguese and built lasting friendships. Sierra was beloved by her classmates and professors who appreciated and admired her intelligence, kindness, and drive.

During her internship at the City of Paso Robles, Sierra played such an integral part in the General Plan update that the Planning Division dedicated a brick to her at City Hall. After graduating from Cal Poly, she went on to work in private sector planning in San Francisco, then pursued her Juris Doctorate. Sierra was an Order of the Coif member of the University of Denver Sturm College of Law. While working full-time as a real estate attorney in Denver, Sierra made time to give back to the community through several nonprofit organizations. She served on the Board of Directors at the Rose Andom Center and Mile High Learning.

The last few years were incredibly momentous for Sierra. She bought a house with Dan Vagasky, they got married, and had a baby, Inara. Sierra's last year was filled with lots of love and adventures as a new mom. Her family has laid her to rest at a waterfall in the Sierra Nevada by her hometown.

There is a special place in the universe for thoughtful and generous people like Sierra. She made a lasting impression on many and is dearly missed.

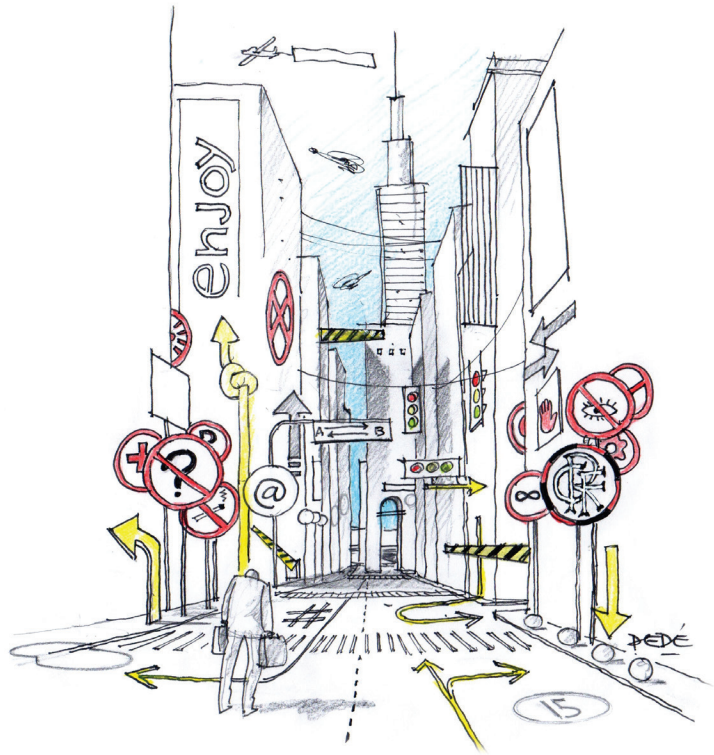
Sierra's interview featured in FOCUS 11 Spotlight Section in 2014.



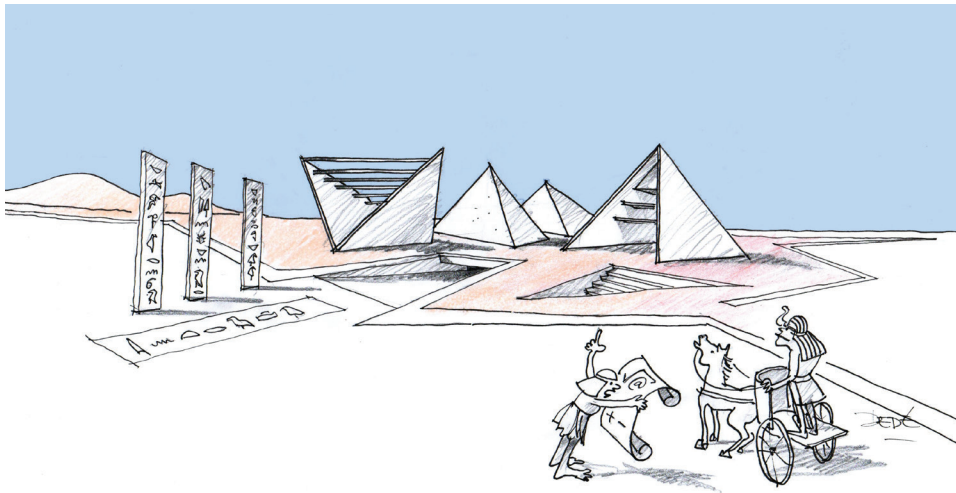
Cartoon Corner

by **Eduardo (Dedé) Rocha**

Architect and professor at the School of Architecture and Urbanism, Federal University of Rio de Janeiro, Brazil. Dedé teaches drawing and design, and is an accomplished architectural illustrator. Looking at architecture and urbanism from a satirical perspective, he constantly collaborates with FOCUS.



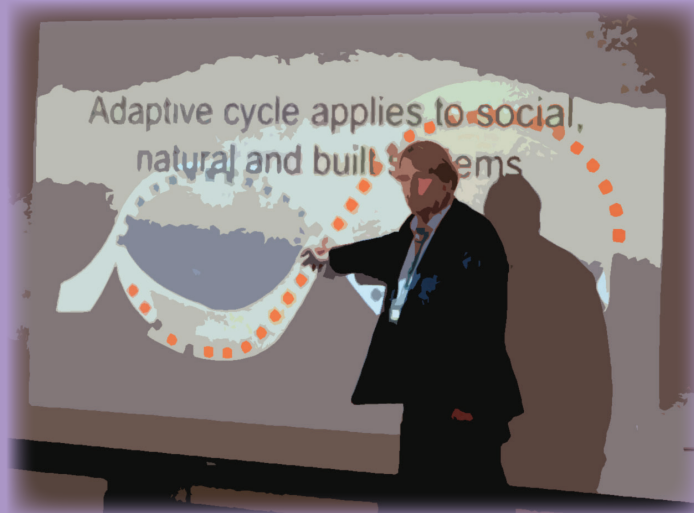
The pedestrian dilemma.



"Oops... I think I might have misinterpreted the construction documents...."

FOCUS 15

Special Events



City and Regional Planning Department 50th Anniversary

The 2017-2018 academic year was marked by celebrations of the City & Regional Planning Department's 50th anniversary. 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 (18 men and 2 women), and CRP now boasts over 1,500 alumni that are practicing planning in California and beyond.



CAL POLY
City & Regional Planning

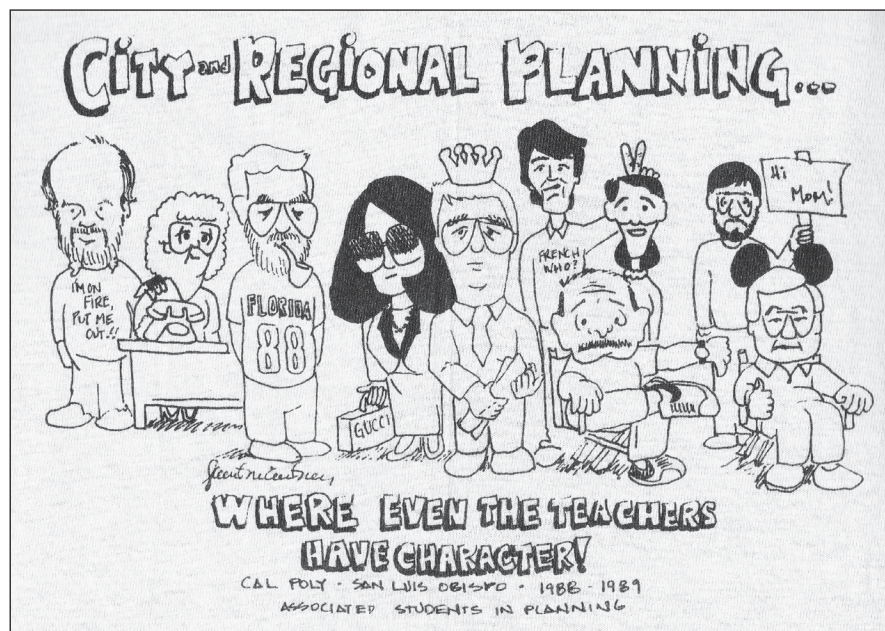
Celebrations kicked off at the 2017 APA California Conference where the City & Regional Planning Advisory Council sponsored a tour of the LEED Platinum-certified Golden 1 Center and a reception in downtown Sacramento. Celebrations continued with a two-day event in San Luis Obispo on April 27-28, 2018. The first day included studio visits, a campus master plan tour, an exhibit of student posters and reports, and a retrospective symposium when alumni representing various CRP generations spoke and exchanged memories. The first day culminated with a casual reception at RRM Design Group.

The event's second day included more planning-related tours (campus and downtown SLO), a luncheon in honor of recently

retired faculty Paul Wack and Zelka Howard, and the panel "The Future of Planning: Understanding and Navigating Technological Disruptions". After opening remarks by CAED Dean Christine Theodoropoulos, the panel included presentations by Jesse Dundon (co-founder & CEO, Hathway Mobile Agency), Peter Day (Public Policy Research & Analytics, Lyft) and Josh Grossnickle (director of Marketing Insights, Facebook).

The two-day event came to an end with a Saturday night dinner at Edna Valley Winery. These were great opportunities to reconnect and get updated on the important contributions of CRP alumni to the communities they live and work in and to our profession. If you have not done so yet, we encourage you to participate in our community by joining the City & Regional Planning Advisory Council (CiRPAC), alumni and professional planners committed to assisting CRP in achieving its vision and goals.

In the next pages, FOCUS includes mementos of the two-day event, and reflections from four former CRP department heads.



Cartoon by CRP student Sean McCartney for the Associated Students in Planning of CRP faculty and staff. From left to right: Ed Ward, Dianne Ellis, Earl Starnes, Zelka Howard, William Howard (Department Head), Steve French, Joe Kourakas, Linda Dalton, Tom Lions, and Michael McDougall.



The large audience of alumni and current students during the panel, with the student exhibit in the background.



Welcoming by CRP Department Head Michael Boswell.

Statements by CRP alumni from different classes: Rich Heckendorf (BSCR, Class of 1970), Ray Hashimoto (BSCR, Class of 1981), and Martha Miller (MCRP, Class of 2000).

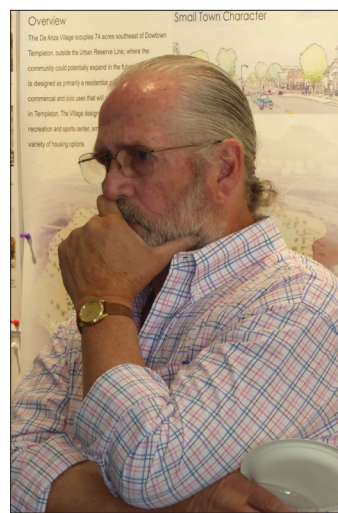


Opening remarks by Dean Christine Theodoropoulos.



Dean Christine Theodoropoulos with panelists Josh Grossnickle, Peter Day, and Jesse Dundon.









Reflections by**William Howard**

*PhD, FAICP, Professor Emerita, CRP
Department Head, 1980-1989.*

"There was a lot about things about outfit they didn't tell me about when I signed on".
(author unknown)

I was appointed to the School of Architecture and Environmental Design in the fall of 1980 as the first full-time head of the City and Regional Planning Department. My title, as listed in the appointment letter, was Principal Vocational Instructor of the City and Regional Planning Program. While the creation of the CRP Department had been approved in 1978, nothing had been done toward bringing about a structure for the Department.

I was not unfamiliar with the Central Coast of California. While on the staff of the Denver Research Institute, a division of the University of Denver, I was sent to the Central Coast to assess the willingness and capability of the communities in the area to provide off-base support of the opening of the Pacific Missile Range, known today as Vandenberg Air Force Base.

At the time of my arrival, the City and Regional Planning program was comprised of four full-time faculty --Frank Hendricks, Joseph Kourakis, Michael McDougall, Ed Ward-- and one part-time instructor Fredrick Mamarow. The faculty and classes were housed in Engineering West, while the department head's office was in the Dean's office compound. All told, there were 84 students in the Department--78 undergraduate students and 6 graduate students. After one quarter the graduate enrollment was narrowed down to only one. It was evident that if the program was to survive and thrive, recruiting students was of paramount importance. It was also essential to get more faculty, and that was in turn dependent upon getting more students.

I started working with the University's School Relations Office to sell planning as an option for graduates of high schools as well as transfers. Over the years I had made many friends in the University of California and turned to them for attracting possible graduate students. Over the years graduate students came from UCSB, UC Berkley, UC Santa Cruz, and numerous CSU universities. Toward advancing the program, I employed numerous steps.

Along with the head of the Planning Department at Berkley, we invited all heads, directors, and chairs of planning programs to a two-day conference to share experiences to find out what



each program was doing. From that conference, it became clear what the direction of the Cal Poly CRP Department should be: prepare planners for practice. No other program was doing this.

How to accomplish this? I turned to my work experiences prior to coming to Cal Poly. While on the faculty of the University of Colorado I worked extensively and successfully with community - based projects which engaged students in assisting cities to address their planning issues. Foundation moneys primarily funded these projects.

No funds were available to the CRP department to launch such a direction. I was given a departmental expenditure budget of less than \$900.00 for an academic year. Convincing local governments to sponsor class projects was the only answer. This approach proved to be very successful. One year we had a project in Imperial Beach, another in Solvang, another in Buellton, another in Atascadero, Calistoga, and a pattern was established. That has been the basis for the success of the program through time. During that time, we modified the curriculum and introduced an internship requirement for all students. Besides, entering students at both undergraduate and graduate levels were required to attend local government meetings to better understand the workings of their chosen field.

Increasing the visibility of our department and the program was high on my agenda. To this end, the department co-sponsored the California Chapter of APA conference one year on campus and exposed the attendees to the use of computers. We also spearheaded a conference on campus designed to attract young women to the CRP major.

The student enrolment in both the undergraduate and graduate programs increased. At the end of my tenure as the department head in 1989, the CRP Department had 251 students total, 50 of those were enrolled in the graduate program. The CRP Department was the second largest department in the College of Architecture and Environmental Design. The first program accreditation was conducted during my tenure as the department head in 1984.

Moreover, for the period that I was department head, I invited numerous people to visit with the department, some as guest speakers, some as visiting faculty. Among these were: Earl Starnes, PhD. University of Florida, Daniel J. Schler, Ph.D., University of Colorado, and Peter Hall, PhD UC Berkley.

Aside from the individuals named above, there were numerous adjunct faculty who contributed to the advancement of

the programs: Paul Crawford, Kate Foster, Paul Wack, William Walters, Richard Peterson, Ronald Wright, and Leo Jacobsen. We were also fortunate to add new full-time faculty members to the department: Steven French, Linda Dalton, and Zeljka Bilbija. Also, a big salute should go to Diane Ellis. While her title was “secretary”, to the Department, she contributed much more. She guided and assisted students and faculty in many ways. I often thought of her as the “CRP Den Mother”.

Late in my time as department head, I had been approached by representatives of the David and Lucile Packard Foundation to work as a Community Development Director of the City of East Palo Alto, a city named the “murder capital” of the nation in 1993. Academic burnout convinced me to take the challenge. I took a two-year leave of absence. This proved to be one of the most rewarding experiences of my career.

Reflections by

Linda C. Dalton

*PhD, FAICP, Professor Emerita,
CRP Department Head, 1989-1994.*

My five years as head of the City and Regional Department was a period of consolidation and institutionalization for the department and its undergraduate and graduate programs. Here are some reflections on important events and accomplishments during that time.

My first task during the summer of 1989 was to prepare specialized accreditation documents. The BSCRIP was up for renewal and received reaccreditation later that academic year. However, the master's degree program had just completed the minimum requirement of granting twenty-five degrees. The Planning Accreditation Board (PAB) initially denied accreditation for the MCRP. We appealed, and the PAB granted a second review, this time finding the program in compliance with the criteria. Since then, both programs have sustained their professional accreditation. My “reward” was to become a member of the PAB itself and review many other professional planning programs as a PAB member or site visitor over the next three decades.

The faculty was small yet very committed to the Cal Poly Learn by Doing tradition in planning. I recall we had about seven full-time positions and two or three regular lecturers. I followed Bill Howard as department head. We had some losses: Ed Ward passed away, Mike McDougall retired, and Steve French left for Georgia Tech (where he is now Dean of

the College of Design). Others passed through – Linda Day, David Dubbink, Mike Smith-Heimer. And, some of the faculty hired or renewed during this period became long-standing contributors to both programs – Zeljka Bilbija (now Howard), Chris Clark, and Paul Wack. Joe Kourakis was there throughout and succeeded me as department head. Dianne Ellis, our only full-time staff, brought her wry sense of humor and sincere concern for students to the department.

We undertook curriculum development, refining the course requirements for both the BSCRIP and MCRP while retaining a strong focus on lab experience. Also, we worked through University processes to achieve approval of a joint degree in Transportation Planning with the College of Engineering.

One of California's many fiscal crises occurred in the early 1990's, requiring both enrollment and budget reductions. The CSU offered a “golden handshake” early retirement program to encourage senior faculty to reduce their time commitment. Fortunately for CRP students, the University converted academic positions to budget dollars, so the retirement or semi-retirement of several faculty left the department with sufficient funds to hire other faculty to meet course demand.

At the same time, the department was able to expand its office and lab space in Dexter Hall. The Landscape Architecture Department had been co-located with CRP on the north side of the building. Then LA moved its departmental and faculty offices to the south side, releasing space for CRP. In addition, we were officially designated lab space on both

the first and second floors, giving the department a strong sense of spatial identity.

Students are, of course, the heart and soul of both the BSCRIP and MCRP programs. I was able to stay connected by continuing to teach planning theory at both the undergraduate and graduate levels, co-teach an occasional lab, and supervise senior projects and master's theses. Also, I taught the non-thesis option for MCRP students that encouraged them to synthesize and reflect on their preparation for professional careers. Subsequently, I have enjoyed seeing many graduates of both programs move into increasingly responsible and influential positions as practicing planners.

We had some tragedies, too. I recall, all too vividly, learning of the untimely death of one of our talented BSCRIP students who was in his fourth year, close to graduation. We bestowed the degree posthumously to his father – a sad honor during com-



mencement activities that spring. His fellow students planted a tree in his memory in the Dexter courtyard.

In addition to my departmental responsibilities, I learned that being a department head also entailed a leadership role at the College level. I was the first and only woman department head in the School (now College) of Architecture and Environmental Design at the time. The five department heads shared insights into each of our professions and curricula, seeking common ground and ways to strengthen the relationships among our fields. It was my distinct pleasure to serve as part of Dean Paul Neel's team, both in coordinating college strategic planning and in addressing the difficult budget challenges we faced.

This broader role led Cal Poly to sponsor me as an American Council on Education Fellow during 1994-95. When I returned from a year at Arizona State University, I moved into University leadership within the Provost's Office. Eventually, this gave me an opportunity to participate in development and implementation of the 2001 Cal Poly Master Plan, and in the development of the new Master Plan being refined in 2018.

Now, as professor emerita, I continue to think of CRP as my professional home.

Reflections by

William Siembieda

PhD, AICP, Professor,

CRP Department Head, 1997-2009.

Cal Poly's City and Regional Planning (CRP) department started in the 1960's as an idea of George Hasslein, the college dean. He wanted students to get a broad-based and interdisciplinary education about cities that was not available in either Architectural Engineering or Architecture. City Planning that deals with the whole of the built environment became a means for a successful student experience in the College of Architecture and Environmental Design. The department first offered an undergraduate degree, and later on added a Master of City and Regional Planning. Both of these degrees are accredited by the national Planning Accreditation Board.

I was the department head for twelve years, from December 1997 through August 2009. Linda Dalton, who had been department head before me and went on to work in the Cal Poly President's Office on Institutional Analysis and Campus Planning, recruited me to take the position when I was at the University of New Mexico, as Professor in the School of Architecture

and Planning. The move to Cal Poly offered the opportunity to live on the Central Coast, and also to help build a strong professional program to serve the needs of a growing California. Having left California 21 years earlier when I taught at the University of California, San Diego, I knew this was an opportunity to re-engage with the planning profession, and to experience a poly-technic university setting. I wanted to experience the Cal poly "learn by doing" approach to city planning.

For a decade before coming to Cal Poly my research and professional focus had been on Mexico, Latin America and Brazil. I knew more about planning practice, policy and history of these countries than I did California. So, I had a lot to learn.

My first task upon arriving at Cal Poly was understanding the program structure and its student learning outcomes. To my surprise, I found that it was organized to teach students about all the elements of the California General Plan process. California has very strong planning regulations directing what goes into the General Plan; there are seven required elements. and the Cal Poly planning program offered courses in most of the elements, and had an emphasis on urban design skills, and professional practice. In many ways, this gave the students a real advantage in the California job market, as they were ready, upon, graduation, to start on the job.



The CRP program used the "studio" teaching model, which meant progressively more complex problems that built very focused skill sets and taught them to think about "design, "and make visions at the scale of the neighborhood or a large site. While this worked well in other college departments, for City Planning it required some adjustment to the fact that cities are complex systems, not simply sites that accommodate buildings. The CRP studio model used teams of students to work together and develop solutions. It is different than the Architecture or Landscape Architecture studio model where a single student works on a solution. California in the

early 1970's had adapted its own environmental quality laws for the protection of fauna and flora, and to lower impact of air pollution. By the time I arrived these laws had expanded and impacted the built environment. Thus, environmental studios were added in CRP to meet the changing needs of professional planning education in California. The downside of this was that we were California-centric and offered few courses to broaden the student's educational experience.

Due to the professional nature of the degree program, I spent time in the early years getting to know the CA planning profes-

sionals. This meant attending meetings of the Association of California County Planning Directors and the State Chapter of the American Planning Association to understand the needs of “industry” (the term used in our college for employers of our students). Building links with “industry” had many benefits. It expanded opportunities for student internships, increased job placement, helped to identify community-based studio projects, and help to market our program throughout the state. These were “outside” of campus activities helped to overcome the campus’ physical isolation from California’s larger cities.

When I came to Cal Poly in 1997, CRP had a very small budget to support student and faculty activities. In terms of technology we had one small windowless room with less than 10 computers, no internet connection, and no printing. So, my first task to improve the educational experience, was to get an internet switch connection installed.

The first donor relationship I managed to attract was a recent graduate who spent money from his first professional job to buy us a printer for the computer room. He simply felt we needed it and this was his way of giving back. His act of generosity was followed by many alumni who have always been there to help and share. When I stepped down from being department head there was a new computer lab, with 30 equipped workstations, an overhead projector, a scanner, and color printer. It was made possible by donations from alumni that supplemented state funds. Through the years we received many gifts and endowments, some being several hundred thousand dollars. This taught me that our students were making life-long connections with us; something that I did not have with my own undergraduate experience.

A department head always wonders how good is the education being provided? I began to get an answer when one of our undergraduate students was awarded the national prize for best student project by the American Planning Association. It was followed by other national and state awards for students and for studio projects. The awards were always a source of pride for me, as they validated our student’s educational achievements by being recognized by the professional association.

Upon arriving at Cal Poly, CRP had three tenure-track faculty, one full-time lecturer. When I stepped down as department head there were eight tenure-track faculty, two full-time lecturers, and some great part-timers. This expansion in faculty allowed us to expand the environmental planning and the urban design courses and start offering courses in climate adaptation, community development and transportation. It also provided the faculty needed to expand the master’s program and bring on students from throughout the country.

In 2003 we tried to expand the master’s program through a partnership with San Francisco State, another CSU campus. This was an innovation attempt to offer our master’s degree in the Bay Area and give all our students an opportunity to have an urban experience, and we could tap into a more diverse pool of students in the Bay Area. After a year of work this innovation fell apart as we could not reach a workable agreement with SF State. This was a disappointment but allowed us to understand our strengths and possibilities for future studio courses in the Bay Area.

Recruiting a diverse student body, that reflected the changing profile of California was the biggest challenge I faced, and the one where progress was slow. Part of the challenge was geographic, and part of it was institutional. Cal Poly is in a small town, in a small county, and not an attractive place for diverse students to come to. Other universities, closer to large cities had an advantage over us. Second, Cal Poly requires a first-year student to choose a major at the time of application. City Planning, not being known well as a profession was at a disadvantage due to the application process. Third, over the years Cal Poly reputation rose and the scores needed to gain entrance rose. It added to the diversity challenge for CRP. To offset this, I sent students teams to local community colleges to speak directly with potential transfer students. This helped a bit, but never was enough. I wish we could have done better.

Hiring excellent faculty is the most important thing I did as department head. This includes lecturers and part-time faculty. These are the people who interact most with students, and provide the motivation, set the bar for learning, and provide guidance in many ways. Finding the right people, was a challenge at times. Some faculty left us as their family needs could not be met in a small town such as San Luis Obispo. So, faculty “care and feeding” was always high on my list of everyday tasks. One faculty member liked the fact that I would visit them in their offices, thus creating a safe space for open conversation. I saw great potential in each faculty member and kept them informed of different grant and professional development awards.

As tuition and fees started to rise year by year finding funds to support student costs became an essential task for me. For a few years in the mid-2000’s we had received three HUD Community Development Fellowship awards, totally \$360,000. The only other California programs to receive these awards were UC Berkeley and UCLA. Over time were replaced by private donor awards and many small scholarship endowments. Part of student success, aside from the education program, became, for me, financial support. City and Regional Planning has a particular challenge in that two-thirds of our graduates enter public sector employment when they graduate. This is not the case

for the other departments in the college, where private employment is the norm. I knew that networking with planning professionals was important for our students, so with student extra fee support we began the practice of one paid trip to the national American Planning Association meetings. This has proved an important student career networking activity and brought new interest in their following year's academic studies.

Even though some faculty would call me "boss," I did not see myself as one but more of a colleague who was in a leadership position. Department heads in the college serve at the pleasure of the dean, and usually stay in the post for many years. This is different than the department chair model who generally serves a three-year term. Over time, I realized that the faculty and the students had their own thoughts about me, and what I did. At times they were supportive, but at times they would have liked me to leave and be replaced by someone else. There is always a tension between the department head, who takes a long-range view, and those who wish their own interests served in the short term.

During my tenure as department head, and continuing on, the department developed an exceptional record of innovation in community-based studios conducted all over California. This meant looking beyond local cities in the county for projects that produced a higher level of work on par with practicing professionals. It resulted in a many statewide and national awards for the quality of community-based studios. We expanded the type of studio projects undertaken including urban design and climate action plans. At times, students were working at the cutting edge of professional practice, and this turned out to be an important factor in getting a job after graduation. From my point of view experimentation in community-based studio work was to be encouraged.

Taking students abroad (outside of the US) to engage in real projects was a special experience for me. In 2000, 16 CRP students and two faculty (Michael Multari and Richard Lee) went to Tegucigalpa, Honduras to plan and design a new community for 20,000 families. This was to be built in the Aramateca Valley as a resettlement site for families losing their homes in Hurricane Mitch. The plan was the first sustainability-based plan of its kind in Central America. It called for buffering the waterways to accommodate flooding, preserving the forest areas to prevent landslides and using as many natural systems as possible as natural systems infrastructure elements. We partnered in this project with the newly formed Center for Architecture, Design and Construction (CEDAC) a small private Honduran University.

This experience demonstrated the value of educating with a global perspective. Before I came there were no international

exchange agreements. When I stepped down there were interchange agreements with: Switzerland, Brazil, Mexico, and Honduras universities. To support the desire for more global education I supported non-US faculty to come and teach or to conduct research at CRP. This resulted in great people from England, Mexico, Brazil, and Canada sharing their expertise with us for an academic year or less. This gave us a bit more of exposure to other planning approaches, cultural differences, and new possibilities.

I was fortunate to be able to partner with CRP faculty in scholarly and applied work. We started publishing the FOCUS journal in 2003 thanks to an idea from Vicente del Rio. I participated in a wonderful co-edited book on Brazil (with Vicente del Rio), the California Climate Action Guide (with Adrienne Greve), the State of California Multi-Hazard Mitigation Plan, and several academic articles (with Ken Topping and Michael Boswell). The experience allowed me to participate as a peer, not a department head. I certainly benefited from these relationships over the years. These experiences also helped model the possibilities for scholarship within the Cal Poly and the emerging "teacher-scholar" model.

When I came to Cal Poly the five-department heads had a great deal of interaction on the programmatic and personal level. They were the main input to the Dean about what the college was and should be. There were social events, and the sharing of resources. People were interested in helping out. In 2000, the Head of the Department of Construction Management, Jim Rodgers, and I responded to an assistance request from the US Secretary of Housing and Urban Development (HUD) to help HUD develop an assistance program for countries impacted by Hurricane Mitch. We boarded a plane, when to Central America and then give Andre Cuomo, the HUD Secretary a proposal for spend \$10 million on various assistance projects. This positive experience with a CAED department head established a firm belief that working in a multi-disciplinary way is superior to being siloed. I always tried to work and encourage work across departments whenever possible.

By 2008, the experience of helping with post-disaster recovery in Central America influenced my applied and scholarly research paths. The department was in good shape, and it was time to shift from program administration to applied research. With the blessing and support of Tom Jones, the CAED Dean, a national search for my replacement was launched. The search was successful and in 2009, new department head, Hemalata Danekar joined the department from Arizona State University.

Reflections by

Hemalata (Hema) C. Dandekar

*PhD, AICP, Professor,
CRP Department Head, 2009-2016.*



When first offered the CRP department head position, I saw it as an opportunity to join a faculty and department that was widely recognized, to participate in delivering a distinguished, studio-rich curriculum; and to support advocacy of planning for the environment and climate change. I did not know much about CRP or Cal Poly when I first visited Pismo Beach in March 2007 to attend ACSP's Planning Administrators Conference. Hosted by Cal Poly and held in a hotel with breathtaking views of the shimmering blue Pacific Ocean, it was an eye-opening exposure to the Central Coast. I had not ventured this far up the coast as an architect practicing in Los Angeles nor later as a UCLA doctoral student. Then Director of the School of Planning at Arizona State University, I took a flight from Phoenix to San Luis Obispo (SLO) sitting next to a woman who lived in Arroyo Grande. She offered me a ride to my hotel, saying "it's right on my way home." She pointed out wineries and landmarks in the stunning scenery we passed along the way. Her friendliness and pride in place was a refreshing contrast to big-city brusqueness and indifference.

During a break in the conference, co-chair Bill Siembieda invited me to join him for a quick visit to the CRP offices and the Cal Poly campus. The trip revealed to me a beautiful campus, a city that had asserted planning to develop a contiguous scenic greenbelt, and an ambition to live sustainably was reflected in the LEED Gold Certified Poly Canyon Village student housing which was under construction. At that time the CRP department was located in the Dexter Building where faculty offices and studios adjoined a collegial central space with tables on which there was student work of impressive design quality. Professor Zeljka Howard was in her office, door open, grading. As we were introduced, she exclaimed she had used my edited book, *The Planner's Use of Information* in the studio "for years." I complimented her on the quality and graphic skills of CRP student work. A Thursday evening visit to the SLO Farmers Market heightened my appreciation of the sense of place that was so palpable in CRP, at Cal Poly, in the City of San Luis Obispo, and, on the Central Coast. It was a short but memorable first encounter.

More than a year later, Bill called to inform me that he was stepping down as Department Head, that there would be a search soon, and I should consider applying. David Conn, a friend since my UCLA days when I took his economics class and by then Cal

Poly's Vice Provost for Academic Programs and Undergraduate Education, urged me to apply: "you know this is a place where it is possible to find a job/life balance." I had never heard this said of the University of Michigan or Arizona State University, until then my primary academic homes.

First impressions can be telling. Mine shaped my subsequent actions and led me to become a CRP department head and build on existing, and considerable, strengths. These included: reinforcing the curriculum of two robust planning programs; building on the goodwill of alumni and an external community of well-wishers to engage them with

CRP; and, finding ways to create a sense of centered space and cohesion for the department.

Sense of Place

By September 2009 the CRP department had moved from the Dexter Building into Building 21, also known as Engineering West. The department office got physically separated from faculty offices and CRP studios. Undergraduate and graduate spaces were on different floors, unconnected and distant from each other. We installed CRP signage at the two ends of the "CRP" corridor, created wall displays for posters of exemplary, often award-winning, CRP studio work, refreshed the CRP computer room with new machines and projection system, repaired lockers, and applied fresh paint liberally. These actions served to upgrade the shared spaces that all CRP students used and where "serendipitous" encounters were possible. The "Exhibit Corridor" assumed even more importance when the department offices moved to an even more distant location in Building 5. The displays inform potential students, visitors, returning alumni, and the public about CRP students and faculty work.

Curriculum

A curricular emphasis on land use, physical planning, design, and the environment is long-standing in CRP, embedded in the culture of the college and the other departments. This resonated with my perspective, and it was where the field of planning was beginning to return to and emphasise. Understanding that faculty drive the curriculum, my effort as Department Head was to help them sustain existing strengths and to introduce elements that would enrich the collective effort. It included:

Increasing Studio Sponsorship: Email requests to a list-serve of our friends and professional contacts once or twice a year, and triaging responses to instructors of appropriate courses, increased the number of the upper-division city-sponsored

studios that received “soft money” funds. External sponsorship brings a real-world urgency to the work undertaken in studios. Interaction with client and community increases the sense of responsibility and the effort students put in on course assignments. However, such external studio support places an extra burden on instructors as it requires that they contribute time and effort at the beginning and, particularly, at the conclusion of a course to compile student work into deliverables. Successfully persuading the University Office of Sponsored Research to allow us to tailor project budget overheads to differentiate between student and faculty effort enabled faculty to receive some “soft-money” compensation for some of the extensive time they had regularly volunteered.

International Exposure: Encouraging CRP faculty-led courses and workshops in international locations led to classes in Puebla, Mexico; Lisbon, Portugal; Istanbul and Kas, Turkey; San Miguel de Allende, Mexico; and a studio-based project for sustainable “organic” development of a village in Vietnam sponsored by Eric Lloyd Wright Architects. Several new electives were encouraged and created, including a new course on International Development Planning, and are now part of the CRP elective offerings.

Student Competitions: CRP faculty provided, sometimes as overload, mentorship to the teams entering the Bank of American Affordable Housing Challenge. Under four years of CRP faculty mentorship during my term as Department Head, Cal Poly teams won in the first three years and came in a very close second in the fourth. CRP faculty also mentored graduate teams in the Urban Land Institute Competitions which included students from Business and Architecture.

Faculty and Instruction: The strength of a program’s curriculum depends quintessentially on the expertise and enthusiasm of its faculty. We hired two full-time faculty who brought additional expertise in subject areas, and, fresh ideas and energy to the department. A course on web-based planning technologies was offered to undergraduates and graduates, taught by an expert who had recently moved to SLO. It continues to be a popular offering. A brown bag lecture series hosting visiting and resident experts helped engage the department collective in issues of current interest. An investment of Errett Fisher Foundation grant funds on equipment to create a “smart” studio has enabled faculty to bring expertise from around the country, and internationally, into our classrooms. The “smart” studio helps bridge the distance to our somewhat isolated location on the central coast. A Climate Action Planning conference, organized by CRP faculty specializing in environmental issues, attracted researchers and practitioners from around the State to campus and gave students an invaluable window on emerging practices and policy.

Visibility and Outreach

As part of a concerted effort to reach out to CRP alumni and friends, a CRP quarterly newsletter was developed and published. Featuring department news, current events and success stories, it was designed to augment the outreach of the annual issue of the department’s journal FOCUS. In 2009 we initiated a series of articles for Volume VII FOCUS, authored by the Department Head and titled “Learning from California: Highlights of CRP Studios.” Planned to recur every year, they are designed to disseminate information about the various studios completed in our studios throughout California. Over the years, compilations of these articles have provided a synoptic view of our capabilities and served to attract sponsorship. A new department brochure was created, aimed at enhancing student recruitment. The overarching goal of all publication efforts was to make activities in the department more visible to the extended CRP “family.” Visits to offices of alumni served to reveal their considerable entrepreneurship and success. These visits paved the way to highlight achievements of some alumni in the CAED’s magazine. The City and Regional Planning’s Advisory Council (CiRPAC) was inaugurated in May 2015, and many of these same alumni gladly joined in and supported its efforts. Their continued participation in the Council consolidated relationships and provide momentum and advocacy for fundraising, social gatherings and, most recently, for the 50th CRP Anniversary reunion.

Fundraising

Helping grow endowed scholarships and grants was important. Following years of generous and on-going funding, a site visit by the Errett Fisher Foundation Board culminated in a five-year quarter-million grant for student and programmatic support. Two endowed scholarships to support students interested in physical planning were established by Arnold Jonas, former San Luis Obispo Planning Director, and his wife Gail to support student with an interest in physical planning. The groundwork was laid for other endowed scholarships, including those to honor prominent alums. Dedicated scholarships and support are invaluable to CRP to attract top students and sustain them during their time here.

Department Culture

Academic departments flourish when faculty, staff and students have a sense of belonging and commitment to the whole. Ways to encourage this is more an art than a science and, although efforts to cultivate it can have unpredictable results, it is essential and can yield innumerable, mostly qualitative but essential benefits, including improved morale. A complete turnover in staff and relocation of office space not

once, but twice, took a toll. However, success in increasing department staffing to two full-time positions and the hire of two tenure-track faculty were important milestones. Hosting get-togethers at home, arranging celebrations at years-end, recognizing book publications and retirements, and including adjunct faculty in department retreats represented some of my efforts to facilitate a collegial culture.

External Contributions

Voicing a planning perspective as a four-year term member of City of San Luis Obispo's Cultural Heritage Commission and as a five-year, continuing member of the Planning Commission represented my commitment to the CRP faculty tradition of engagement with the local community as professional service contributions. Membership on the SLO Land Use and Circulation Advisory Committee which guided the city's general plan update, and on the San Luis Obispo Housing Trust Fund Board have given me a voice in guiding policy and investments in the community. Involvement in the city on-going planning efforts added currency to my classroom teaching.

I am grateful and honoured to have had the opportunity to serve as the CRP Department Head. The position has allowed me to help build on the strengths of the department, and now to continue to contribute as a faculty member and help train outstanding, hardworking, enterprising students. Also, as significant is the fact that I was allowed to join and become a part of the extended CRP family, engage with and thrive in the local city community, and enjoy finding a job/life balance in a lovely part of this country.



Resilient Design Symposium: State of the Art & Emerging Issues for the Built Environment

College of Architecture and Environmental Design, Cal Poly; February 22-23, 2018

William Siembieda

PhD, AICP; Professor, City and
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Margot McDonald

PhD, AIA; Professor & Head,
Architecture Department, Cal Poly.

Those of us that study, observe, and work in built environment professions have been challenged in the last decade by the emergence of the resiliency as a conceptual tool. Definitions generally fall into three main clusters: engineering, socio-economic, and environmental. None of these however directly address issues of the built environment and how to design through a resilience lens. We asked ourselves, what is resilient design? Who is doing it? How does it work, and what might be included in the curriculum of a college focusing on the education of future professionals of the built environment?

These questions formed the basis for the College of Architecture and Environmental Design's (CAED) symposium *Resilient Design: State of the Art and Emerging Issues for the Built Environment*. A symposium steering committee was formed by CAED faculty in the Fall of 2017, and it functioned as clearinghouse and operations group. The Steering Committee members included Bill Siembieda (CRP) and Margot McDonald (ARCH), as co-chairs, and department representatives Dale Clifford (Arch), Ellen Burke (Larch), Amir Hasrasouliha (CRP), Vicente del Rio (CRP), and Anahid Behrouzi (ArchE).

The symposium was held during the whole days of February 22 and 23, 2018 at the CAED. Approximately 275 people attended each day of which 90 had registered on the web beforehand

and 178 people signed in at the door. Students and faculty from all the CAED departments attend, as well as from the College of Science and Math and the College of Agriculture Food and Environmental Science. There were 16 private practice and consulting firms and three public agencies represented, as well as one attendee from Stanford University and one from UC Berkeley. The event was supported by the American Planning Association and the American Institute of Architects, who sent representatives and offered continuing education credits for participating professionals.

Having Heidi Harmon, Mayor of San Luis Obispo, and Christine Theodoropoulos, Dean of Cal Poly's CAED, providing the welcoming addresses, the symposium brought together sixteen professionals with experience in what they considered resiliency practice to present work examples and talk about emerging issues. The professionals ranged from Laurie Johnson, a single practitioner working on hazard mitigation, to Josh Sawislak, the head resilience officer of AECOM, a global consultancy. There were no presentations from academics; all were grounded in experience.

Focused on how practice is presently done and how it will evolve over the next two decades, the symposium informed on the state of practice and the benefits of resilient design. The format supported debate on the issues and advanced the understanding of what is needed to be included in the curricula of disciplines dealing with the built environment.

Four themes provided a framework for the symposium: New ways to think about resilient design; Emerging ways to use resilience thinking; New thinking for big projects; and Building Regional Resiliency. This format resulted in a diverse set of presentations, and a list of attributes related to resiliency in the built environment, and more importantly, allowed for a definition of resilient design to emerge. Water, dominated the practice work presented, with five speakers focusing on how to design with water not against it. Surprisingly, making the business case for resiliency clearly found a place in practice,



demonstrating the long-term financial benefits of resilience design work is an emerging feature of practice. We also heard that “stationarity is dead” from more than one presenter. This emphasizes a movement from predictive models based on experience to the use of “adaptive dynamic plans.”

From an initial attribute list derived from the presentations and the debates, a definition has emerged:

“Resilient Design is an intentional action that enables a system, in whole or part, to meet the challenges posed by changing, or unstable, conditions, to absorb a shock or disturbance while maintaining its identity and functionality through adaptive recovery.”

This definition adds a new domain of resilience definitions to those described by Quilan et al. (2016), as seen in Table 1. The major conceptual breakthrough in the definition is the expression “intentional action.” This brings to the forefront the systems thinking process, choosing an appropriate scale, accepting change, and working on parts of a whole. Actually, the engineering resilience approach that relies on the systems speed (time) of return to equilibrium must rely on intentional action to become operational.

For resilience design, the keys are identity maintenance and functionality (which are socio-economic factors). Resilience does not have an aesthetic quality per se. Instead, it combines

functionality by solving real-world problems with design quality that improves the human condition. Adaptation is a critical component in the definition recognizing that the system components need to be responsive to change, sometimes quickly so that the built environment does not suffer cross a threshold of irreparable repair or recovery. Also, in California, adaptation is a term used widely and across disciplines as it accepted as a grounded basis for design actions. We call the symposium presenters “informed urbanists” because they have gone beyond the constraints of conventional professional training and emerge as system thinkers who are trying to take action informed by nature and the socio-economic system.

One of the symposium objectives was to establish the “state of the art” for resilient design in practical terms to transform professional education for planners, designers, engineers, and constructors of the built environment. This was accomplished by the presentations and debate shared by the presenters and the moderators. Resilient design involves the professional the opportunity to elect the standard of performance rather than be limited by what the local code suggests.

Choosing performance standards requires a deep understanding of context, time, and the manner in which disturbances influence urban and natural systems. In some ways, it is “intentional” as stated in the definition, but in more ways, it is reflective of the longer-term changes at different scales and our

Table 1: The Nine Domains of Resilience.

The Domains of Resilience	Definition
1. Engineering resilience	System’s speed of return to equilibrium following a shock.
2. Ecological resilience	Ability of a system to withstand shock and maintain critical relationships and functions.
3. Social-ecological resilience	(i) Amount of disturbance a system can absorb and remain within a domain of attraction; (ii) capacity for learning and adaptation (iii) degree to which the system is capable of self-organizing.
4. Social resilience	Ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change.
5. Development resilience	Capacity of a person, household or other aggregate unit to avoid poverty in the face of various stressors and in the wake of myriad shocks over time.
6. Socioeconomic resilience	Socioeconomic resilience refers to the policy-induced ability of an economy to recover from or adjust to the negative impacts of adverse exogenous shocks and to benefit from positive shocks.
7. Community resilience	A process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disturbance.
8. Psychological resilience	An individual’s ability to adapt to stress and adversity. Resilience is a process and can be learned by anyone using positive emotions.
9. Resilient Design**	An intentional action that enables a system, in whole or part, to meet the challenges posed by changing, or unstable, conditions, to absorb a shock or disturbance while maintaining its identity and functionality through adaptive recovery.

Obs: Domains 1 to 8 from Quilan et al. (2016). Domain 9 concluded from Cal Poly’s 2018 Resilient Design Symposium.

NAME	FIRM	TITLE/ROLE
David Waggoner	Waggoner & Ball	Principal
Doug Pierce	Perkins + Will	Lead Designer
Gerdo Aquino	The SWA Group	CEO
Josh Sawislak	AECOM	Global Resiliency Director
Gunnar Hand	SOM	Planner
Yana Waldman	ARUP	Senior Project Manager
Laurie Johnson	Laurie Johnson Consulting	Principal
Geoffrey Neumayr	San Francisco Airport	Chief Development Officer
Paul Hutton	Cunningham Group	Chief Sustainability Officer
David Tickle	Hassell	Urban Design Lead
Amanda Brown Stevens	Bay Area Resilient Design Challenge	Managing Director
Steve Moddemeyer	CollinsWoerman	Principal

Symposium Presenters

NAME	ORGANIZATION	PROFESSION
Stacey While	Cal Poly, Architecture.	Architect
João Pedro Costa	Universidade Técnica de Lisboa	Urban Designer
Alicia Daniels Uhlig	Living Community Challenge	Architect
Brian Seamer	LPA	Structural Engineer

Symposium Moderators

understanding of the changes. Presenter Geoffrey Neumayr's example of the San Francisco Airport Control Tower demonstrates the use of a chosen performance standard. This is specified resilient, focusing on a single hazard. The tower will withstand any projected level of a seismic event in the Bay Area, and continue to function with no interruption. This means the airport can serve its function as a transportation hub without interruption in service.

The choosing a standard of performance concept was validated in October 2018 by the "Sand Palace" house in Mexico Beach, Florida that withstood the 155 miles an hour winds and a storm surge of Hurricane Michael. The Sand Palace was the only house standing in a six-block area of the town. It was built to withstand 165-hour winds, far above the local code requirement of 120 miles per hour.

The way we need to invest in resilience is to look at it sideways because an investment in a structure or a physical piece might be a one-time investment. However, investment in resilience for people or economies is ongoing. So, when we think about resilient planning or resilient strategies, we have to be thinking about it with a mix of tools, investments, and approaches.

We are coming to accept reality: cities break. They break for different reasons including natural hazards, economic hazards, and slowly for climate change. The question before us is how we can make the built environment safer through resilient practice? Doug Pierce champions RELi (a rating a project rating system similar to LEED®), that is basically a new consensus standard, and it fills the gap on resilience relative to the other standards that are in use, such as LEED.

Conclusion: Actions that Inform Practice

Certain actions inform practice. The following elements can be included in contemporary "resilient design."

- (1) Choose the design standard that meets the desired resiliency threshold (a system limit).
- (2) Work at the appropriate scale to address the defined system problem. Scale matters.
- (3) Design to a future time that fits the built environment use. Time does matter.
- (4) Embrace the need to make the business case (understand how does it benefit the client or user).
- (5) Utilize nature's reality to inform a design solution (i.e. designing with water).
- (6) Understand that change becomes the constant, and less emphasis is placed on historical information, what means stationarity is dead.
- (7) Use threshold analysis, as a part of the decision-making process.
- (8) Improve risk management through risk transfer (improved built environment performance, mitigation, acceptance, or insurance).
- (9) Improve the information base required for this work by engaging in inter and multidisciplinary approach.
- (10) Avoid the single designer approach, as it does not yield resilient design. As David Waggoner, FAIA, says "we work across disciplines."

(11) Design for desired outcomes, not the present code prescription. This is performance-based design.

Conclusion: Curriculum Advancement

Informing curriculum development for resilient design was a symposium objective. The prime directive of the presenters was to engage and emphasize interdisciplinary studies. Broaden the traditional design curriculum to allow the student to see and engage in the world more holistically. Learning to work with others, and learn from their perspectives is another curriculum lesson, so spanning departments and disciplines are needed (Smith et al., 2018). There is still much to learn about how to build this into the curriculum, although we do it in the CAED through single interdisciplinary studios (which are a good start) and through environmental design studies courses that work on a different scale. When students learn the benefits of interdisciplinary thinking, they take the first step in becoming what we call “informed urbanists”. We need more informed urbanists, and also informed activists such as Harold Hay to use nature as a partner in creating a safer and energy conserving built environment (McDonald & Dayer, 2019).

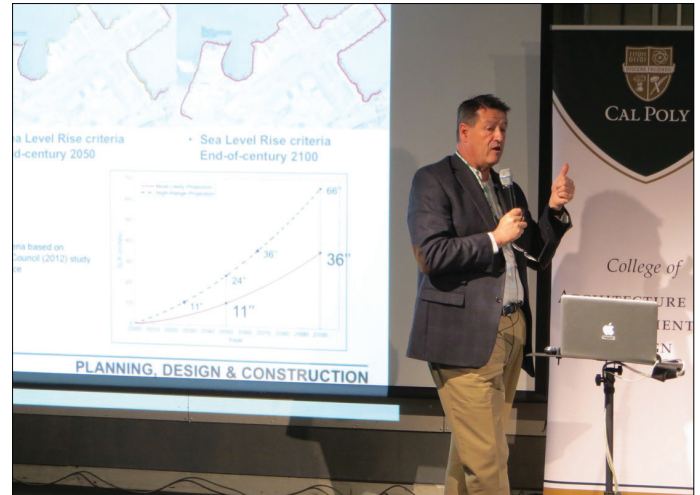
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Presenters Laurie Johnson (above) and Geoffrey Neumayr (below).



From left to right: Margot McDonald and William Siembieda (co-chairs), Bryan Seamer (moderator), Yana Waldman, Gunnar Hand, David Waggoner, Josh Sawislak (presenters, and Stacey White (moderator).



FOCUS 15

Peer-Reviewed



A Qualitative Analysis of an Age Friendly Community Initiative

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In this article, Alex Quintero discusses an age-friendly community initiative in Tallahassee, Florida where, although the planning process allowed information to be gathered efficiently, inclusion of a wider public was prevented by the narrow approach, lack of resources, centralized decision-making, and strategic selection of stakeholders. The author concludes by noting that existing partnerships can be used to broaden citizen involvement and ensure inclusive foundations for age-friendly initiatives to become solidified in the political, economic, and built environment.

Seniors, defined as people age 65 and older, are 14.9% of the total US population: a segment that grew by 1.6 million between 2014 and 2017 (US Census, 2017). As minority subgroups grow, the older adult population is also projected to become more diverse. These demographic trends have serious implications for the lives of Americans and their needs in the community.

In order to accommodate the changing needs of a diverse senior population, associations, like AARP, have shifted their focus onto community-based services (J.J. Lee, 1991 as cited in Wacker & Roberto, 2013; p. 18). AARP responded to the changing needs of their constituency, seniors who want to “age in place” (Vasunilashorn, et. al., 2012), by starting the Age-Friendly Communities Network, in 2012. A community is age-friendly when it enables seniors to reside in familiar places and engage in community life (Scharlach, Lehning & Wolf, 2012). The AARP network grew to 195 participating communities by 2017 (AARP, 2017).

For Age-Friendly Communities (AFC) to effectively serve the growing needs of seniors, they must be planned with stakeholder input, which can then be integrated into resulting policies and infrastructure improvements. Given that seniors will become increasingly diverse in the coming years, it is imperative that community members from different social, economic, and ethnic groups and with varying physical and cognitive ability are represented in the planning process. In this article, I aim to provide a qualitative analysis of the planning process used in one Age-Friendly Community initiative in Tallahassee, Florida. Using this case study, I sought to understand the complex process by which diverse stakeholders with diverse goals and resources are assembled as participants in a community-based AFC initiative. I attended stakeholder meetings where I observed the planning process and solicited interviews from ten key-participants. I was able to provide an in-depth analysis

of this relatively new initiative, which contributes to the existing literature on the age-friendly communities approaches (Lehning, Scharlach, & Dal Santo, 2009; Scharlach, Lehning & Wolf, 2012). Aging scholars have also advocated for researchers to evaluate local initiatives (pilot programs) to inform policy, practices, and funding streams (Ball & Lawler, 2014). My findings contribute to this directive from researchers, focusing in particular on a planning perspective.

In the next section, I describe the AARP Network of Age-Friendly Communities and the steps a community must take to join. I then outline planning strategies as a framework for interpreting the planning process in Tallahassee and describe the method. The main contribution of this article consists of a description of the planning process in Tallahassee, including a review of stakeholders and the challenges and opportunities identified by key-participants. I conclude with a discussion of planning implications.

AARP Network of Age-Friendly Communities

AARP is a member-based social welfare organization, known as a 501 (c) 4. They are bound by federal regulations to operate not for profit and promote social welfare (Cigler, 2015; pg. 140). AARP aggressively lobbies the federal government and sub-state entities for policy and programs that benefit their constituency, people age 50 and over. In 2015, AARP spent more than \$7.5 million on lobbying (Center for Responsive Politics, 2015).

In 2012, AARP launched their Livable Communities initiative, which is the umbrella project for the Network of Age-friendly Communities (see Figure 1). The Network supports the World Health Organization's eight domains of livability: Outdoor Spaces and Buildings, Transportation, Housing, Social Participation, Respect and Social Inclusion, Civic Participation and Employment, Communication and Information, and Community and

Health Services (AARP, 2015). Communities enroll in a five-step process to become a part of the AARP Network:

Step 1. Getting Started (determining whether the community is ready to begin the process and submitting application, letter of commitment, and an image of the community to AARP).

Step 2. Planning (collecting baseline information and creating an Action Plan).

Step 3. Implementation.

Step 4. Evaluation.

Step 5. Connecting (with other communities).

AARP supports initiatives with web-based educational tools and information sharing and advocacy through staff or volunteers.

This case study is based on Tallahassee's involvement in Step 2, the Planning stage. Stakeholders in the initiative were developing the Action Plan. In Step 1 of the process, AARP surveyed their Tallahassee members and produced a summary report that identified three priority focus areas: Housing, Transportation, and Health and Wellness (AARP, 2016). Step 2 is an important time to analyze the planning process because the Action Plan defines tasks for subsequent stages, especially Step 3, Implementation. Consequently, the input gathered during Step 2 will elicit policies and infrastructural improvements.

The Framework: Planning Approaches

Planning processes mix technical assessments, public involvement, administration of resources, and politics. Planning processes also involve various stakeholders, ranging from elected

officials to professional and technical experts, and the general public. Stakeholders are defined as people who affect or are affected by a project. Some stakeholders both affect and are affected by projects. Planning processes can be regulated by laws and policies (i.e., zoning adjustments) or be voluntary unregulated initiatives (i.e., the AFC initiative).

As Brooks (2002) discusses, planning approaches differ according to the locus of decision-making and whether the mode of decision-making is rational or non-rational. Decision-making can be centralized, in which case few people or a single agency make top-down decisions, or decentralized, in which decision making power is diffuse and held by many individuals or multiple organizations. Rational decision-making is defined as a scientific, data-driven process whereas non-rational decision-making is driven by public participation, politics, and policy.

Miles (2015) expanded Brooks (2002) typology to include multiple types of citizen involvement (see Figure 1). She also elaborated on decision-making modes, noting that a decision can be made rationally, incrementally, through consensus, or based on a legal strategy. An expanded typology is important because it emphasizes the importance of assessing stakeholder involvement and decision-making approaches. The expanded typology of planning strategies can be used to evaluate the effectiveness of different planning initiatives for achieving their goals. For instance, planning strategies with decentralized decision-making that empower a broad collection of different types of stakeholders are more likely to better represent the needs of a diverse public. Conversely, when a few important stakeholders make decisions, they are likely to represent fewer perspectives in the final decision (Figure 2).

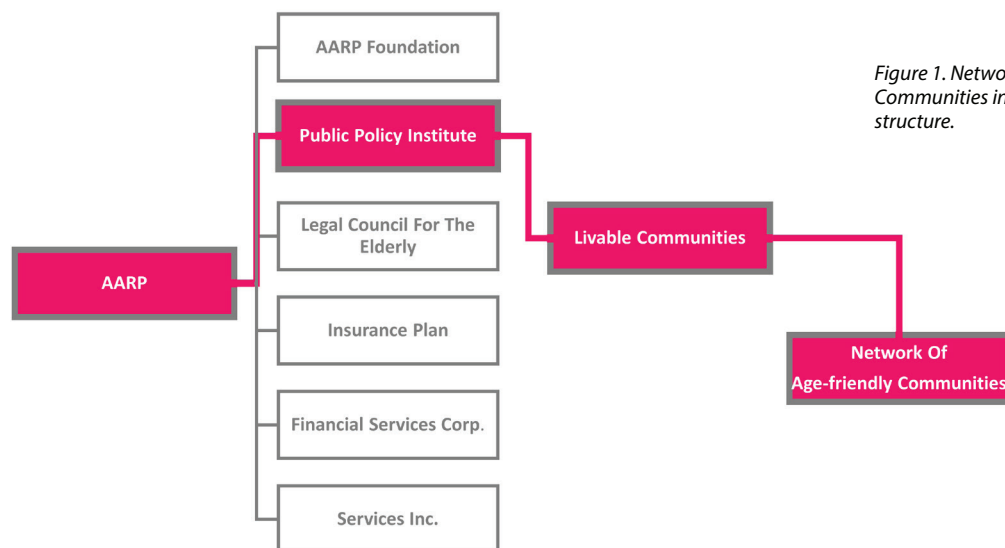


Figure 1. Network of Age-friendly Communities in relation to AARP structure.

Recruitment and Data Collection

To analyze the planning process of the Tallahassee AFC initiative, I made observations during stakeholder meetings and interviewed ten key-participants (defined below). I conducted all interviews after IRB approval from the FSU Human Subjects Committee.

Observations

The Senior Center organized one Introductory Meeting and six program days (two for each of the three priority areas). Senior Center staff, LifeLong Learning seniors, key-participants, and an intern from a local university attended.

Each Program Day was five hours long, during which several experts from organizations relevant to the day's topic (i.e., a realtor on a housing program day) presented on a topic selected by The Director of the Center (i.e., the senior housing market in Tallahassee). Three program days included field trips to relevant agencies (i.e. the transportation authority on a transportation day). The group took the trip together on a city-owned bus, rented for the occasion, and spent one to two hours at the destinations. The Director solicited input from participants at the end of each day. A staff person from the Senior Center took handwritten notes of the discussion.

I observed at the Introductory Meeting and four of the six program days where I took notes about attendees, their interactions, and the topics discussed. I used observations

to understand stakeholder input and to contextualize the interview materials.

Interviews

I recruited participants I knew to be involved in the AFC initiative and then followed a snowball sampling technique. I also recruited participants during program days. I introduced myself to key-participants after their presentations and then followed-up by email to request interviews. People who presented at the meetings were identified as "key-participants."

I conducted nine interviews with ten key-participants during the stakeholder input period. All interviews followed a semi-structured format based on a pre-written interview guide. Eight of the nine interviews were conducted in person at various locations in the community and one interview was conducted by phone due to the interviewee's location outside of Tallahassee. All interviewees were given the opportunity to select the interview location. Interview time ranged from twenty-six minutes to an hour and twenty-three minutes. All interviews were audio-recorded and then transcribed. Interviewees were informed that the purpose and the goals of my study were independent of those of the initiative. A detailed timeline of the initiative, including my observations, interviews, and the Action Plan process is shown in Figure 3.

Analysis

I transcribed interviews line-by-line in individual documents

		Locus of Planning				
Mode of Planning	type of citizen engagement	Centralized			Decentralized	
		no formal relationship	informing/consulting	partnership, delegated	mediated empowerment	socio-political empowerment
	Pragmatic Rational: alternatives and strategies considered as fully as possible by technical experts; they determine public interest; scientific criteria used in decision making					
	Incremental: alternatives and strategies compared and evaluated in successive increments, piecemeal; practical, opportunistic, works within political constraints.		★			
	Mediation, negotiation, dispute resolution, consensus-building: addresses power inequalities.					
	Political or legal strategy					

Figure 2. The case study shown within the Expanded Typology of Planning Approaches matrix (Miles, 2015).

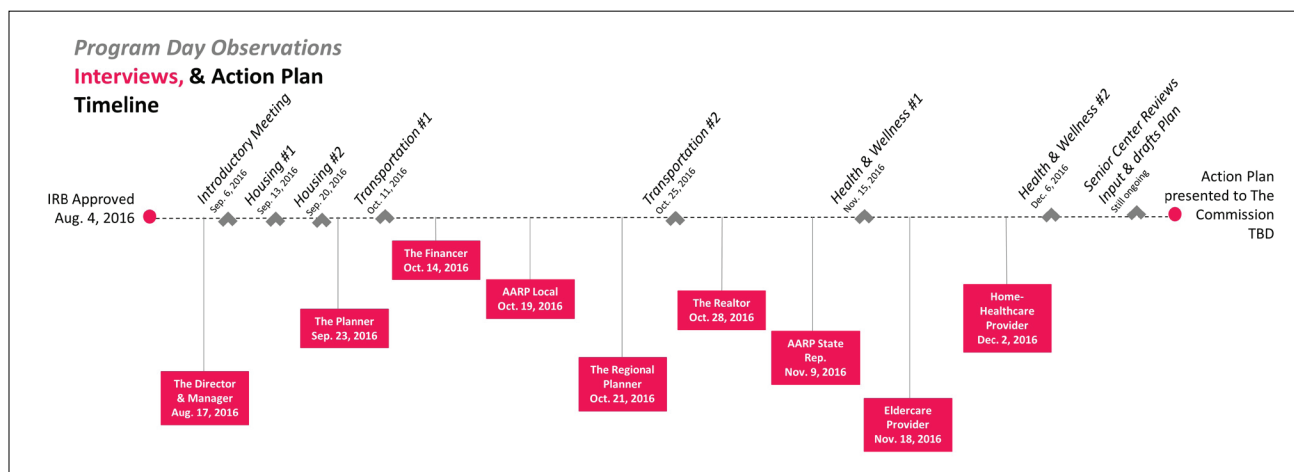


Figure 3. Timeline including interviews, observations and Action Plan development process.

and then read the interview transcripts for a general understanding of the context and the scope of the responses. I then applied three coding methods: attribute coding, holistic coding, and then finally, pattern coding (Saldana, 2015). Attribute codes denote the descriptive information like the fieldwork setting or participant characteristics (attribute codes; pg. 73). I used attribute codes to develop descriptive names for the interview participants related to the interviewees' professional capacities: giving each a pseudonym that reflected their profession (Table 1). Then, I coded passages from the transcripts with holistic codes. Holistic codes are used to collect qualitative data together into topics (holistic codes; pg. 167). In most cases, as in with this one, this method is used to lay the groundwork for more detailed coding. For example, I asked interviewees to tell me about what they hoped to see from the initiative. In doing so, they expressed concern that it was possible the Action Plan would not be implemented. The holistic code for these data was "uncertainty about outcomes." I then used pattern coding to identify relationships among the holistic codes, such as "the importance of politicians' personal goals" from the data (pattern codes; g. 236).

Results

Through an analysis of my interview data, I developed a set of themes that describe how this particular community organized its AFC initiative. In the sections that follow, I explain the following four themes:

- The Senior Center's Centralized Leadership Approach and the Decision-making Role of The City Commission
- The Informational Role of the Key-participants
- Lacking Financial Resources
- The Importance of Politicians' Personal Goals

The Senior Center's Centralized Leadership Approach and the Decision-making Role of The City Commission

The City Commission directed the Senior Center to draft the Action Plan (see Figure 2). In response, the Center used a centralized approach to develop the draft: they assembled and used the 3L (community stakeholder group) and the key-participants (experts) to inform an Action Plan. The Plan would be submitted to the commission for approval.

Respondent ID	Agency Type	Attributed Pseudonym
1a	The Senior Center	The Director
1b	The Senior Center	The Manager
2	City-county planning department	The Planner
3	Non-profit affordable housing financing company	The Financier
4	AARP city office	Local AARP
5	Metropolitan planning agency	The Regional Planner
6	National real estate franchise	The Realtor
7	AARP state office	State AARP Representative
8	Elder Affairs of Florida	Eldercare Provider
9	Private senior home healthcare agency	Home-Healthcare Provider

Table 1. The pseudonyms attributed to the key-participants interviewed.

The Senior Center selected a stakeholder group, which, according to the Center, would be representative of all seniors in the community. All of the members of the group, however, were seniors from the LifeLong Learning program (3L). The 3L is a group that meets regularly and actively participates in the Senior Center events and activities.

Residents of Tallahassee age 55 and over can join the 3L program to become involved in the community. The 3L program aims to give seniors an understanding of the cultural, political, safety, legal/justice, educational, and health/human services climate of the community. Tuition payments are required. There are, however, a few scholarships available for seniors who wish to participate but need financial support. People must have time available in order to participate: to graduate from the program, seniors take part in three months of activities at the Senior Center, local businesses, and government services organizations. The program empowers seniors to remain engaged in their communities and to become effective advocates.

The Senior Center staff expected 3L seniors to learn about the AARP Network and use their 3L training to make the information pertinent to Tallahassee. For example, at the Introductory Meeting, The Director said: "This is an international network and because we're part of it we have access to a lot of resources. We really need you to do the research. Go on the website. Bring your research to the program days (Introductory Meeting, 9/6/2016)." 3L seniors brought local knowledge to the initiative (shown by their completion of the 3L Program) and expressed their personal concerns (shown by their self-selection into the program day(s) that interested them). In this sense, the 3L participants fit within the definition of a stakeholder who affects and is affected by a project.

It is important to note that the majority of seniors in the community are not 3L. It is also important that The Manager of the Senior Center heads the 3L and, therefore, knew the group personally. Thus, although the 3L may have been an efficient way to enroll stakeholders, it was not necessarily exhaustive or representative of the resident stakeholders in Tallahassee.

The Senior Center also defined and invited experts to participate in the project and provide expert knowledge to inform the Action Plan. They selected experts from local industries related to the three priorities identified in the AARP survey, such as real estate, planning, and healthcare services providers. They are an active center that both supports and is supported by their community. They also leveraged their existing partnerships with individuals.

All of the interviewees viewed the Senior Center as the leading

organization; in particular, they cited The Director and The Manager as the main leaders. This is because The Director and Manager informed most of the participants about the initiative (as described below, the exceptions were The Planner and the Local and State AARP Representatives) and invited them to participate. For instance, The Financer said: "I was invited by the Senior Center... because of my prior work around senior housing with her [The Director] and, in the past, with ...Florida Department of Elder Affairs. I was involved with the Communities for a Lifetime program (Interview, 10/14/16)." Thus, he identified that there were past projects through which he built relationships with The Director and was subsequently invited to participate.

The Manager of the Senior Center also invited some key-participants from a group of experts who had previously spoken for the 3L. For instance, The Regional Planner explained that he had previously spoken about transportation planning topics to the 3L. As with The Financer, and with many of the other participants, The Regional Planner was also invited based on his previous work with the Senior Center. Consequently, because of the Senior Center's leadership role, it appeared many of the participants were identified and became involved through existing professional networks.

One exception to this tendency for people to have learned of the project based on previous professional relationships was The Planner, who first learned about the program from an online AARP publication welcoming the City into the Network of Age-Friendly Communities. The Planner described her entrance into the program like this:

"I first heard about it last April 2016, I think I was just looking at some of the publications online. I stumbled across the Age-Friendly Community designation, and it was at that point that I realized [Tallahassee] was one of these communities. I thought it was a good process... I connected with another planner to get in touch with [The Director] ... [The Director] had asked my boss's boss to participate, and I was interested in it, and when we figured out that my boss's boss was a common person, someone she'd ask to participate, [The Director] was happy to have me participate" (Interview, 9/23/16).

Even though The Planner had sought out the project of her volition, she was formally invited to participate by The Director. The Planner expressed that others would not have the same opportunity. Concerned about the narrow scope of stakeholder engagement, she explained that limited representation was possibly an outcome of the Senior Center using established professional networks for identifying and inviting stakeholders and key-participants into the initiative, or in her words, "decid-

ing who's at the small table." She said:

"[Another city planner] wants to be [involved] but [The Director] is the one deciding who's at the table. That's my only concern. For example, I didn't notice any colored people at the meeting. And that's not what our older population looks like, here at this point, it's just not. The table is very small. It's only the [3L] grads. It also seems very real estate heavy. I'm worried that there needs to be more diversity. But she's called on the [3L] grads because she wants to get through the process. They're moving quickly. It's a readily available group. They're willing and able to serve and she knows it. So I see why organizing is much easier. We have a much different population, for example, on the South Side of Tallahassee. People with less resources have to work longer into their retirement and don't have the time to be involved. Not to answer the [AARP] survey and not to get involved" (Interview, 9/23/16).

The Eldercare Provider echoed the concerns. He thought the processes only included select members of the community and that this narrow focus limited the possibilities of the initiative. Reflecting on his experience, he said: "I would love to see a bunch of people in the room [at the program days] listening and able to explain to them [the key-participants] what [it is that] they need and how difficult it is for them to get it" (Interview, 11/28/16). He felt that the program days failed to live up to these expectations.

In addition to The Planner, the other two participants who did not learn of the initiative from the Senior Center but were invited by The Director or The Manager were the Local and the State AARP Representatives. These two stakeholders knew about the initiative prior to becoming involved. As with the other interviewees, AARP Representatives identified The Director as the leader.

The Senior Center was able to collaborate with existing community partners from disciplines across the three priority domains: Housing, Transportation, and Health and Wellness. On the Housing Program Day, they invited realtors, an affordable housing financing company, developers, and planners. On the Transportation Program Day, they took stakeholders on a guided tour to the transportation authority offices, a bus tour throughout the city, and invited a regional transportation planner, a land use planner, and an Uber representative. Lastly, on the Health and Wellness Program Day, the Senior Center brought in home healthcare providers, the City's wellness coordinator, physicians, and representatives from local hospitals and faculty from the local university, and they took stakeholders on a guided tour of the new VA Hospital.

In summary, the Senior Center was the leader of the initiative and had the decision-making power regarding community stakeholder and expert inclusion. This is important because, even though decision-making power shifted to the commission once the input was collected and submitted to them in the form of an Action Plan, the Senior Center's role in defining who participated and who provided input granted their agency significant influence over the trajectory of the project. The Director and The Manager at the Senior Center engaged key-participants who they knew to be involved in senior affairs or with whom they had previously worked. However, The Planner and the Eldercare Provider believed this resulted in a limited, less-diverse group that was not representative of seniors in Tallahassee.

It is also important to recognize that there were other avenues through which stakeholders could learn about the initiative, as demonstrated by The Planner and AARP staff. However, these three people were able to participate because the matter was closely related to their career and expertise: not necessarily because they were people whom the AFC initiative was designed to serve.

The Informational Role of Key-participants

All key-participants were invited by the Senior Center to inform and consult with the 3L, contributing to the Action Plan development phase. They shared relevant information from each of their industries: the participants brought printed materials, PowerPoint presentations with informational links, their business cards with contact information, and information on their current projects. Additionally, they explained technical terms to the stakeholders and offered ways that their particular agency might get involved. For example, during the housing program day, The Planner was asked by The Director to explain a comprehensive plan.

The Financer, Eldercare Provider, Home-Healthcare Provider, The Regional Planner, and The Realtor, all similarly explained in interviews that their purpose was sharing information, giving an overview of the available resources, and answering questions. The Planner explained her role on the program day, saying: "We can offer information because the ideas of a work plan need to come from those most affected by it" (Interview, 9/23/16).

All of the stakeholders presented information and were consulted about solutions and their opinions after the presentations during a question and answer period. With the Senior Center as the leader and the commission as the decision-making authority, key-participants were given the role of information providers for the Action Plan development. They participated as representatives of their agencies and

inserted their technical knowledge into the AFC initiative. 3L seniors were given the opportunity to engage in discussion with all of the meeting participants.

Lacking Financial Resources

All of the key-participants, including The Director and The Manager, said that they had made no budgetary allocations for the AFC initiative. The Director and The Manager hoped to satisfy the Action Plan development phase with existing resources drawn from their community partnerships, absorbing the costs with their existing operating budget. All of the key-participants identified money as a constraint.

According to The Director, the Senior Center could only provide staff time and travel money (to attend the AARP Livable Communities conference in Chicago, IL). It became apparent that the staff at the Senior Center was strained by the additional work. For instance, The Manager described the project as “another full-time job.” When asked about available resources, The Director and the staff shared the following exchange: “[Resources include] primarily staff time and I guess travel [to the AARP Livable Communities conference]. Our department will pay for most of the travel. So it’s a lot of time. Staff time.” The Director went on to explain that she did not hire additional staff for the project, giving The Manager cause to exclaim: “That’s why we have circles under our eyes” (The Manager, Interview, 8/17/16).

Similarly, The Planner explained: “We don’t have resources. We have staff. We have so many demands, from the city and the county; we don’t have the ability to commit a lot of resources. At this point, we can give information (i.e., parking inventory) and staff time. That’s what we have. We don’t have [the] monetary ability, funding, and no grants” (Interview, 9/23/16). Thus, the Senior Center, The Planner, and most of the other stakeholders needed to use other resources as a substitute for financial capital. In place of financial resources, the Senior Center hoped to use partnerships: “I will say: what we’re good at is working with other city departments. Pulling experts from other departments (Interview, 8/17/16).”

While key-participants did not have financial resources to use directly on the initiative, some expressed optimism about the possibility of including Action Plan items in existing projects. For example, The Planner thought some parts of the Action Plan could be included in the comprehensive plan. She said:

When there are priorities [for the AFC project], [the planning department’s involvement] will depend on what ... [the priorities] are. If they have a request to look into incorporating parts of this [Action Plan] through the comprehensive plan reform efforts we’d have to bring it up to the commission

to make the decision on whether that’s something we [the planning department] can do. If they were good ideas, we’d have the support of our leadership (Interview, 9/13/16).

Additionally, The Regional Planner suggested that (if the Senior Center was interested) the Action Plan could include projects from his agency’s Prioritized Project List (PPL). During his presentation, The Regional Planner showed the 3L seniors examples of transportation projects on the PPL that if implemented, would benefit people of all ages. For instance, he shared information about a proposed mid-block crossing between one of the city’s most popular parks and the shopping center located across the street. The mid-block crossing would calm traffic and allow pedestrians of all ages and abilities to safely and comfortably walk across. PPLs include transportation projects that have been submitted by local jurisdictions for funding and implementation. Incorporating PPL projects into the Action Plan could be mutually beneficial for the agencies: the Regional Planning agency would gain support for the funding and implementation of their project and the Senior Center would help advance an age-friendly transportation improvement.

Finally, The Financer hoped that they would be able to work with the initiative through his company’s existing financing efforts if the commission approved a qualifying housing project. He suggested that (if the Senior Center was interested in it) they should add it to the Action Plan. The Financer believed that his company’s objectives supported AFC objectives.

Despite not having any financial resources for the Action Plan development, key-participants were optimistic about integrating action plan items into existing projects in their organizations. It is interesting to consider to what extent this integration may have lead to, or will lead to the initiative being re-directed to serve the needs of organizations in addition to, or at the expense of, community members. It is also important to consider how a lack of financial resources influences the project. On the one hand, fewer financial resources can limit who can and does get involved and how long input can be collected for. On the other hand, financial resources can put strains on the project by giving certain stakeholders—especially those who control the financial resources—more power over the decision-making process.

The Importance of Politicians’ Personal Goals

The personal goals theme was an unforeseen theme that emerged in my conversations with key-participants. The participants raised the idea of “pet projects” when expressing uncertainty regarding the future of the initiative. “Pet project” is a colloquial term that refers to a goal pursued as a personal favorite, rather than because it is generally understood to be necessary or important. Which is to say, respondents were

worried that powerful decision-makers supported the initiative because it aligned with their personal goals and therefore it would lose support with representative turnover. For example, The Planner said: “The priorities that a previous commission has may not be the priority of another commission...AARP [does] not [have] so much clout with the commission. The commission follows their heart at this point. Commissioners have their own pet projects (Interview, 9/13/16).” The Planner felt uncertain as to how a change in commissioners would affect the future of the project because the commissioners are individual people who have their own objectives and desires.

The term “pet project” was used by all of the key-participants in describing the political climate and their expectations about Action Plan implementation. The idea that the AFC initiative would be part of a commissioner’s personal goals was taken to mean that it would receive support. However, key-participants expressed concerns regarding the sustainability of such a project, citing the frequent turnover in elected positions, such as those of the commissioners.

Discussion

In this case study of a single AFC initiative, I sought to understand the complex process by which diverse stakeholders with diverse goals and resources were assembled in order to have input in a community-aging initiative. This stage of an AFC initiative, the planning step, is the most important for understanding these processes because it is the only time where community members and experts are able to provide input. For this reason, the Planning step is the foundation on which the initiative is built: it will have significant implications on whose voices are heard, how these voices are incorporated into actionable projects, and, therefore, how successful the project will be for catering to the needs of the community. Therefore, this is a critical step for reflecting on the success of the AFC initiative.

The Planning Process in Tallahassee Florida

I used Miles’s (2015) Proposed Expanded Typology of Planning Approaches to define the planning process employed by the leaders of the AFC initiative. Determining how this project fits into a framework can be useful in future project evaluation or AFC initiatives comparisons.

At this phase, the project was centralized: decisions on stakeholder involvement and Action Plan content were made by the Senior Center. The typology also makes distinctions based on the type of citizen engagement that characterizes the planning process of interest. In this case, the type of citizen engagement was informational only, and stakeholder involvement was narrow including only strategically or

purposefully selected groups for consulting purposes (The City-County Planning Department, Elder Affairs of Florida, the LifeLong Learning program, etc.). Furthermore, this phase of the initiative was conducted using an incremental “mode of planning.” Incrementalist approaches consider alternatives and strategies in successive increments. The alternatives must be feasible within political and financial constraints (see Figure 2). For example, after the Senior Center created the Action Plan the commission would evaluate it. The commission had its own constraints; in this case, stakeholders expected pet projects to influence how the Action Plan was received.

This process is unique to Tallahassee. And although examples are featured on AARPs website, the Senior Center did not use any specific examples to guide their strategy. AARP provides an Action Plan format guide but does not require any particular leadership or strategic approaches; these choices are left to the initiative leaders and one purpose of joining “Network of Age-friendly Communities” is to eventually share strategies and outcomes with the other participating communities. AARP requires that the following information be included in every Action Plan:

1. Goals or outputs;
2. Activities related to each goal;
3. The target date for activity or goal completion;
4. The group or individual responsible for each activity;
5. Inputs of resources for completing the activity;
6. Performance indicators.

The Importance of Stakeholder Inclusion

The Senior Center led the narrow stakeholder inclusion process. They decided to limit participation to members of the 3L seniors and select community professionals (the key-stakeholders). The decision was based on their limited resources and on the convenience of existing relationships with that group of seniors and, in most cases, with the key-participants. The initiative was unfunded, and the Senior Center had to rely on partnerships to carry it out. By selectively including voices to provide input into the Action Plan, the Senior Center facilitated a dialogue around issues of community aging. However, the dialogue was limited to those who were eligible to participate or already in partnership with the Senior Center. This selective facilitation of dialogue is an important finding of the current study that has implications for future AFC initiatives. Creating a dialogue is critical to the production of influential information (Innes & Booher, 2010; pg. 153). Dialogue “builds understanding, embeds information in the context where it is to be used, and molds policy to the information, as well as information to the policy (pg. 153).” In creating the space for

a dialogue between stakeholders and key-participants, the Senior Center strategically selected community members and professionals who were known to be engaged in and to have expertise on, the matters of concern. Consequently, they felt they maximized their limited resources to engage in information production in order to assemble an Action Plan for the commission. However, this selective facilitation of dialogue also has important political ramifications for understanding the creation of AFCs.

Creating a Limited Dialogue

Planning theory might qualify this lack of inclusion as a limitation of the initiative. For instance, planning theorist, Dr. Susan Fainstein, instructs: “[p]rogressive social change results only from the exercise of power by those who previously have been excluded from power... participation is the vehicle through which that power asserts itself (Fainstein, 2010).” The general public was excluded from the planning process undertaken by the Senior Center and their selected participants. Public notices to solicit public involvement were not posted. There are no policies in place mandating public involvement in the creation of AFC initiatives, although it remains possible that a broader group would be invited to the early stages of the implementation phase. Given the use of a centralized approach and their exclusion from the early stages of the process, which informed the prioritization of next steps through the creation of an Action Plan, it is possible that the outcomes will privilege the status quo.

Strained Resources Limit Inclusion

One explanation for why there was a limited dialogue is that there were no monetary allocations for this project on behalf of any of the key-participants. The Senior Center had limited staff, staff time, and finances to carry out the stakeholder input phase. They did not make a budgetary allocation or hire additional staff or volunteers for it. They used existing staff and resources, including the 3L seniors as their stakeholder group, and thereby excluding other subsets of the population in the development of an Action Plan. However, one should be careful to explain limited inclusion as a result of strained resources on two accounts: First, limited resources should not become an excuse to justify limiting inclusion; second, in this case, many of the key-participants in this study were optimistic about their ability to draw on other resources as a substitute for financial resources. Consequently, perhaps the more important question to be asked in future studies, is what planning approach supports translating non-financial resources into strategies for broader stakeholder inclusion?

Takeaways for Planners

The role of the two planners involved in this initiative can be instructive in identifying how AFC initiatives affect planning and planning policy. It also provides examples of how planners can interact with and affect age-friendly initiatives. First, planners can engage with their constituency by forming relationships between agencies not traditionally or consistently included in the planning process. These experiences create a dialogue among citizens and planners and provide opportunities for mutual learning. Second, this case provides an example of how planners can include age-friendly perspectives into traditional areas of planning (i.e., comprehensive planning and long-range transportation planning) to address the needs of seniors while eliminating redundancy.

In this case study, planners were not given a decision-making role. However, planning literature suggests that planners are in a position to assume such political roles (Forrester 1989; Friedmann, 2008). In this case planners used their technical and expert knowledge to inform the knowledge production for The Action Plan and shape the agenda. They showed that AFC initiatives could affect planning and planning policy by presenting ways in which livable community goals can be integrated into planning documents, such as comprehensive plans. It is also important to note that both planners advised the Senior Center to include existing planning projects in their Action Plan. They also suggested it would be possible to integrate Action Plan items into plans or projects. They both maintained their technical or expert roles, however, as they acknowledged, the planners did not have the decision-making power to ensure that they were incorporated into the Plan.

The planning process determines who the decision makers are and how different stakeholders get involved; thus, planners who are able to identify the planning process of an initiative will be able to strategically insert themselves into an initiative or integrate an initiative into existing plans (as the planners did in this case study). Planning typologies help planners identify the planning process. Case studies like this one give in-depth details of how planning processes work so that planners can identify typologies in practice.

Conclusion

According to the planning approaches typology, the Senior Center enacted an incrementalist approach to the AFC project. This approach centralized decision-making and required the Senior Center to strategically select stakeholders. Consequently, this limited the inclusion of the general public. It also limited how stakeholder input was subjected to public decision-making. The benefits of using this approach include using existing

community partnerships as the foundation for an AFC project. For example, the Senior Center relied on an informed and engaged group of seniors in the LifeLong Learning Program, as well local experts to gather input efficiently. However, this approach had drawbacks: limiting the scope and inclusion of the broader community. In order to address these drawbacks, agencies, such as the Senior Center, could broaden the width of stakeholder involvement and achieve a more inclusionary process. In this study, obstacles to stakeholder involvement included limited funding as well as a reliance on existing partnerships. It is also important for future researchers to consider in greater detail how politicians' personal goals are the impetus for AFC initiatives.

Detailed analyses of how the planning process is implemented in developing Action Plans, as well as the obstacles to stakeholder involvement are important because Action Plans, such as the one analyzed in this case study, might be used as pilot programs to inform policy. Planners must ensure that these foundations are inclusive; broader stakeholder interests become solidified in the political, economic, and built infrastructure of Age-Friendly Communities.

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Connecting the Dots: Campus Form, Student Perceptions, and Academic Performance

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The influence of the built environment on people's behavior and performance is a traditional study topic in urban design. In this article, Amir Hajrasouliha discusses the role of the campus physical environment in student perceptions and in their performance and graduation rates through an investigation of 23 CSU campuses and a survey of 446 students. The author demonstrates that both objective and perceived measures are significantly associated with student academic performance.

This article discusses a research that evaluates the role of campus built environment and its immediate surroundings on a major concern of universities: student retention and graduation. The relationship of both objective and perceived measures of physical campuses with students' academic performance was examined, using the California State University (CSU) campuses as its sample. The objective campus environment was measured by using a Campus Score scale, while the perceived campus quality and the perceived restorativeness were measured through an online survey of 446 students. The results demonstrate that both objective and perceived measures were significantly associated with students' academic performance. However, the aggregated perceived measures at the campus level were not associated with the objective measures related to campus form. The mismatch between objective and perceived measures leads to additional questions and potential research. This research provides insight to universities about the role of their physical campus in enhancing student retention and graduation rates.

Introduction

Retention and graduation rates have become a key component of measuring the performance of higher education institutions in recent years. The most common strategies to improve retention and graduation rates are financial and academic, such as revising the financial aid criteria, investing in academic and advisory services, and revising curricula and programs. However, sometimes we forget that a valuable asset for student success can be the physical campus and its surroundings. Motivational and psycho-social issues might be as important as financial and academic issues in this matter. A supportive physical learning environment can enrich students' college experience, contribute to a sense of belonging, and respond to their social and emotional needs (Kenney et al., 2005).

In recent years, many universities embraced the idea of physical planning to attract more prospective students, increase the quality of life of current students, and invest in surrounding communities (Chapman, 2006; Coulson et al., 2010; Coulson et al., 2014; Hajrasouliha & Ewing, 2016; Hajrasouliha, 2017b; Dalton et al, 2018). However, the potential impact of these built environment interventions on students' academic performance is an understudied topic. More evidence-based research is needed to connect campus design qualities with students' satisfaction and academic performance. This research is an attempt to evaluate the role of campus built environment and its immediate surroundings on a significant concern of universities: student retention and graduation.

Background Information

The theoretical foundation of this research is based on Hajrasouliha (2017a). That study applied a theoretical framework for analyzing campus form of one hundred and three universities with high research activities in the United States. Strong positive associations were found for three objective measures of campus form – (1) urbanism, (2) greenness, and (3) on-campus living – with student retention and graduation rates, after controlling for student selectivity, class size, total undergraduate enrollment, and university type. This project expands on that work in two important ways: 1) Incorporating both objective and perceived measures of campus form in the analysis, and 2) focusing on teaching-oriented institutions rather than research-oriented institutions.

Perceived measures

The physical campus can have an impact on students' satisfaction and academic performance in different ways, including through its "restorative" impact on students' mental

functioning and social relationships. Connecting the objective measures of campus form to its perceived measures reveals the affective potential of the “well-designed” campus. Research from a variety of fields, namely environmental psychology, has demonstrated the restorative potential of natural and built environments. Exposure to natural settings can reduce stress (Ulrich, 1984), promote recovery from attentional fatigue (Kaplan & Kaplan, 1989), and even improve overall health (Laumann et al., 2003). Many studies have shown that natural environments have greater restorative potential than urban environments (Hartig et al., 2003; Herzog et al., 1997; Ulrich et al. 1991). However, some studies suggest that certain urban settings have a perceived restoration potential that is equivalent to, or even greater than, natural environments (Herzog et al. 2003; Nasar & Terzano, 2010; van den Berg et al., 2014). Empirical evidence from many disciplines has supported the development of restorative urban environments, though there is little guidance for the incorporation of the restorative notion in campus settings.

In a unique study on university campuses, Hipp et al. (2016) found that students with higher perceptions of campus greenness report a better quality of life, a pathway significantly and partially mediated by perceived campus restorativeness. However, that study only focused on campus greenness, and no other built environment characteristics. In addition, exploring the relationship of perceived measures of campus form with objective measures can provide an insight into the environmental cognition of university students.

Teaching-oriented institutions

Physical campuses might play a different role in different institutions. For example, the role of research labs in students' satisfaction and success is more central in a research university than a teaching university. Also, controlling and modelling all the external factors and macro-forces (e.g., students' socioeconomic status, university mission, financial resources,

and student selectivity) is difficult. However, limiting samples to relatively similar institutions, politically and academically, can reduce the impact of these external factors and macro-forces to some extent (comparative analysis with most similar systems (Teune & Przeworski, 1970). Therefore, this project is focused on the California State University (CSU) system as its sample. Comprised of 23 teaching-oriented campuses, the CSU is the largest four-year public university system in the United States, which makes it a manageable scale for this study, while being broadly representative of comparable institutions.¹

In sum, the primary purpose of this study is to examine the relationship of both objective and perceived measures of physical campuses with students' satisfaction and academic performance in teaching-oriented institutions (see Figure 1). The findings provide evidence-based insights for university administrators, and higher education researchers about investments in campus planning and development, and a better understanding of a well-designed campus in the context of academic performance.

Discussion of Procedure

The research investigated the relationship between the physical campus (objective and perceived dimensions) and student satisfaction with college life, and ultimately, academic performance. It was divided into two phases.

Phase 1 was the campus-level, Campus Score, analysis of all CSU campuses and Phase 2 is the individual-level analysis from students. In this phase, the objective measures of campus form were the foci of research, and these measures were associated with retention and graduation rate measures.

In phase 2 the perceived environment was measured through an online survey from students of specific CSU campuses, and the results were associated with their perceived satisfaction with their academic life and performance. These two phases

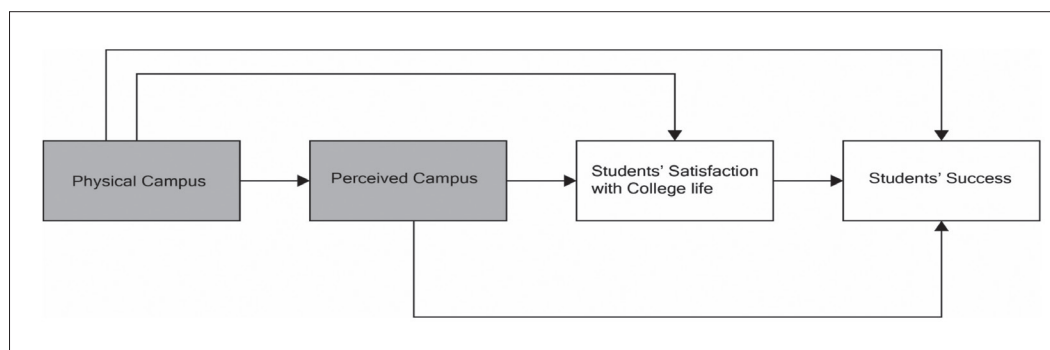


Figure 1:
The conceptual diagram

¹ 4-year public institutions without doctorate programs.

allow for connecting the physical campus qualities to their perceived qualities and explore their relationship with students' perceptions and academic performance.

Phase I: Campus-level Analysis & the Objective Environment

Generating the Campus Score for CSU campuses

In phase one, the physical campus form characteristics of 23 CSU campuses were measured, using the scale from a previous study (Hajrasouliha, 2017). Campus Score is a composite index that measures the degrees of urbanism (Urban Score), greenness (Green Score), and living on campus (Living Score) based on the standardized value of specific campus form dimensions (see Table 1).²

The size of campus enrollment was not included in Hajrasouliha's (2017) Campus Score, but the total student enrollment was shown to have significant associations with freshman retention and six-year graduation rate in that study. Therefore, this study adds total enrollment to the overall Campus Score. For consistency and convenience, all four scores are normalized with the mean of 100 and standard deviation of 50.³ In sum, the Campus Score is generated by adding Urban, Green, Living, and Size Scores, normalized with the mean of 100 and a standard deviation of 50.

Measuring University and Community Characteristics, and Academic Performance

As other studies have found basic institutional characteristics to be associated with academic performance, a dataset was collected on the age of institution, the percentage of white students, average SAT score, the percentage of students with Pell grants, and the amount of student aid per recipient come from the National Center for Education Statistics. For the community context, which may also affect student academic performance, these factors were assessed: access to food: the percentage of residents with low access to food within 0.5 mile in census tracts around campus (American Nutrition Association, food desert index), travel mode: percentage of workers who

drove alone at census tracts around campus (census data), socioeconomic characteristics: share of arts and entertainment occupations, percentage of renters, percentage of residents with bachelor degree and higher, percentage of single-family home units (census data). Academic performance measures include freshman retention rate and six-year graduation rate (National Center for Education Statistics).

Exploring the relationship of Campus Score with Universities' Characteristics and Performances

Measuring university characteristics, neighborhood context, and the Campus Score reveal whether there is an association between them, and ultimately student academic performance. Pearson Bivariate Correlation and multiple regression modeling were used to explore the relationship of Campus Score with freshman and graduation rates. In addition, Pearson Correlation was used to show the relationship of physical campus qualities (Campus Score, and its four dimensions) with the institutional characteristics. Besides, the Pearson Correlation was used to explore the relationship between campus qualities and the characteristics of their surrounding neighborhoods.

Phase II: Individual-level Analysis & the Perceived Environment

Data collection

An online questionnaire was developed to study student perceptions and satisfaction with their campus. The questionnaire focused on the level of students' satisfaction with different elements of the physical campus, and their academic and non-academic experience on campus. It also included essential demographic characteristics (gender and age), previous and current student academic status (self-report SAT/ACT scores, self-report GPA and year of study).

Using a scale of 1 (completely dissatisfied) to 7 (completely satisfied), students rated their satisfaction with the following aspects of campus: 1) Landscape and green features such as street trees and views of greenery; 2) Plazas and outdoor gathering places; 3) Eateries and restaurants on campus; 4) The accessibility to a variety of commercial, cultural, and entertainment opportunities within walking distance from campus; 5) Housing on campus; 6) The architecture of campus buildings; 7) Recreational facilities on campus.

The questionnaire also included a *Perceived Restorativeness Scale* (PRS) measuring five domains (Fascination, Being Away, Coherence, Compatibility, and Scope) in each campus (Abdulkarim and Nasar, 2014; Berto, 2005). This 5-item scale was adapted from the full-length version of the PRS (Hartig et al., 1991; Hartig et al., 2003). The PRS is based on the Attention Restoration Theory (ART; Kaplan, 1995) to measure an individual's perception of restorative factors in the environment.

² Urban Score is the sum of Z-scores of mass density, street network connectivity, the centrality of the campus, activity density of surrounding census tracts, intersection density of surrounding census tracts, and the negative value of the proportion of undeveloped areas in a quarter mile buffer around campus core buildings. Green Score includes the Z-scores of the density of tree canopies, the proportion of pervious open spaces, and the negative value of the percentage of surface parking areas on campus. Living score includes the percentage of freshman living on campus.

³ Since Campus Score has quadrangle relationships with retention and graduation rates (Hajrasouliha, 2017) - meaning its effect fades after a certain threshold - the maximum value of each score is set to be 150.

Table 1: Objective Measures of Campus Form.

	Description	Computation Process	Data Source
Urban Score	Mass Density	Total area of building footprints divided by campus area	Combination of available campus CAD or GIS files, refined with OpenStreetMap, Google Earth images if necessary
	Campus Connectivity	The mean value of Angular Integration analysis with radius of 3, weighted by segment length of all campus street segments (Space Syntax technique)	Census Tiger 2010, street lines
	Campus Centrality	The mean integration value of campus street segments with radius 3 divided by the average integration value of county street segment with the same radius	Census Tiger 2010, street lines
	Activity density	Population and employment density of all census tracts neighboring the campus	Longitudinal Employment Household Dynamic 2010- Census 2010
	Intersection density	Number of intersections within all census tracts neighboring the campus divided by the area of census tracts	Census Tiger 2010, street lines and census tracts
	Undeveloped Land	Percentage of undeveloped land in a quarter mile buffer around campus buildings	National Land Cover Data 2011
Green Score	Tree canopy	Density of tree canopy in a quarter mile buffer around campus buildings	National Land Cover Data 2011
	Pervious open spaces	Percentage of pervious open spaces in a quarter mile buffer around campus buildings	National Land Cover Data 2011
	Surface parking	Total area of surface parking divided by the campus area	Combination of available campus CAD or GIS files, refined with OpenStreetMap, Google Earth images if necessary
Living Score	On-campus living	Percentage of freshman students living on-campus	California State University website
Size Score	Total Enrollment	Total enrollment in 2015-16 academic year	National Center for Education Statistics - NCES

The question for Fascination was “The campus is fascinating; it allows me to discover and be curious about things”. For Being Away: “The campus, outside the classrooms, is a place which is away from everyday demands and where I would be able to relax and think about what interests me.” For Scope: “The campus is a place that provides a feeling of being in a ‘whole other world’”. For Coherence: “The campus is a place where the activities and the items (buildings, plazas, green spaces, etc.) are ordered and organized.” And for Compatibility: “In the campus, it is easy to orient and move around so that I could do what I like.” Response options were in a 1 to 7-point scale with 1 = not at all, 4 = rather much, and 7 = completely.

The questions regarding students’ satisfaction with college life were adopted from the 2016 National Survey of Student Engagement (NSSE) on a 4-point scale, and included: “Overall, how would you evaluate the quality of academic advising you have received at your institution?”; “How would you describe your satisfaction with your (both academic and nonacademic) school experiences?”; “If you could start over again, would you go to the same institution you are now attending?”; and “How likely is it that you will graduate on time?”

The online questionnaire was conducted during the Winter and Spring semester/quarter of 2017. Participants were offered an incentive in the form of a drawing for three \$100

iTunes gift cards. While the online survey was posted on the Facebook page of 14 universities, 9 universities declined participation. Fewer than 10 responses per campus were received from 8 campuses. In one campus, Cal Poly SLO, the online survey was emailed directly to a group of students in Architecture, Engineering, and Business colleges. In total 446 responses were collected and, 269 from Cal Poly Students.

Exploring the relationship of perceived campus qualities with students’ satisfaction and academic performances

The Pearson Correlation was used to test the relationships between the perceived physical qualities (*Perceived Campus Quality*) and the perceived psychological quality (*Perceived Restorativeness*). Multiple regression modeling was used to investigate the relationship of both perceived qualities with students’ satisfaction and success. Students’ satisfaction with their academic and non-academic experience, the likelihood of selecting the same institution if they could start over again, and the likelihood of their graduation on time were modeled with the following predictor variables: *Perceived Campus Quality*, *Perceived Restorativeness*, satisfaction with academic advising, and GPA (until that point).

As the majority of respondents were from Cal Poly, two options were considered for the modeling phase: a) modeling the out-

come variables once with Cal Poly sample and once with the other universities, and b) to use a dummy variable for Cal Poly students. Both approaches were tested, and the results were identical regarding the sign and significance of predictors. For the sake of simplicity, only the results of using a dummy variable are presented.

Comparing the objective and perceived campus form measures

Aggregate perceived measures were compared at the campus level for the six campuses with more than ten respondents. These six campuses are Pomona, San Luis Obispo, San Jose, Sacramento, Sonoma, and Stanislaus. Comparing the perceived measures at the institutional level with the objective measures shows their match/mismatch status, and therefore, tests the validity of using the perceived campus measures at the institutional level for predicting students' satisfaction and academic performance.

Results

The Objective Campus and its Associations

The final ranking of all 23 campuses with their scores is presented in Table 2. There was a positive correlation between Campus Score ($M = 100$, $SD = 50$) and six-year graduation rate ($M = 48.49$, $SD = 9.89$), $r = .561$, $p < .01$, $n = 23$. The amount of variance explained by Campus Score is 31.5 percent.

Several tests showed relationships with the six-year graduation rate. Multiple regression analysis showed that Campus Score and university acceptance rate (a proxy for student selectivity), together, significantly predicted students' six-year graduation rate. The results of the regression indicated the two predictors explained 46.8 percent of the variance ($R^2 = .468$, $F(2,20) = 10.690$, $p = .001$). Campus Score significantly predicted graduation rate ($\beta = .420$, $p = .018$), as did acceptance rate ($\beta = -.471$, $p = .009$). Also, a multiple linear regression was calculated to predict six-year graduation rate based on Campus Score and freshman retention rate. A significant regression equation was found ($R^2 = .515$, $F(2,20) = 12.674$, $p < .001$). Campus Score ($\beta = .377$, $p = .027$) and freshman retention rate ($\beta = .527$, $p = .003$) significantly predicted graduation rate.

Multiple regression analysis was used to test if Campus Score and university acceptance rate, significantly predicted students' freshman retention rate. The results of the regression indicated the two predictors explained 26.8 percent of the variance ($R^2 = .268$, $F(2,20) = 5.035$, $p = .017$). While there was no significant association between Campus Score ($\beta = .203$, $p = .300$) and freshman retention rate, acceptance rate ($\beta = -.484$, $p = .020$) had a significant association with freshman retention.

Next, it was tested whether the strong observed association between Campus Score and graduation rate may reflect underlying associations between Campus Score and other university and neighborhood characteristics. Table 3 shows these associations with a number of university and neighborhood characteristics. Campus Score was positively associated with the average SAT score of students ($M = 981.83$, $SD = 87.9$, $r = .734$, $p < .001$), the percentage of white students ($M = 27.9$, $SD = 13.58$, $r = .630$, $p < .001$), and negatively associated with the established year of institutions – positively with the age- ($M = 1940$, $SD = 36.3$, $r = -.518$, $p = .011$), the percentage of students with Pell Grants ($M = 45.9$, $SD = 10.2$, $r = -.762$, $p < .001$), and the amount of student aid per recipient ($M = 8998$, $SD = 620$, $r = -.528$, $p < .001$). Besides, Campus Score was negatively associated with the percentage of residents with low access to food within 0.5 miles in the surrounding census tracts of campuses ($M = 59.17$, $SD = 22$, $r = -.471$, $p = .023$). It was also negatively associated with the percentage of workers drove alone to work ($M = 73.2$, $SD = 10.2$, $r = -.519$, $p = .011$), the percentage of single-family units ($M = 69.89$, $SD = 16.59$, $r = -.492$, $p = 0.017$), and positively associated with the percentage of renter occupant units in the surrounding census tracts ($M = 50.24$, $SD = 20.72$, $r = .500$, $p = .015$). Campus Score was positively associated with the share of arts, design, entertainment, sports, and media occupations ($M = 11.41$, $SD = 3.88$, $r = .648$, $p < .001$), and the percentage of residents with a bachelor degree or higher in the surrounding census tracts ($M = 36.70$, $SD = 13.51$, $r = .479$, $p = .021$).

The Perceived Campus and its Associations

Another hypothesis (Ulrich, 1984; Kaplan and Kaplan, 1989) to explain the influence of the physical campus on graduation rates is that it may provide a supportive environment for students taking a break and restoring their ability to study or work effectively on a demanding project. In other words, a well-designed campus can facilitate recovery from mental fatigue, and contribute to decreased stress, which can lead to better academic performance. To test this hypothesis, the perceived restorative quality of campus environments was measured with PRS-5 scale (Berto, 2005).⁴

First, the relationships of the *Perceived Restorativeness* and students' satisfaction with different campus form elements were explored. *Perceived Restorativeness* was positively associated with students' satisfaction with – ordered by the strength of association – “plazas and outdoor gathering places” ($r = .590$, $p < .001$), “the architecture of campus buildings”

⁴ With the sample size of 446 respondents, five questions relating to perceived restoration were factor analyzed using principal component analysis. The analysis yielded one factor explaining a total variance of 59.62 percent. All five questions were loaded on the principal component with the strong primary loading of more than .7.

($r=.583$, $p<.001$), “landscape and green features such as street trees and views of greenery” ($r=.504$, $p<.001$), “housing on campus” ($r=.420$, $p<.001$), “the accessibility to a variety of commercial, cultural, and entertainment opportunities within walking distance from campus” ($r=.418$, $p<.001$), “eateries and restaurants on campus” ($r=.402$, $p<.001$), and “recreational facilities” ($r=.245$, $p<.001$).

The *Perceived Campus Quality* was generated using these seven campus elements.⁵ There was a strong positive association between the *Perceived Campus Quality* and the *Perceived Restorativeness* ($r=.698$, $p<.001$). This finding suggests that students’ satisfaction with various campus form dimensions - and not only campus greenness - is associated with the perceived restorativeness.

Second, multiple regression analysis was used to test if *Perceived Restorativeness* and *Perceived Campus Quality* significantly predicted students’ satisfaction with their academic and non-academic school experiences. Multiple models were built to test these relationships (see Table 4). In Model 1, when students’ satisfaction with school experience was predicted it was found that GPA ($\beta = .19$, $p < .01$), perceived academic advising quality ($\beta = .35$, $p < .01$) and being a Cal Poly student ($\beta = .17$, $p < .01$) were significant predictors. The overall model fit was $R^2 = 0.18$. *Perceived Campus Quality* was added as a predictor in Model 2. It was found that *Perceived Campus Quality* was a significant predictor ($\beta = .40$, $p < .01$). The overall model fit improved to $R^2 = .33$. In Model 3, *Perceived Restorativeness* was added to Model 1. This variable was also a significant predictor ($\beta = .47$, $p < .01$), and improved model fit to $R^2=.38$. In Model 4, both *Perceived Campus Quality* and *Perceived Restorativeness* were added as predictors to Model 1. The result showed that all variables were still significant predictors, yet the overall model fit didn’t change from $R^2=.38$.

A similar modeling process was used to predict whether students would go to the same institution they are now attending if they could start over again. Table 5 shows the results. In Model 1 it was found that perceived academic advising quality ($\beta = .28$, $p < .01$) and being Cal Poly student ($\beta = .28$, $p < .01$) were significant predictors, but GPA was not ($\beta = .06$, $p = .24$). The overall model fit was $R^2 = 0.15$. In Model 2, it was found that *Perceived Campus Quality* was a significant predictor ($\beta = .35$, $p < .01$) and the overall model fit improved to $R^2 = .26$. In Model 3, *Perceived Restorativeness* was added to Model 1, and it was found to be a significant predictor ($\beta = .35$, $p < .01$), with the overall model fit of $R^2=.25$. In Model 4,

Perceived Campus Quality and *Perceived Restorativeness* were added to Model 1. Both variables were significant predictors, and the overall fit of the model was $R^2 = .28$

A series of multiple regression models were tested to predict how likely it is that they graduate on time. No variable was found to be a significant predictor. *Perceived Campus Quality* had no association with graduating on time ($r=.04$, $p=.40$), as did *Perceived Restorativeness* ($r=.03$, $p=.47$). However, relatively weak but significant association was found between GPA and *Perceived Campus Quality* ($r=.12$, $p=.02$), and *Perceived Restorativeness* ($r=.10$, $p=.03$).

The Objective vs Perceived Campus

The aggregated *Perceived Campus Quality* and *Perceived Restorativeness* at the campus level were compared with Campus Score for the six campuses with more than 10 respondents. These six campuses are Pomona, San Luis Obispo, San Jose, Sacramento, Sonoma, and Stanislaus.⁵

Figure 2 shows a clear mismatch between Campus Score and the aggregated perceived measures. For example, the San Luis Obispo and San Jose campuses had the highest Campus Scores, while they received the lowest perceived scores. In contrast, the Sacramento and Stanislaus campuses had high perceived scores and low Campus Scores. This inconsistency exists for all campus form attributes. For example, the objective greenness measure showed that Cal Poly San Luis Obispo has one of the greenest campuses regarding landscaping and tree canopies. However, Cal Poly SLO received a very low score regarding perceived greenness compared to the other CSU campuses.

Conclusions

This study explored how planning the physical environment can support an institution’s goals concerning academic performance. Although the physical environment is not the primary factor at play in addressing academic performance, it does have a substantial supporting role. This study found Campus Score explains 31.5 percent of the variance in the six-year graduation rate of CSU campuses. This is a reasonably strong association, although it was found to be stronger in Hajrasouliha (2017), where the amount of variance in the six-year graduation rate of 103 research universities explained by Campus Score was 66 percent. The difference can be explained by the scope of research (national vs. state), and the type of institutions (research vs. teaching-oriented); research institutions generally have more diverse student bodies, are significantly larger and

⁵ Which were factor analyzed using principal component analysis. The analysis yielded one factor explaining a total variance of 43.76 percent. This component can be labeled as the *Perceived Campus*

⁶ The perceived measures were normalized to the mean of 100 and standard deviation of 50 before aggregation for consistency with Campus Score.

Table 4: Summary of multiple regression analysis for variables predicting students' satisfaction with both academic and non-academic school experience (N=446).

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Perceived quality of academic advising	.21	.03	.35**	.15	.03	.25**	.12	.03	.20**	.12	.03	.20**
GPA	.22	.05	.19**	.17	.05	.15**	.17	.05	.16**	.16	.05	.15**
Dummy variable for Cal Poly Students	.20	.05	.17**	.29	.05	.25**	.27	.05	.24**	.30	.05	.26**
Perceived Campus Quality				.24	.03	.40**				.11	.03	.20**
Perceived Restorativeness							.27	.03	.47**	.19	.03	.32**
R^2		.18			.33			.38			.38	
<i>F</i> for change in R^2		27.79**			44.47**			54.86**			44.52**	

* $p < .05$. ** $p < .01$

Table 5: Summary of multiple regression analysis for variables predicting whether they would go to the same institution if they could start over (N=446).

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Perceived quality of academic advising	.25	.04	.28**	.16	.04	.18**	.16	.04	.18**	.13	.04	.15**
GPA	.10	.08	.06	.04	.08	.02	.05	.08	.03	.03	.08	.02
Dummy variable for Cal Poly Students	.47	.08	.28**	.60	.08	.35**	.55	.08	.32**	.60	.08	.35**
Perceived Campus Quality				.30	.04	.35**				.18	.06	.22**
Perceived Restorativeness							.29	.04	.35**	.17	.06	.20**
R^2		.15			.26			.25			.28	
<i>F</i> for change in R^2		20.96**			29.84**			30.36**			26.37**	

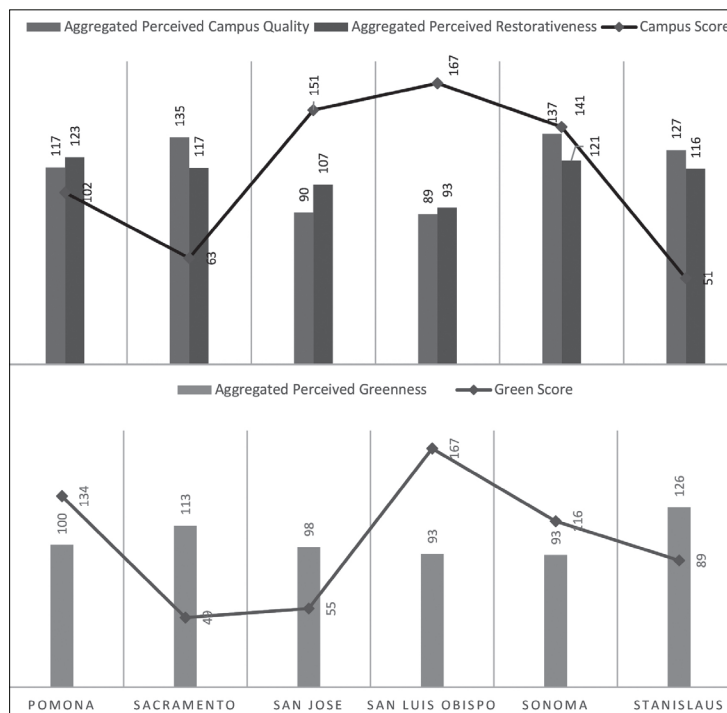
* $p < .05$. ** $p < .01$ 

Figure 2: Comparisons between six CSU campuses. Above: Campus Score (line) against perceived measures (bars). Below: Green Score (line) against perceived greenness (bar).

more complex than the CSU campuses. Also, no significant association was found between Campus Score and freshman retention rate at CSU campuses, while the other study found a strong association for research universities.

On the other hand, Campus Score had significant associations with a number of university and community characteristics. Universities with higher Campus Scores tend to be older institutions with more white students, higher SAT scores, lower levels of financial aid per recipient, and lower number Pell grant recipients. Furthermore, universities with higher Campus Score are generally located in communities with better access to fresh food, art and recreational facilities, more residents with a bachelor degree, less auto-oriented, and less single family homes. The fact that campuses with lower Campus Score belong to intuitions that have more in-need students (financially and academically) and are located in less advantageous communities might be a unique situation to the CSU system. Further research can show whether this pattern exists in other States or not.

The most unanticipated result was the nature of the relationship between objective and perceived measures. It was expected that campuses with a higher score of objective measures, earn higher perceived qualities leading to higher students' satisfaction and academic performance in those campuses. For the first part of this hypothesis, contrary evidence tells us otherwise. Campuses with higher Campus Scores received lower scores for perceived campus quality and perceived restorativeness and vice versa. One explanation for this perplexing mismatch is that students' expectations can be

vastly different among different institutions. For instance, San Luis Obispo is one of the greenest cities in California with scenic landscapes and spectacular trails. In this context, Cal Poly SLO campus greenness may not be perceived as satisfactory by the greenness-saturated eyes of students (see Figure 3), while a lower amount of campus greenness in the urbanized context of San Jose may be more valued. This is only speculation, and more research is needed in this area.

The other explanation is the challenge of measuring design qualities. For example, Campus Score considers objective measures such as tree canopies, and impervious open spaces, but fell short in measuring design attributes such as aesthetic qualities and nuanced preferences. Visibility and accessibility are also important factors. For example, a small but well-designed landscape at the heart of campus can have a more positive impact on students' perception than a beautiful arboretum far from campus core (see Figure 4).

Although Campus Score is a good proxy of physical campus quality, it shouldn't be confused with a measure for campus image and identity. That said, the results suggest that objective qualities may have a direct impact on students' performance, not necessarily through their perceived image of campus. For example, living on campus may improve their academic performance, relatively independent of whether students have a positive view about living on campus or not. At the same time, the results suggest that students' perception of their campus is also associated with their college life satisfaction and performance. This study showed that perceived campus quality and perceived restorativeness were significant predictors of i)

Figure 3: The Cal Poly campus periphery (left) and a typical space on campus (right).
Cal Poly campus is green, but not as scenic as San Luis Obispo itself.



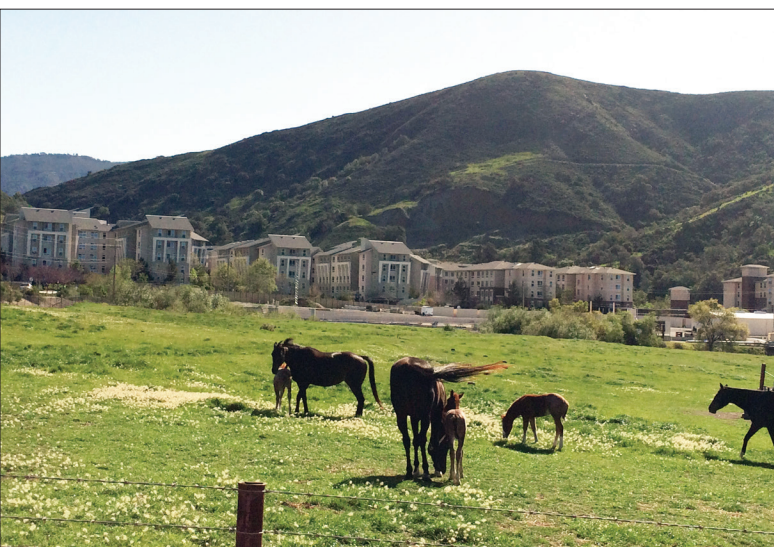


Figure 4: On-campus housing (left) and the Leaning Pine Arboretum on campus (right); both are located far from the campus core.

students satisfaction with both academic and non-academic school experience, ii) whether they would choose the same institution if could start over, and iii) students' GPA.

Another interesting finding is related to the relationship of the perceived quality of campus elements and Perceived Restorativeness. Students with higher perceived campus quality reported greater perceived restorativeness from campus environment. Interestingly, plazas and gathering spaces (social spaces) had a stronger association with perceived restorativeness than campus greenness. Besides, Perceived Restorativeness had a stronger association with the factorial variable (Perceived Campus Quality index, or the overall quality) than any single campus form quality. This result suggests that an overall "high quality" campus can be more restorative than solely "green" campus or "urban" campus.

Implications for Practice and the Advancement of Research

The observed mismatch between objective and perceived measures leads to additional questions and potential research. Perhaps campus culture is a mediator in this relationship. Conducting *Campus Climate*⁷ surveys on diversity, safety and sexual assault issues, in addition with *Campus Image and Identity*⁸ surveys provide a better understanding of campus culture and its association with objective measures and students' performance. An interesting research question for campus planners

would be the potential impact of specific physical campus interventions on campus culture and vice versa.

Based on this study, universities should pay more attention to develop policies regarding monitoring perceived campus qualities and objectively measuring campus qualities that improve students' satisfaction and academic performance. The policies should take into account the factors relating to all elements of campus form, and their connections to the nature of the institution, surrounding community, campus culture, and potentially the – objective and not necessarily perceived – characteristics of peer campuses. In this way, the university will have sound foundations for major campus projects, campus master planning efforts, and potential partnerships with the community.

The limitations of this work include the small number of universities, and the lack or low number of respondents from some campuses. Future research should include more universities and students. In that case, more sophisticated statistical methods such as Hierarchical Linear Modeling or Hierarchical Structural Equation Modeling could be used. Besides, it would be interesting to take account of campus culture variables to the study. Furthermore, it would be advisable to investigate the role of new technologies in both objective and perceived campus environment. Nevertheless, in the era of virtual reality and online education, the spatial dimensions of academic learning may need analytical exploration more than ever.

⁷ As an example see <https://campusclimate-stage.calpoly.edu/>

⁸ As an example see <http://opb.washington.edu/content/campus-landscape-framework-survey>

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FOCUS 15

Essays



Form-Based Design Standards for Smaller Communities

Randall Arendt

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An active professional and prolific author, Randall Arendt has just produced an all-new and greatly expanded edition of his best-selling book Rural by Design - Planning for Town and Country, first published by the APA and now available through Routledge. The book's updated edition includes 80 percent new material, nearly 900 images, and was written to be relevant to large towns, small cities, and rural communities.

In recent years, many communities disappointed with the results of conventional zoning—which has often produced ugly strip malls along highway corridors and inappropriate single-story redevelopment in town centers—have turned to new approaches to better control the appearance of new buildings. Unlike typical zoning, these approaches provide criteria and standards governing the physical shape and placement of proposed construction. Two broad approaches have emerged.

The first approach, known as form-based coding (FBCs), represents a significant departure from conventional zoning that primarily regulates land uses and their density/intensity, shifting the emphasis to controls on building size and placement. FBCs allow greater mixtures of uses while loosely ensuring that inherently incompatible activities are separated. They primarily regulate the physical form of new development to ensure that it is more traditional – with taller buildings situated closer to sidewalks and streets, for example. FBCs also include a physical diagram (a “regulatory plan”) showing an illustrative or schematic layout of typical building footprints, parking, streets, and public spaces. New streets are shown as interconnecting with blocks typically not longer than 400 feet. These codes are often administered by staff, without public input or discussion (proponents argue that such discussion precedes code adoption and that no further public input is needed when individual projects are proposed, even years later).

However, the length of these codes (often 150 or more pages), their high cost (frequently much more than \$100,000 to produce), and relative complexity have made FBCs more appealing to municipalities that are relatively large, have generous budgets, and are politically sophisticated. Training staff and

officials (and retraining them when turnover occurs) can be another costly item.

Peter Katz, founding executive director of the CNU and co-founder of the Form-Based Codes Institute, has expressed concern that FBCs may face difficulties in achieving the wide acceptance that he and fellow advocates seek. He notes that FBCs and the best practices with which they are associated, such as high-quality urban design and the charrette process, are perceived as too costly by many communities. He points out that adoption of FBCs generally requires strong political leadership, highly skilled planning staff, and broad stakeholder support—qualities found in a small (but hopefully ever-increasing) number of communities. To that one might add the multi-year process of public education that sometimes precedes code adoption, to ensure that all stakeholders fully understand and support this rather different approach.

That said, a small number of communities have pioneered considerably less complex FBCs, ranging from 20-50 pages in length and costing about half the above figure. Good examples can be found in Dover NH (population 31,000) which worked with a consultant to produce a very effective 20-page FBC at a cost of \$50,000, and Beacon NY (population 14,200) which created FBCs for two separate districts, entailing 46 pages total, for about \$40,000.

A second approach that has emerged is even simpler and shorter, employing design standards that are added to existing zoning or “site plan review” ordinances, typically for downtowns and highway corridor areas. Another big advantage is that they can often be created in-house by staff at bare-bones cost or with minimal consultant time. This approach, called “form-based design standards” (FBDS) can be a good choice for smaller communities with populations under 15-20,000. For example, Davidson NC (population 12,400) and Freeport,

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ME (population 8,400) have achieved extremely impressive results over the past 20 years with form-based design standards, employed in conjunction with existing or updated zoning ordinances. In both cases (and also in Durango CO, Oxford OH, and Sudbury MA -- with populations between 18,000 and 22,000), officials and staff closely examined FBCs and concluded that the FBDS approach would meet their needs very well in a far simpler and less expensive way. The regulations that these municipalities have adopted could provide useful models for other communities with limited financial or staff resources.

Notably, just two design standards produce most of the positive change, and they do so by inverting the conventional wisdom of requiring minimum front setbacks and maximum building heights. Standing those conventional regulations upon their heads, FBDS (and FBCs) establish maximum front setbacks and minimum building heights to re-create traditional streetscapes. Also, FBDS does not seek to deny or limit public discussion on individual projects, allowing boards and commissions to hold public hearings and to review, approve, or deny development proposals. It thereby also avoids placing heavy decision responsibilities on staff, particularly with controversial projects.

In Freeport, Maine, design regulations in its zoning ordinance apply to two central districts, one primarily commercial, the other mostly residential. When zoning or design review standards are being developed, neighborhood meetings are held to learn about neighborhood concerns. Ordinance language is developed accordingly. Although its reasonably basic design standards have served this community very well, other towns might want to supplement them with more specific language, particularly if this approach is new to members of planning boards or commissions. In neighboring Brunswick, the town considered FBCs in the downtown area but decided against it, instead removing minimum lot size requirements and allowing both higher densities and smaller setbacks.

There are no apparent downsides to the FBDS approach if the standards address the items in the below checklist (which go beyond the basic Freeport model). Of course, as with all new codes, officials need to help the community understand any new language and new processes for administering the design standards, besides building consensus on desired design characteristics.

It is recommended that communities adopting the FBDS approach illustrate their new standards with many photos and drawings depicting results desired in particular districts (as the better historic district ordinances do), including simple diagrams for buildings, parking, landscaping, and their relationship to each other and the streets. (A good example is the zoning in Eagle CO -- population 6,740.) Such illustrations

help local officials, staff, residents, and developers better understand what new development should look like, creating shared expectations making the design, approval, and implementation processes considerably more accessible and more successful. Because the FBDS approach clarifies what is desirable in particular districts, development reviews can be more straightforward and shorter.

When setting new design standards (for building setbacks or height, for example), the components of particularly well-loved neighborhoods that most residents agree exhibit a desirable character should be measured and incorporated into the new regulations. When measuring these aspects, community members usually discover that these dimensions differ from those specified in their zoning, and come to understand that current regulations have been primarily responsible for the nontraditional appearance of much of the recent development.

Unlike zoning, which tells people what they cannot do, FBDS (and FBCs) show them what they should do, thereby ensuring more predictable results. Zoning that merely prohibits buildings over, say, four stories in the downtown does not necessarily produce compatible development. Such zoning fails to produce results in keeping with the surrounding downtown streetscape if it also allows new buildings to be single-story and set back 35 feet for front parking. The diagrams in a simple FBDS would illustrate design components such as “build-to lines” (showing buildings at the sidewalk edge, for example), or “build-up lines” (showing a minimum two-story height requirement-- in addition to a maximum building height).

Critical elements of Form-based Design Standards include:

- Maximum front setbacks apply, with allowances for “alcoves” or small courtyards. In town centers, a zero setback is often preferable – i.e., at the sidewalk edge. Along highways, it is often 20 feet, enough for a landscaped buffer, but no parking. (Because situations can vary, a range of setbacks is often preferable to one standard distance. Also, when street ROWs are particularly wide, as in arterial roads, it is important to create a sense of proportionality.)
- Minimum building heights apply, with requirements for functional upper floors and height proportional to street width. In many small towns, the minimum building height is two stories. (Maximum height is also controlled, often with input from fire safety officials.)
- Primary door entrances are along the street side opening onto sidewalks (or opening to a street corner)
- Minimum glazing requirements apply along the street side for commercial buildings

- On-lot parking requirements should be reduced. (They can be eliminated if public or private structured parking is provided nearby.)
- Parking (and gas pumps) to the rear or side. Screen side parking from streets by walls, fences, or landscaping about 42 inches high. Parking lots should provide access to adjacent parking areas, existing and future.
- Minimum street frontage is built-up to minimize gaps between buildings. (The width of permissible gaps depends on the urban-ness of the district; exceptions would include the provision of desired civic space in the gaps for small parks, public art, etc.).
- Side parking is limited to some maximum length or percentage of street frontage, to avoid small buildings with vast parking lots. Screen such parking lots.
- New streets should be interconnected, with a maximum block length of typically 400-500 feet.
- A broader use-mix should be encouraged within buildings and blocks, mainly uses that work well together such as ground floor retail with offices or residential above. Continue to separate uses that are truly incompatible, but not those that are merely different.
- Shade trees should be planted along streets and in parking lots. Avoid suburban landscaping buffers.

- In residential areas, when lot width is less than 60 feet, garages should be accessed by rear lanes (alleys). When lots are wider, garages facing the street must be recessed at least 10 feet from housefronts, to avoid dominating the streetscape. Alternatively, they could be turned at 90 degrees from the street.

Joel Russell, former head of the Form-Based Code Institute believes there is “no reason in principle why a simple set of form-based design standards could not work in a small town with limited staff.” He continues: “It is important to ensure that the zoning does not contain conventional standards that prevent good form. A few simple and clear standards that are illustrated and based on a shared community vision for a specific place can be sufficient for a small community. I think some planners worry too much about which tool to use, rather than how to achieve the best results in a particular situation with whatever tool is politically acceptable and economically feasible.” Readers can learn more about “lighter” FBCs and form-based design standards in *Simplify That Code!*, an article by the author and published by the American Planning Association http://greenerprospects.com/PDFs/Simplify_thatCode.pdf

The following section presents numerous illustrations of the results achievable through form-based design standards.

Examples of Positive Results Achievable with Relatively Simple Design Standards



Figures 1 & 2: The main street of Freeport, Maine contains a half-dozen buildings complying with the town's form-based design standards.



Figures 3 & 4: The two-story CVS and the three-story Stowe's Corner building in downtown Davidson NC replaced gasoline stations, and followed the town's form-based design standards.



Figures 5 & 6: Before-and-after pair from Oxford OH's main street showing new infill buildings that restore the scale of this traditional downtown, and designed according to the city's downtown design standards. The two new buildings are actually one structure, providing private rental housing for University of Miami students above shops and restaurants.



Figures 7 & 8: Brunswick, Maine is another town that has achieved impressive results by applying design standards to ensure new buildings are of an appropriate scale and are situated along the sidewalk edge.



Figures 9 & 10: New corner buildings in Eagle and Durango CO were also regulated through sets of relatively basic design standards, demonstrating that elaborate codes are not necessary when communities require minimum building heights and limit front setbacks.



Figures 11 & 12: Located along Rt. 20 as one enters Sudbury MA, the Mill Village redevelopment provides entrances both facing the street (left) and facing its rear parking (right).



Figures 13 & 14: The bank at left is located at the corner of Rt. 91 and US Rt. 1 in York, Maine where highway corridor design standards have been in place since the early 1980s, while the buildings at right are in Clover Lawn Village, a new mixed-use development along US Rt. 250 in the hamlet of Crozet, VA (about ten miles west of Charlottesville).



Figures 15 & 16: The design of this convenience store and rear gas pumps along Rt. 24 in Topsham Maine was regulated by the town to visually subordinate the large canopy with its pumps, while allowing highly visible signage so that motorists cannot fail to recognize that they can refuel their vehicles there. According to the owner, business has thrived.



Figures 17 & 18: Mixed-use buildings with residential or offices above shops (left) can be scaled, sited, and designed to fit comfortably into many communities, as can multi-family attached housing (right), from Eagle CO.



Figures 19 & 20: When rear access lanes are not provided in residential areas, dominant, protruding front-facing garages can be prohibited by requiring front-facing garage doors to be recessed 10-15 feet from the front of new homes (left). Alternatively, garages may be allowed in front, if their doors face to one side (right). When lots are less than 55 feet wide, alleys should be required.

From Food Consumption to Eating Awareness

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Working on her research towards a doctorate, Barbara Ribeiro discusses the importance of introducing sustainable and inclusive food processes in cities. A methodology for planning and designing urban food forestry in public spaces is explored through proposals for two parks in the city of Auckland.

How did we get ourselves into the mess that became our food system, and how can we revitalise the ways we grow, process, distribute and consume our food? This article takes a longitudinal approach to this question to learn about social mechanisms that are beginning to foster more sustainable and inclusive food futures, exploring 'consumer empowerment' as a potential key trigger. A food timeline is presented that coalesces into a scholarly discussion about pathways for reconnecting urban people with food processes to foster more significant systemic change. Planned urban food forestry is explored as a potentially effective mechanism to achieve such reconnection.

This article suggests a methodology for mapping focal points to start growing urban food forestry in highly consolidated urban tissues, a participatory approach for designing these sites, and the idea of pre-preparation food units. These units can entail socio-cultural benefits and embody a mechanism for closing the loop of the waste generated by these initiatives. Design concepts for introducing urban food forestry in public spaces in Auckland (New Zealand) demonstrate how inexpensive and feasible they can be while highlighting the complexities of people-place dynamics and local politics. Upscaling planned urban food forestry can activate our cities' public spaces into dynamic knowledge platforms with politics having as much a part of achieving this as the suggested methodology and the rationale for utilising agroforestry technology.

A Food Timeline

Until the beginning of the 19th century, urban people shared the streets with pigs and cattle, among other life forms (Steel, 2013). Livestock was usually bred in the urban fringes and transported on foot to pre-industrial cities (Tannahill, 1989). The excrement, blood and death behind every meat-based dish took place intertwined with urban life. People were aware of where their food came from because they saw it alive on the streets. Our detachment from our food's origins and meanings

began once railways enabled our food to come from far away, which unleashed urban cities growth potential. Producers started transporting carcasses instead of living animals, keeping the streets cleaner. The people selling food in street markets were not necessarily the ones that bred the animals or cultivated the crops anymore. Other distribution channels increased, overshadowing the central market's long-standing role as the heart of the city. As time went by, urban people became oblivious to food production, processing and delivery systems (Nasr & Komisar, 2012).

This physical and mental detachment also marked the dawn of the industrialised food system. My food timeline explores how industrialisation took off in the food sector after WWII. It starts 68 years ago because that is when transitions scholars mapped the rise of 'consumer empowerment', which has been portrayed in the literature as a key potential trigger for more sustainable futures. I took a 'longitudinal approach' (Ruspini, 2002) to the rise of consumer empowerment to understand its 'underlying mechanisms' (George & Bennett, 2005). The food timeline's structure is divided in three broad bi-decadal periods defined by particular supply-chain and consumer-retailer relations in Western nations. Based on Boltanski and Thévenot's work, I identified key 'orders of worth' that helped organise markets as more sustainable foods penetrated mainstream urban food provisioning (Boltanski & Thévenot, 2006).

1950 to 1970: The Rise of Consumer Empowerment

During WWII, the dark shadow of food scarcity drove food industrialisation. Health through abundance became the post-war motto, which coalesced into the 'Green Revolution'. Consumers welcomed abundant and cheap food without paying much attention to the livestock's living conditions, nor the rise of monocultures (Otterloo 2013). Efficiency marked the separation between crop production and livestock breeding ever since. Zukauskaite & Moodysson (2016) argue these were the years that saw the last 'path renewal' in the food system with

the successful inception of frozen and chilled foods into the processing industry, distribution businesses and household dynamics (Zukauskaitė & Moodysson, 2016). Women gained space in the workforce, further triggering the rise of new food cultures. With no one left in the kitchen to cook in wealthier nations (Grin, 2013), the food industry began successfully marketing highly processed edibles and empty calories foodstuffs.

Scholars refer to this nexus of changes in social dynamics and technological development as ‘the birth of consumer and the rise of a counterculture’ (Otterloo, 2013). Overall, consumers embraced efficiency as a quality convention that would deliver food that was cheap, convenient and abundant. Although the latter was associated with health in the post-war period, a group of scientists and scholars realised that food production was actually heading in the opposite direction of a healthy system. In the literature, Carson’s *Silent Spring* triggered concerns in Western nations about the use of pesticides in agricultural systems (Carson, 1962). He argues that we would soon experience silent springs as the result of poisoned food crops killing pollinator insects, bees and birds; suggesting that environmental degradation and the loss of biodiversity would be the external costs of industrialised agriculture in the years to come.

1970 to 1990: Food Industrialization Takes Off

During the 1970s a new counterculture rose as a response to the environmental problems identified in the late 1960s. The increased use of pesticides on food crops fuelled concerns about its impact on the human body’s health. Small communities were formed by highly educated people who chose to exchange the dynamics of living in cities for growing their own foods and living on their own terms (Otterloo, 2013). However, these initiatives never gained momentum to disrupt the system, and food industrialisation proceeded to devour land and dominating socio-technical and socio-ecological systems worldwide.

During the 1970s and 1980s, a new generation showed fewer concerns about sustainable food practices. The rise of yuppies was mostly about consumption of inorganic goods, like clothes and cars; whereas the squatter’s movement was focused on other problems, such as housing (Otterloo, 2013). The alternative food movement remained a dormant niche. In the 1980s, concerns about overabundance sensitised Western governments: a result of the heavily subsidised agricultural practices inherited from the post-war period (Marsden, 2013). At the same time, governments also opened regulatory space for corporations to become co-regulators of food quality standards (Marsden, 2013).

In 1987, a new cultural shift began with the publication of the Brundtland Report (United Nations, 1987). The United Nations report presented a compromise in which, for the first

time, economic growth and sustainable practices were not mutually exclusive. Its motto sensitised audiences worldwide: ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (United Nations, 1987). This compelling trade-off offered triggers for the sustainability momentum in the decades to come, which gained further traction after the UK registered the first BSE case in 1987. BSE, otherwise known as ‘mad cow disease’, was a result of feeding infected animal remains to cattle (such as meat and bone meals) and causes irreversible destruction to the human brain (Morgan, Marsden & Murdoch, 2006).

1990 to 2010: The ‘Quality Turn’

A sequence of food scares followed BSE’s spread across Europe and overseas. A number of new illnesses inflicted ‘industrialised animals: foot-and-mouth disease, avian influenza, swine fever, bluetongue, and, most recently, Q fever among goats and people’ (Otterloo, 2013). Throughout the 1990s, the media consistently displayed livestock’s living conditions under the industrialised meat production system; further kindling consumers’ reactions in Western nations. NGOs and consumer organisations produced pamphlets, websites and campaigns conveying information about agri-food companies involved in the food scares. The inception of genetically modified organisms in the 1990s also raised concerns in Europe, while the USA market did not show similar degrees of resistance (Otterloo, 2013). To further complicate things, food is inextricably linked with profits since we entrusted our production, distribution and retail systems to transnational corporations. Once the banking system collapsed between 2007 and 2008, food prices increased sharply worldwide (Marsden, 2013).

This nexus of changes offered triggers for the widely studied organics transitions in European countries, such as Germany, the UK and the Netherlands. In just a few years, the organics market share grew by 25-30% in Europe, marking what scholars labelled the ‘quality turn’ (Ponte, 2016; Spaargaren, Oosterveer & Loeber, 2013). Efficiency and price became less prominent for the first time in over 40 years, as animal welfare, environmental stewardship and fair trade increasingly gained space in rearranging the market organisational principles identified in previous decades.

Consumer demands had an impact not least in major retailers’ rearrangement of quality conventions on the distribution side of the system. As supermarkets sought more sustainable products for their shelves to secure consumer loyalty, competitors felt the pressure to follow their lead (Oosterveer & Spaargaren, 2013). The organics transitions in Europe blurred the boundaries between mainstream and alternative food, and sustainable

food options became normalised in the wider social domain for the first time in over 40 years. These pioneer transitions impacted countries abroad, such as New Zealand: where organics production upscaled in the 1990s mainly to feed European markets (Rosin & Campbell, 2009).

New Trends

Figure 1 represents my food timeline as a network, instead of taking a more conventional linear approach, to gain insights into how each node predominantly fostered or hindered food sustainability transitions. In between 1950 and 1970 our current socio-ecological and socio-technical food systems matured. This is the most robust node in the timeline because the dominance of industrial and market worlds was felt in the decades that followed and still prevails today. The alternative food movement was born in the 1970s but resisted upscaling in the decades to come. This lock-in effect is represented as a weak node in the food timeline, that failed to connect with the decades to come. In the 1990s, the industrialised food system backfired a number of animal diseases detrimental to humans. Fear and environmental stewardship consumed the reputation of industrialised agriculture in Western nations. The resulting 'quality turn' is represented as a strong node in the timeline because it opened windows of opportunity for more significant on-going changes in the food system (i.e. sustainable foods mainstream penetration).

Sustainable foods currently account for 'less than 5% market share in most nations': which is hardly a game changer (Morgan, 2014; Spaargaren, Oosterveer & Loeber, 2013). Yet sustainable foods market share grew around 500% in the past three decades, considering sustainable foods were practically absent in mainstream retailing during the 1990s. During this time, organics transitioned in Europe, and sustainable food market share kept growing in Western nations. In Scandinavia, for example, that number already rose to 8% market share (Oelreich & Milestad, 2017).

As demonstrated in the food timeline, the critical literature highlights how changes in consumption behaviour (i.e. consumer empowerment) was a key trigger for organics mainstream penetration in Europe. These recent dramatic systemic transformations in the Western retailing sector demonstrate that 'key structuring relationships at the heart of a food regime can be reset, inverted or emerge in totally new forms' (Campbell & Dixon, 2009). Food sustainability transitions are a recent phenomenon, which remains 'politically open to multiple potential outcomes' (Campbell & Dixon, 2009).

The notion of consumer empowerment implies that urban people's (dis)connection with food processes opens (or hin-

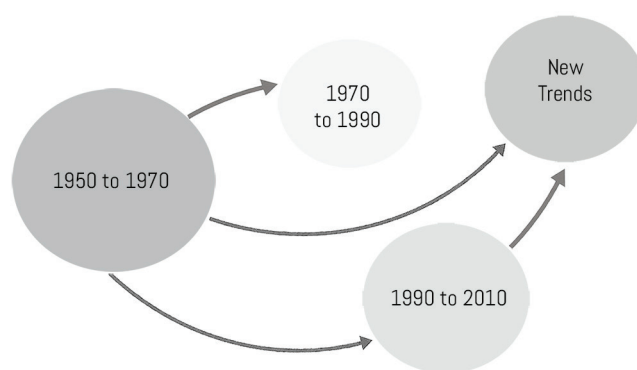


Figure 1: The Food Timeline as a network.

ders) windows of opportunity for food transitions to sustainability. The food industry deploys expensive marketing campaigns aimed at feeding us what suits their profits best (Carolan, 2017; Morgan, Marsden & Murdoch, 2006). They depend on us to sustain their cash flows, but they also constantly create demands for unsustainable foods once we allow ourselves to buy whatever food is on sale. A better understanding of these dynamics is essential because urban food provisioning increasingly shapes global food systems. We live in a rapidly urbanising world where cities already consume around 75% of the planet's food and energy resources (Steel, 2013). Since 2006, more than half of us live in cities. The UN predicts this number will rise to 9.8 billion people by 2050 when 66% of us are urban (United Nations, 2017). This paper builds upon transitions scholars' argument that consumer empowerment constitutes a key trigger for transitions to sustainability; further arguing that we need to explore pathways for reconnecting urban people with food processes to foster more significant systemic change.

What drives people to take the journey from consuming unsustainable foods to becoming conscious eaters? Michael Carolan dedicated years of research to answer this question (Carolan, 2011; Carolan, 2017). A focus group he called 'The Strawberry Experiment' enabled hopeful results. Instead of promoting food discussions with his participants, Carolan got them working the land for a whole day: in which they experienced the hardship of hand-picking strawberries. After that experience, he noticed a change in the discussions: the participants showed empathy for the people who grew strawberries, a deeper understanding about the strawberry production system and, most importantly, a change in how they perceived their role in the system as eaters and food shoppers. Carolan's research demonstrates how experience, rather than words, is an effective pathway to change people's political and ethical views on food. However, how can we upscale this experience outside a controlled academic environment? How can we include a more significant number of people – like an entire city?

Community gardens, urban farms, school gardens and like-minded initiatives pursue themes of reconnection that encourage people to go to a specific space and experience an immersion. These initiatives' potential for upscaling through integration with urban planning has been explored in the critical literature worldwide (de Graaf, 2012; Mansfield & Mendes, 2013; Napawan, 2016; Tornaghi, 2014). However, the question of to whom the food belongs to rises from the private nature of these spaces, which limits the sharing experience (Figure 2). I suggest that edible landscapes offer a more inclusive environment for sharing food practices with fellow citizens than other forms of urban agriculture (UA).

The 'pioneer Incredible Edible Todmorden' (Tornaghi, 2014) is a 15,000 habitant city in the U.K. where citizens got together and decided to grow edible landscapes in 2008. Guerrilla gardening took place everywhere: cemeteries, schoolyards, police stations and street verges. The city began attracting tourists, which enabled new economic activities (incredible-edible-todmorden.co.uk). Tornaghi (2014) writes about Todmorden, stating that the city has provided opportunities to reconnect 'gardening for its leisure, educational and therapeutic benefits', with 'radical, informal, grassroots practices'. In other words, Todmorden's streets became unique commons, in which citizens share the experiences of cultivating and harvesting foods. The strength of the model lies in the constant contact with food as a daily public experience, which heightens the possibility of engaging cultural change.

In the cities where urban food forestry took form, they were mostly triggered by bottom-up initiatives. Examples include Todmorden (UK) and the Beacon Food Forest in Seattle (USA). These types of initiatives have been explored in the critical literature for their potential to foster behavioural change in food practices (Davies et al., 2017; Muñoz & Cohen, 2017). From this perspective, our streets can be framed as underutilised 'commons' in most cities (Gibson-Graham, 2006). Although some of

these authors recognize that local municipalities can be resistant to the kinds of shifts in management necessary to enable UA in general (e.g. Sonnino, 2009), other authors increasingly portray urban food forestry as a mechanism for reconnecting urban people with food processes (Galt, Gray & Hurley, 2014; McLain et al., 2012).

'The Continuous Productive Urban Landscapes' (CPUL) initiated an important debate around incorporating UA in urban planners' and urban designers' lexicon (Viljoen & Bohn, 2014; Viljoen, Bohn & Howe, 2005). CPULs are a 'thought experiment' (Yeates 2004), whereby the authors envisioned an urban experience that offers 'the rural on the urban doorstep' (Viljoen, Bohn & Howe, 2005). An identified gap in CPUL's framework is the lack of a clear methodology for how to start edible landscaping our cities. This gap likely results from its generic approach: the authors' ambition is to develop a toolkit applicable to any city in the world. Designs were developed for the city of Auckland to demonstrate a methodological contribution to approaching the complexities and realities embodied in people-place dynamics.

A Methodology for Starting Urban Food Forestry

Mapping potential sites for growing food forestry in metropolises needs to be contextualised by the particularities of each urban morphology (de Graaf, 2012; Napawan, 2016). De Graaf (2012) suggests that public parks and green pockets are most likely the best sites to grow food forestry in highly consolidated urban tissues because a metropolis usually presents a dense, often vertical, built landscape. I suggest that visibility and potential social reach should also guide the choice of the first sites for growing urban food forestry (i.e. focal points). The focal points function as a visible platform that can reach a significant number of dwellers. The more prominent the initial focal points, the higher the potential to impact the urban food provisioning system; by engaging as many citizens as possible in reconnecting with food processes. The focal points idea is meant to start a food forestry network, which would spread

Figure 2: Kelmarna Community Garden in Auckland.



across the city's 'interstitial spaces', in alignment with the CPUL concept (Viljoen, Bohn & Howe, 2005).

After deciding on the focal point(s), the next step is the design concept. The principle of preserving every sign of heritage guides the suggested methodology, which aims at injecting the function of awareness and the use of harvesting into highly consolidated urban tissues. Nothing is demolished. An interactive landscape results in a dialogue about food processes. The goal is to tease out a dialogic communication process between society and place, in which both can change while interacting with each other (Bakhtin, 1986, cited in Ribeiro, 2006). In this way, urban food forestry might become imprinted on the urban fabric, recycling people's 'connection with the reality beyond their city's boundary' (Viljoen, Bohn & Howe, 2005).

Urban food forestry is an edible landscaping practice that combines elements of urban agriculture, urban forestry and agroforestry, to optimise the 'benefits they can provide to cities regarding food provisioning and ecosystem services' (Clark & Nicholas, 2013). Urban food forestry can also provide an answer to aesthetic principles. The resulting landscape looks more like a beautiful food forest, instead of an agriculture pattern, requiring low maintenance. A natural system in syntropy basically just needs trimming to multiply life endlessly and can recuperate ecosystems, even creating the possibility of growth for plants from other climates and soil characteristics (de Graaf, 2012; Gotsch, 2015).

Syntropy can be achieved through a combination of two strategies. Firstly, 'closed-loop waste systems' embody initiatives such as food waste fed to vermicompost centers (i.e. using worms to promote composting of discarded food, vegetable peels and scraps), and waste-water and sewage treated for phosphorus: a finite resource that we keep mining, instead of using the abundant offer discarded in our sewage systems (Viljoen & Bohn, 2014). Secondly, polycultures are used for combining food crops (annuals) with tree crops (perennials) (Clark & Nicholas, 2013). For example, legumes fertilise the soil organically due to their 'special ability to form a relationship with bacteria called Rhizobia, that fix nitrogen from the air' (Furey, 2017); while other edibles work as natural pesticides, such as garlic and onions, and can take part in many companionships.

'Agroforestry technology', or 'systems in syntropy', constitute an economically viable alternative to the monocultures we still rely on to produce the majority of our food (Lawhon & Murphy, 2012). The system is considered in syntropy once the topsoil is replenished with nutrients and life through organic inputs, potentially eliminating the need for mineral fertilisers and pesticides. In other words, the topsoil needs organic sources of NPK that are high in Nitrogen, but low in Phosphorus and

Potassium. By establishing beneficial companionships, soil exhaustion and crop rotation can be avoided – a knowledge applied in agricultural practices in Colonial times (Barber, 2015). Agroforestry technology results in plural outputs such as biomass, nutrient dense foods and non-edible plants; while providing a platform for sustaining biodiversity.

Case Study: Auckland (NZ)

In Auckland, fragmented alternative food movements have developed against a background of state-institutional neglect of food (Sharp et al., 2016). However, the food production of these initiatives is not present in retail outputs; where healthy foods are hard to find while processed and low nutritious options are the abundant offer (Ribeiro & Lewis, 2017). Auckland also faces sustainability challenges common to other places in the West, but with particular inflections; such as one of the highest obesity rates in developed nations of 1 in every 3 dwellers (Ministry of Health, 2014/2015, cited in Swinburn, Dominick & Vandevijvere, 2014), and the acute rise in diabetes II (dpt.org.nz).

An interview with a sustainability professional from the Auckland Council (the city's local municipality) highlighted that while food policy is touched on in several strategies and plans, there is no comprehensive strategic direction for Auckland's food system. The interviewee pointed out that her team faces the challenge of bridging connections within departments to start tackling the numerous food problems faced by the city: 'we are really in the infancy of working in the food space', she stated. Auckland presents a combination of rising diet-related diseases, fragmented alternative food movements and a disjunction within local plans and policies where it comes to food.

Site Selection of Focal Points

The super city is divided into 21 Local Boards, including the Waitematā Local Board area chosen for this study. According to NZ stats (stats.govt.nz) in 2016 the Waitematā had a 177,100 Employee Count (i.e. 24.44% of Auckland City's total of 724,400). An initiative in this area is likely to gain visibility due to this high concentration of workers, potentially raising awareness about food processes among a more significant amount of people. In turn, the analysis of the city's current Unitary Plan (Figure 3) revealed that these employees are mostly concentrated in a specific area inside Waitematā: the City Centre Zone (CBD).

The map in Figure 4 shows the high urban density of the CBD, where the built verticality provides vast areas of shade. Therefore, green pockets are the only viable options for growing urban food forests in Auckland's CBD, as noted before by Graaf (2012). Figure 5 shows the two prominent inner-city parks chosen as focal points. Albert Park was chosen due to its proximity to the University of Auckland, a powerful culture hub. Urban

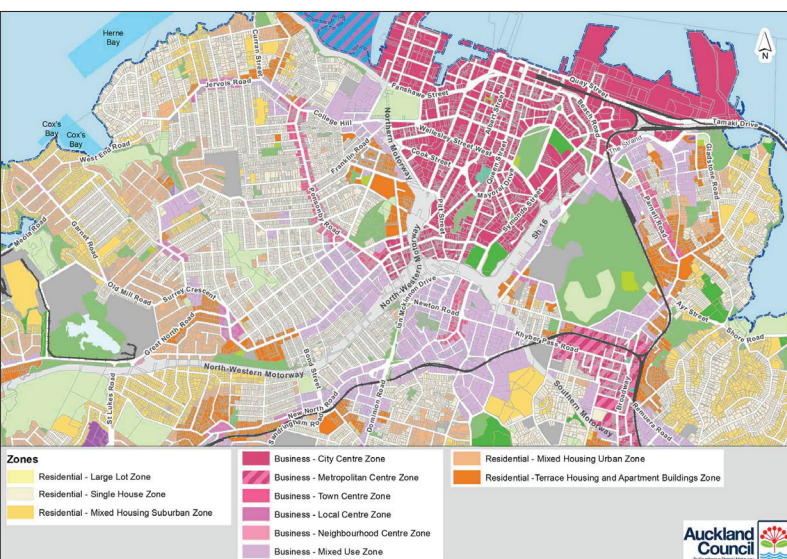
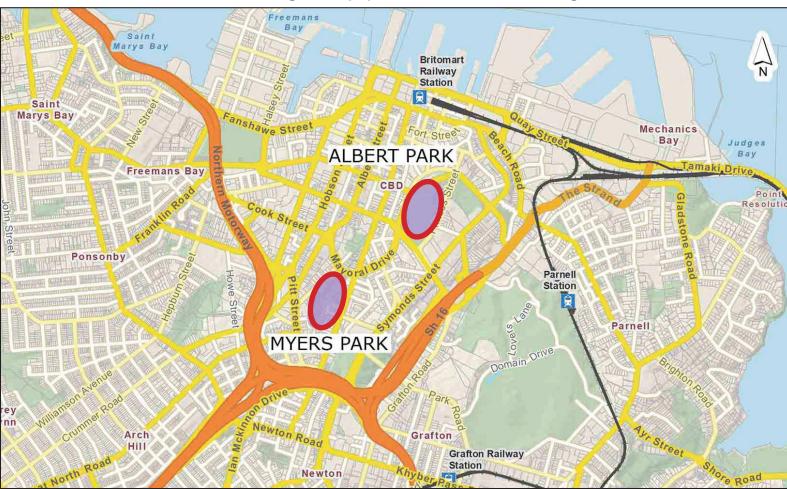


Figure 3: Unitary Plan.
(source: geomapspublic.aucklandcouncil.govt.nz).

Figure 4: The high density of Auckland's CBD.
(source: geomapspublic.aucklandcouncil.govt.nz).



Figure 5: Location of the two focal points.
(source: geomapspublic.aucklandcouncil.govt.nz).



food forestry at this site is likely to raise awareness about food processes among students, professors and staff; which entails a social reproduction potential. Myers Park has a playground on site actively used by both many resident children and the ones that attend a traditional kindergarten fully functional inside the park. The critical literature highlights that educating the youth about food processes is paramount (Morgan & Sonnino, 2013).

In this section I have discussed the suggested methodology for mapping focal points, which can function as a start point for growing networks of urban food forestry in metropolises. Next, a participatory methodology for designing urban food forestry is demonstrated, which included a key stakeholder in Auckland's foodscape: the Kelmarna Gardens' manager. These designs are not built realities yet, although conversations have been taking place with decision-makers in the Auckland Council.

A Participatory Approach to Urban Food Forestry Design

Kelmarna Gardens is a community garden that sits in Ponsonby, an expensive suburb located in the vicinity of the two focal points. I met the manager, Adrian Roche, on a cold winter morning. He took me around the space, teaching me about the foods that were thriving in the organic garden. The proximity of Kelmarna Gardens to the two parks led me to draw upon Adrian's expertise in the choice of plants for the urban food forestry designs. The selected species are meant to grow in raised beds: a standard solution to avoid expensive soil treatments (as is the case with most metropolises in the world, Auckland's soil is heavily contaminated as a consequence of previous industrial activities, and pesticides use) (Mitchell et al., 2014).

For Myers Park, my design concept was aimed at fostering a ludic interaction between the children and the urban food forestry. I worked on the gardens close to the playground where the vegetation currently shows signs of neglect (Figures 6 & 7). A diversity of flowers, spices, herbs, legumes, edible leaves and vegetables form an urban food forestry design rich in colours and textures. That synergistic experience is aimed at fostering children's curiosity. The different smells from these plants contribute to a multisensory experience to engage the little ones in a journey of food discovery. Interactive signboards are placed by the gardens, through which the children can learn about food while playing games embedded in them.

For Albert Park, my concept maintains the flowers that people are used to having throughout the year but substituted the decorative species for the mix of edible flowers displayed in the preliminary study (Figures 8 & 9). The photographs of the edible flowers at the Kelmarna Gardens demonstrate how beautifully they bloom with no chemicals added; if the right companionship is cultivated. A signboard is placed by

the flowerbeds, which explains the adopted concepts and cultivation processes; so that this knowledge is passed on along with the invitation for people to harvest some edible flowers to take home.

Finally, I propose pre-preparation food units to be placed in the car parks near both focal points. The typology suggested uses recycled steel shipping containers, the same used at another park in the CBD (Figure 10). While they currently resemble food trucks, as the cooking happens onsite, I propose them to be converted to allow for the cleaning and peeling of recently harvested food. The remainder vegetable skins and scraps will become on-site composting for the gardens, closing the loop of the urban food forestry systems. These units can alleviate dwellers of some of the work involved in eating real food, further incentivising people to harvest during their leisure time. Imagine people having fun with their children and friends, or strangers becoming friends while freely sharing harvesting experiences and food knowledge: without the burden of cleaning and peeling these fresh foods afterwards!

Auckland Council could re-direct tax money spent on ornamental landscapes to subsidise this service and take care of the urban food forestry maintenance. However, there are processes in place to restrict urban food forestry in the city of Auckland. According to my interviewee from the Auckland Council, on-going maintenance and costs would be a consideration and potential hinderer for this kind of initiative.

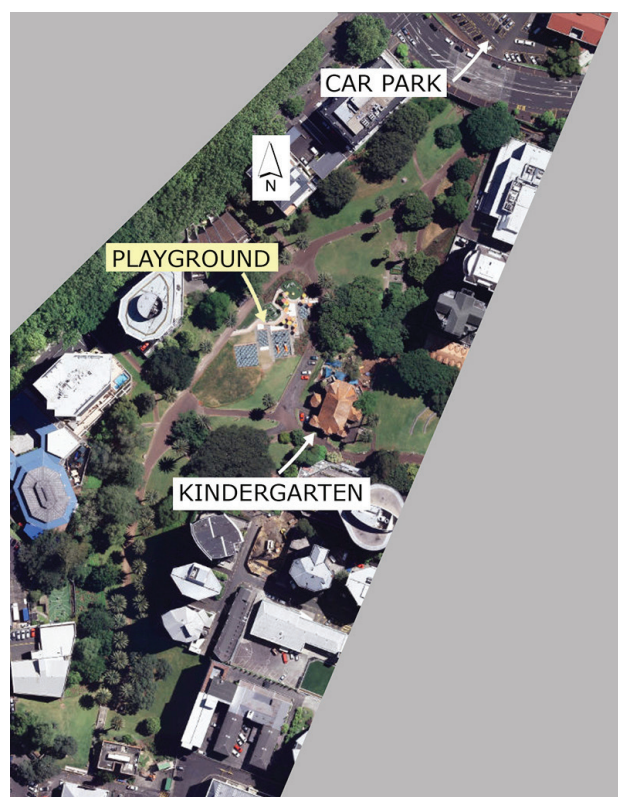


Figure 6: Myers Park aerial photo.

Figure 7: Myers Park design concept.

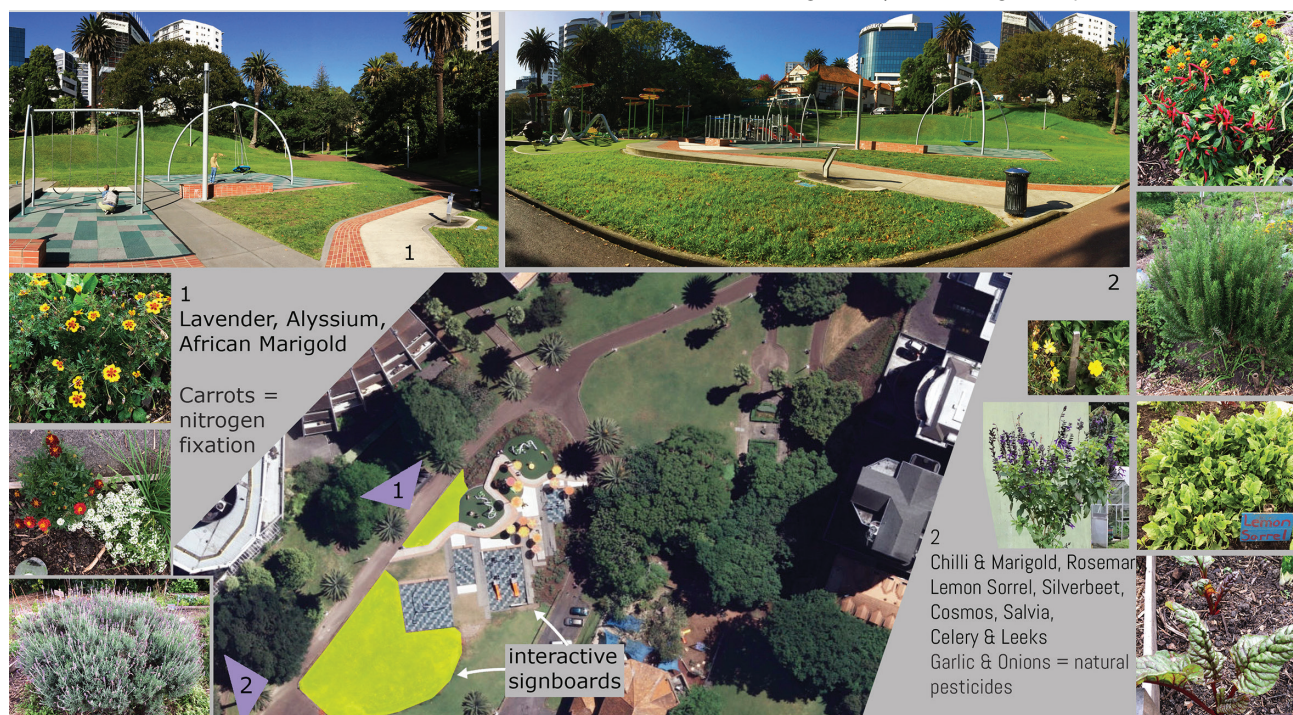




Figure 8: Albert Park aerial.

This article responds to these concerns demonstrating how agroforestry systems of food production actually require low maintenance, which entails low costs.

Conclusions

This article firstly identified how we detached our cities and ourselves from food processes, and wicked challenges we currently face as a consequence. A food timeline began 68 years ago to

gain insights into how food practices changed after the 'rise of consumer empowerment'. I explored market organisational principles and orders of worth that changed after 40 years because of fear, and how consumer empowerment fostered sustainable foods penetration in Western nations' mainstream retailing. Michael Carolan's extensive research demonstrated how people are more likely to become aware of food processes through experience, rather than words. Drawing upon his findings, I argued that urban planners and urban designers could play a vital role in transforming our cities' streets into inclusive food experiences for a more significant number of people.

A methodological contribution followed a short literature review of efforts to include edible landscapes in urban planners' and urban designers' lexicon. This contribution addressed two gaps found in the literature, suggesting: a methodology for mapping focal points to start growing urban food forestry in highly consolidated urban tissues, and a participatory approach to designing these sites. A third contribution was the pre-preparation food trucks, which entails socio-cultural benefits while embodying a mechanism for closing the loop of the waste generated by these initiatives. Although these three ideas were not tested as built realities yet, they contribute to a dialogue in which scholars, urban planners and urban designers increasingly portray urban food forestry as a mechanism for reconnecting urban people with food processes.

To demonstrate how inexpensive, doable and fun these initiatives would be, I designed urban food forestry for two

Figure 9: Albert Park design concept.





Figure 10: Pre-preparation Food Unit typology concept.

inner-city parks in the city of Auckland while indicating processes that the local municipality has in place currently hindering urban food forestry. To turn this kind of initiative into a built reality, my interviewee from the Auckland Council indicated the need to build connections with decision-makers. I conclude that upscaling planned urban food forestry can activate our cities' commons into dynamic knowledge platforms and that politics is as much a part of achieving this as the suggested methodology and the rationale for utilising agroforestry technology.

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Attitudes Toward Preservation and Management of Historic Religious Sites: A Study of Three Missions in California

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The public meaning and the appropriate social uses of historical sites are fundamental for their preservation. Levi and del Rio discuss the results of an attitude survey of three California Missions. The respondents' perception their authenticity, the appropriateness of their uses, and the acceptance of modifications have important implications for planning and management.

One way to foster communication with the public about the preservation and use of historic environments is to use attitude surveys to understand the public's perceptions and beliefs. This project examined public attitudes toward the meaning and perception of historic environments, the appropriate social uses of these environments, and the acceptability of modifications to the environments. Surveys examined attitudes toward three California missions with widely different histories, physical characteristics, and social uses: Mission San Luis Obispo, Mission San Miguel, and Mission La Purisima. Surveys examined the perception of authenticity, historic value and sacredness of the sites; the appropriateness of tourist, educational, and religious uses of the sites; and the acceptability of modifications for ADA accessibility, earthquake protection, and tourist services. The results of the attitude surveys have implications for the management of these historic environments.

Introduction

Historic preservation often focuses on preserving the physical features of sites; it is a materialist perspective that emphasizes entities and their origins (Jones, 2010).

Authenticity is viewed as an objective and measurable attribute inherent in the material of monuments and sites. The constructivist perspective toward historic preservation believes authenticity is a culturally constructed quality that varies depending on who is observing and in what contexts (Jones, 2010). It depends on the cultural meaning and value of the object. From this perspective, people experience

authenticity as relationships between people, places, and things, not the things in themselves.

Many preservationist scholars advocate that community input should be included in decisions about historic preservation not only because community engagement is fundamental for the decision-making and implementation processes, but also because preservation needs to deal with the dynamics between the material fabric and community culture (Wells, 2010). Community members may perceive different degrees of importance in preservation features. The environmental context of historic sites and the social functions of the places are important factors in establishing authenticity. Authenticity should be judged within the cultural context it belongs, so community members should play a role in decisions about historic preservation.

Authenticity & Perceived Authenticity

Authenticity is an important concept in both historic preservation and tourism. There is an important distinction between historical authenticity (or the way experts in historic preservation define authenticity) and perceived authenticity (or the public's perceptions and beliefs about what is authentic). For historic preservationists, authenticity is used to make decisions about which places should be preserved and the acceptability of modifications to the place (Wells, 2010). Historic preservationists use multiple definitions of authenticity to evaluate places; however, the most common definition focuses on the physical dimensions – are the historic structures and artifacts intact or have they been changed over time. Preservationists may also

consider whether the historical uses or functions continue (McKercher & du Cros, 2002).

For tourists, perceived authenticity is a criterion for the selection and evaluation of the cultural tourism sites they visit (Shackley, 2001). Perceived authenticity focuses on the factors that influence why people experience a place as authentic. Tourists want to visit authentic sites, but they may not have the knowledge or ability to know whether a place is historically authentic (Poria, Butler & Airey, 2003). The California missions provide an excellent example of the challenges of evaluating the perceived authenticity of a place.

Perceived authenticity relates to both the characteristics of the site and the visitors (Levi, 2012). Like historic authenticity, perceived authenticity relates to the physical characteristics of the place, the context of the site, and its current social uses. The California missions were once rural, agricultural places, but today many are in urban environments that change one's perception of them. Although many of the California missions have active religious parishes, some—such as Mission La Purísima—are primarily historic tourism sites. The way the place is interpreted to visitors also influences its perceived authenticity (Bremmer, 2000). Interpretation tells visitors whether the site is primarily a historic, tourist, or religious place.

The cultural background and other characteristics of the visitors impact perceived authenticity and their ability to interpret historic sites (Poria, Butler & Airey, 2003). For example, non-Christian visitors may have difficulty interpreting the meaning of religious symbols at the California missions. Knowledge of the site's history affects people's evaluations of it. People are not always able to tell whether a building is a historic or modern construction (Levi, 2005). For example, most visitors are unaware that the current chapel at Mission San Luis Obispo was built in the 1930s. Tourists also vary on the motivation for their visit, and the perception of a mission depends on whether one is visiting as a tourist or a religious pilgrimage (Nolan & Nolan, 1992). Finally, perceived authenticity is influenced by the experience when visiting the site: visiting Mission San Luis Obispo is a different experience if the visitor arrives during a religious service versus a "Concerts in the Plaza" event.

Missions as Hybrid Places

The California missions are hybrid environments that are historic, religious and tourist places (Levi & Kocher, 2009). Historic sacred places help to provide meaning to a culture and a focus for community and religious activities (Bianca, 2001). Understanding what is important to preserve about them is a vital component of historic preservation. Preserving cultural heritage at religious sites requires allowing the local community

to continue using the site; however, religious practices can be disrupted by the presence of tourists (Shackley, 2001).

Both tourists and the local community value historic religious sites, but the managing of conflict between local religious use and tourism is a significant concern (Bremmer, 2006). Inappropriate tourist activities and commercial development in and around a religious heritage site can degrade its perceived authenticity (McKercher & du Cros, 2002). At many of the missions, there are attempts to separate church services from tourist activities (Bremer, 2000). Interpretation for the tourists at the missions primarily focuses on their role in history.

Sacredness

The California missions are historic religious sites that are experienced as sacred places by the community and visitors. Experiencing these historic religious sites as sacred places that are used by the local community is an integral part of the tourist experience. The sacredness of a place can be fundamentally seen as an experiential phenomenon, a behavior setting, or an aspect of place identity (Levi & Kocher, 2013).

To most social scientists, sacredness is an experiential phenomenon that arises from people's interactions with a place (Carmichael, Hubert, & Reeves, 1994). Sacredness does not exist in the person or the environment, but rather in the relationship between the two. The experience of sacredness is often described as a feeling of awe when being in the place. This sacred experience may exist only for those who can perceive why the place was delineated as sacred by the local culture (Shackley, 2001).

Sacred places can be seen as behavior settings whose meaning arises from the religious practices being performed there. Sacred places provide meaning, support, and a context for performing religious activities (Rapaport, 1982). The meaningfulness of the place arises from its religious use, while the place helps to structure the social relationships and activities (Bremer, 2006). This perspective makes clear the importance of preserving both the historic structure and the religious practices in order to maintain the sacredness of the place.

Sacredness is an aspect of a place's identity or the meanings and feelings associated with a place by a group of people (Hague, 2005). Sacredness may be viewed as a characteristic of the place because of the presence of spiritual forces, religions can consecrate places to make them sacred, and historic events may cause a place to become viewed as sacred by the community. All of these factors relate to the California missions.

However, the continued religious use of a site is essential for preserving the experience of sacredness (Levi & Kocher, 2011). When religious practices stop occurring, the place's identity

shifts from being a sacred to historic place. Many California missions are interpreted as a historic site, even when it is still being used for religious services. However, the most significant impact on place identity relates to commercialization at the historic site. Too much tourist-oriented commercial development transforms the site from a historic sacred place to a tourist attraction.

Conflicts among Uses

Managing historic religious sites requires the balancing of community religious use with tourism, education, and religious tourism. The California missions are valued for religious, historic, and tourist reasons; however, these three goals can create conflicts among the uses (Shackley, 2001). The preservation of a historic site can conflict with its use by the religious community and tourists. If no one visited a historic site, it would be easier to preserve; but use by the local community and tourists provides the social and financial support for its maintenance (Olsen, 2006). The local religious community may want to modify or modernize a place to support their use, which can conflict with a focus on historic preservation.

Tourism creates a dilemma for the preservation and management of historic religious sites. Although it provides a compelling political and economic justification for site conservation, inappropriate use, increased visitation, and commercialization are threats to the site's integrity (Levi & Kocher, 2009). As tourists can disrupt religious activities, historic religious sites develop different strategies for managing these intrusions (Bremmer, 2006). However, local religious communities do not reject tourism because they are proud of their heritage and recognize that tourism provides an economic incentive for preservation. It seems that these two domains can co-exist as long as there is a clear demarcation between religious (sacred rituals) and profane (worldly activities).

Continued use of heritage religious sites is important for both the tourists and the local community (Levi & Kocher, 2009). Religious use by the local community provides meaning to the site and supports preservation and maintenance. Although tourists seek authentic experiences, commercialization occurs because the tourist industry tries to make the sites more comfortable for visitors, and maximize earnings. Gift shops, food, and other tourist commodities and services may be provided at the heritage site or in adjacent areas. Tourists have a mixed view of this commercialization, but often see it as incompatible with the religious experience of heritage sites.

Community Attitudes and Historic Preservation

Historic preservation requires making decisions about which and how historic sites should be preserved, used, and modified.

Professionals with expertise in historic preservation serve an important role in doing this, but it is also essential to include the community in the decision process because they are users of the sites and their support is needed for implementation. One way to include the community opinion in the historic preservation process is through the use of attitude surveys of community members and visitors.

There are a variety of benefits to studying the attitudes of community members and visitors to historic sites. Attitude surveys provide a way of capturing the public's perceptions of authenticity and their beliefs about how the historic sites should be managed. They can help to document the importance of historic preservation and identify the factors associated to the sites, show the public's view of appropriate uses and acceptable alterations, and demonstrate community and political support for their preservation and maintenance.

This research project was interested in understanding the public's perception of historic preservation, uses, and modifications of California historic Missions. We chose three missions with significant differences in their history and use: San Luis Obispo, San Miguel, and La Purisima. Students at Cal Poly, San Luis Obispo, were surveyed representing the public's views.

Methods

The survey was developed so that it could examine the importance of historic preservation and the factors related to it, the appropriateness of the uses in the historic sites, and the acceptability of modifications to the sites, besides collecting background information (age, gender, major, and whether participants had visited the site).

The three historic missions examined in this study are located along the California Central Coast, about one hour's drive apart from each other. The participants in the study were given descriptions of the three missions at the beginning of the survey describing their history and current use. These descriptions and the attitude ratings were randomly presented to the survey participants in different orders; no photos accompanied the descriptions. The missions were described in the following manner:

"Mission San Luis Obispo is in downtown SLO. The mission has been extensively rebuilt and modified over the years. In the late 1800s, it was modernized after damage from an earthquake. In the 1930s the main chapel was reconstructed in a historic style with reinforced concrete, and its interior was redesigned ten years ago in a non-historic style. The Catholic parish is active in the historic buildings and religious services occur regularly in the church. The complex holds a small gift shop and museum next to the church's

main entrance. In front of the mission, a plaza built by the City in the 1970s is used for community events."

"Mission San Miguel is located on the outskirts of the town of San Miguel. Its church is one of the least modified and best historically preserved of the California missions and contains original Native American and Spanish artwork from the early 1800s. Because of nearby railroad tracks and an earthquake over a decade ago, the church's adobe walls are in fragile condition although they have recently been reinforced. The local Catholic parish uses some of the historic buildings, but most parish activities occur in a modern building adjacent to the site. There are a small gift shop and museum."

"Mission La Purisima is located in a rural area near Lompoc. An earthquake destroyed the original mission in the 1800s, and the National Park Service started reconstruction in the 1930s. Based on the original mission, the reconstruction used a historically appropriate style, materials, tools and methods. The mission complex includes agricultural fields, farm buildings, workshops, residences, and other structures that would have existed at the mission in the 1700s. Because of its rural setting, the existing complex captures the historic atmosphere of a mission and showcases how it may have operated. It is currently a State Historic Park."

The surveys were distributed in City and Regional Planning (CRP) and General Education (GE) classes at Cal Poly during the fall of 2015 and winter of 2016 (see Appendix for Survey template). The sample included 119 students, 31% of them were CRP students while 69% were GE students. The students ranged in age from 17 to 36, with a mean of 21. Women were 61% of the sample, while men were 39%.

The survey contained fifteen questions about the value of historic preservations, factors related to it, uses of historic sites, and the acceptability of modifications to the sites. The survey items used 5-point rating scales from 1 (not at all) to 5 (highly). Tables showing percent agreement include the number of agree (4) and highly agree (5) responses on the 5-point rating scales. The surveys were analyzed using the SPSS statistical program and, for analyses of variance and correlations, a probability of less than .001 was considered significant.

Results

The student participants' beliefs about the historic authenticity, sacredness and the importance of historic preservation of the missions are presented in Table 1. Mission San Miguel was viewed as more historically authentic than the other two Missions ($F(2, 101) = 28.88, p < .001$). Missions San Luis Obispo



Figure 1: Mission San Luis Obispo. (photo V. del Rio)



Figure 2: Mission San Miguel. (photo V. del Rio)



Figure 3: Mission La Purisima. (photo courtesy of Earl C. Leatherberry)

and San Miguel were viewed as more religious or sacred places than Mission La Purisima ($F(2, 101) = 17.18, p < .001$). Historic preservation was viewed as more important for Missions San Miguel and San Luis Obispo than Mission La Purisima ($F(2, 101) = 18.89, p < .001$).

Overall, historic preservation of the missions was viewed as important by the majority of the participants. Mission San Miguel was viewed as the most historically authentic site and historic preservation was viewed as most important there.

The participants were asked about the appropriateness of various uses of the missions (see Table 2). With one exception, the majority of the participants felt that religious use, educational use, and tourism were all appropriate uses. The exception was that religious use was considered less appropriate at Mission La Purisima than the other two missions ($F(2, 101) = 11.75, p < .001$). This is likely because Mission La Purisima is a California State historic park and does not have an active community parish.

Ratings of the acceptability of modifications to the missions are presented in Table 3. Most of the participants believed that modifications for ADA accessibility and earthquake resistance were acceptable. These modifications were viewed as less acceptable for Mission San Miguel than the other two Missions (ADA $F(2, 101) = 11.27, p < .001$; earthquake resistance $F(2, 101) = 10.35, p < .001$). Modifications to add educational facilities were viewed as acceptable by over half of the participants at all of the missions. Modifications to add tourist facilities was not viewed as acceptable by most of the participants, especially for Mission San Miguel ($F(2, 101) = 11.11, p < .001$). When modifications are made to the missions, most of the participants felt that the changes should be historic looking, rather than modern.

Correlations with the importance of historic preservation are presented in Table 4. Perceived historic authenticity and sacredness significantly correlated with attitudes about the importance of historic preservation. The relationship between perceived authenticity and the importance of historic preservation is especially strong. The more the mission was viewed as an authentic or sacred place, the more important participants believed that historic preservation of the place was.

Support for historic preservation was positively correlated with support for the use of the missions for religious, education and tourism purposes. Again, results for Mission La Purisima were different because as a state historic park it is already a tourist facility. Views of the appropriateness of educational and tourism uses of the missions were highly correlated with each other for all of the missions. In other words, education and tourism were viewed as compatible uses of the missions, along

with the community's religious use. However, the development of tourist facilities at the missions was negatively correlated with the importance of historic preservation for Missions San Miguel and La Purisima. Because Mission San Luis Obispo is located in the tourist-oriented downtown of San Luis Obispo, the development of tourist facilities was viewed as compatible with historic preservation.

Several background variables were analyzed to see their relationship to attitudes about historic preservation of the missions. The only significant differences between the CRP and GE students were that CRP students were more positive about the development of tourist facilities at Missions San Luis Obispo and San Miguel (San Luis Obispo $t(117) = 2.65, p < .01$; San Miguel $t(117) = 3.75, p < .001$).

Most of the student participants had visited Mission San Luis Obispo (88%), while relatively few of them had visited Mission San Miguel (17%) and La Purisima (21%). In all cases, those who did visit the missions rated historic preservation as more important than non-visitors. This was a significant difference for Mission San Luis Obispo ($t(117) = 3.19, p < .002$) and Mission San Miguel ($t(101) = 3.7, p < .001$), but not for Mission La Purisima. There were no significant differences between visitors and non-visitors on the other survey questions.

Conclusions

The results of this study showed that the participants have strong support for historic preservation of the California missions. The importance of historic preservation was positively related to whether the site was perceived as authentic and sacred. Perceived authenticity was related to more support for historic preservation, but less support for the modifications to the historic sites. Education, tourism, and continued community religious activity were viewed as appropriate uses for the missions. Modifications to the historic missions were acceptable for many reasons, except for the development of tourist facilities. Mission visitors were more supportive of historic preservation than non-visitors.

There are valuable insights about the preservation and management of these missions that showed that the public has different views depending on the site. For Mission San Luis Obispo, tourist development around the mission was viewed as appropriate in this tourist-oriented downtown. The public sees no conflict between the town's tourist orientation and the historic and religious uses of the mission. Mission San Miguel was viewed as the most historically authentic and the most in need for historic preservation. Even here, there was support for continued religious, educational, and tourist uses of the mission. Mission La Purisima was valued as a historically authentic

site by many. However, it was seen as less in need of historic preservation than the other sites. This may be because it is already in a state historic park that guarantees this protection.

This study demonstrates the value of using attitude surveys to help guide historic preservation activities. The results show widespread support for historic preservation and help to understand the public's perception of authenticity at the sites. For the participants in this study, perceived authenticity was related to the historic material characteristics of the site, the current functions or uses of the site, and the environmental context of the site. Public attitudes also help to identify appropriate uses of the sites and the acceptability of different types of modifications.

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Streets are Not Enough: The Introverted Block as a Neglected Type

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Modernism in planning and urban design led to the erosion of the traditional city's morphology. Samuels and Kantarek use the plan for Nowa Huta, a 1949 new town near Krakow, to point out the problems related to the introvert block, particularly walkability, connectivity, and the lack of direct entrances to the residences from the street. The introvert block type evolved into present-day gated communities.

This essay discusses the first phases of Nowa Huta, a Polish new town started in 1949, parts of which are now officially conserved and much admired, including by the New Urbanists. Although celebrated for its propaganda value at the time of building in the 1950s and later for its role in the fall of the communist regime in the late 1980s, both of which have been described in English, such as by Lebow (2013), there is a limited amount of material available about its urban form.

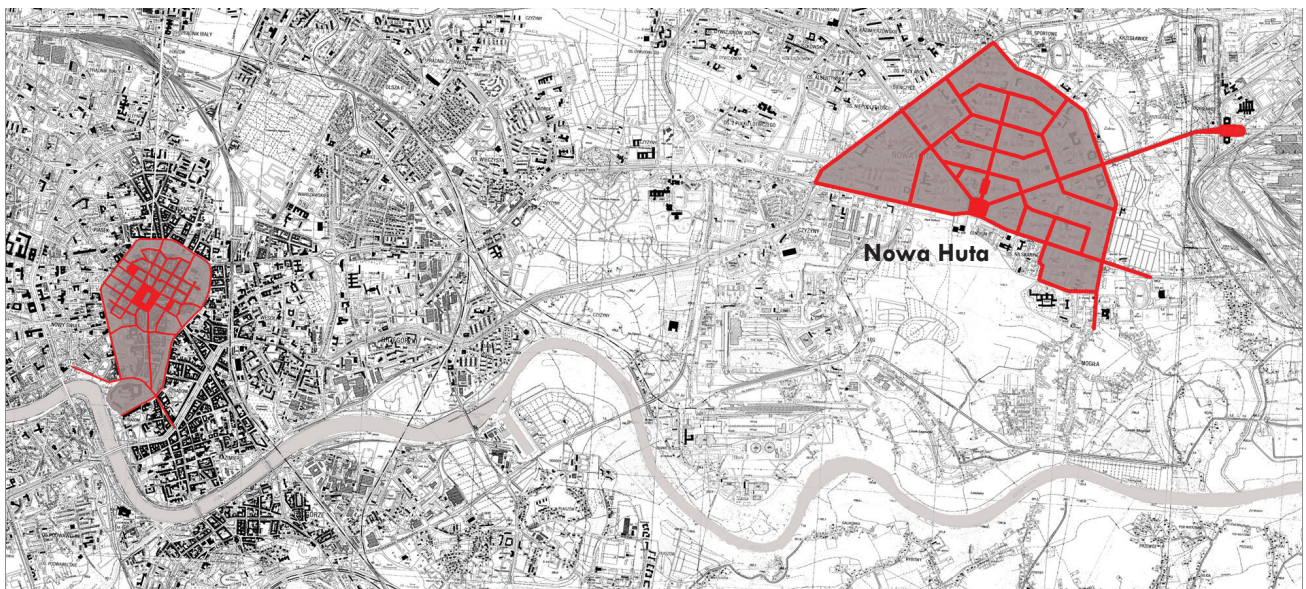
Nowa Huta has even been ignored in Polish books of the last century since it did not fit into the dominant modernist canon. For example, a book published in English to celebrate the achievement of modern Polish architecture ignores the earlier neighbourhoods of the new town, and only includes Nowa Huta's later prefabricated tower blocks (Lisowski, 1968). Of particular interest is its earlier housing of a type which, although

widespread between the two world wars, has been largely ignored in the literature on the evolution of urban form over the last century. Presumably, this was because it did not fit the modernist orthodoxy. Its antecedents and successors are then discussed, from medieval monasteries to contemporary gated communities.

Nowa Huta New Town

Nowa Huta is located ten kilometres (6.2 miles) from the center of the medieval city of Krakow which was the capital of Poland until the sixteenth century (Figure 1). Part of a post World War II programme to urbanise a mostly rural population, it was constructed to house the workers of the enormous Lenin Steelworks (now called the Sendzimir Steelworks and owned by the multinational Arcelor Mittal) whose site covers an area

Figure 1: Nowa Huta is located a little over six miles from Krakow's old center.



more extensive than the total area of early twentieth century Krakow. It is an example of the heavy industrial plants and their associated new settlements which were built in several Central and Eastern European countries during the post-war period of Soviet domination. Dunaujvaros in Hungary and Eisenhuttenstadt (originally named Stalinstadt) in Germany are other examples (Jaglo, 2013).

The new town was built on land where human settlements had been long-established and, in addition to preserved monument such as monasteries, traces of the old villages can still be found, if only in the names of some of the new housing areas. Construction began in 1950, and the intention was to create a city of 100,000 inhabitants adjacent to the factory that started operating in 1954.

The site is on a plateau 14 metres (46 feet) above the scarp of the River Vistula, and the central space (now renamed as Ronald Reagan Square) overlooks the valley giving extensive views across the countryside with a panorama of the Tatra Mountains on clear days. This space, crossed by the main road and tram line from central Krakow, is also the focus of the three main streets which radiate outwards to form a neo-baroque plan resembling the plans of such early twentieth century British new settlements such as Hampstead Garden Suburb or Welwyn Garden City.

In other respects, Nowa Huta is very different from its contemporary British New towns such as Stevenage or Harlow. Instead of a garden city mainly comprised of two storey row houses with private gardens, the first phase consists of four to seven storey apartment blocks alongside the streets with shared

open space in the interior of each block (Figure 2). However, there is a similar recognition of the importance of the neighbourhood unit, or its Soviet equivalent, the micro district, as an effective way of organising a settlement, so that shared facilities such as schools and playgrounds are easily accessible to all the inhabitants. At Nowa Huta, these are located inside the perimeter blocks defined by the apartments, together with some other housing blocks.

The style of the buildings is a variation of Communist Social Realism which incorporates variations of classical details such as pilasters and pediments. Particularly noteworthy are the entrance arrangements to the staircases and lifts to the apartments. They are all accessed from the interior of the block so that there are no doors on the streets (Figures 3 & 4). This characteristic will be discussed further below.

A fictional and dramatic account of the building of the new proletarian city is to be found in the 1977 film directed by Andre Wajda, *Man of Marble*, in which a bricklayer working on the new town is the main character. The fact that it should become the setting of a highly acclaimed motion picture indicates the cultural significance of the building of Nowa Huta.

Nowa Huta as New Urbanism

The later stages of Nowa Huta replaced the earlier masonry structures by more modern building technology using precast elements with more extensive landscaped spaces between the free-standing apartment blocks which were unrelated to the surrounding street network. They were similar to modernist mass housing built in other parts of European countries.

The team led by Tadeusz Ptasiński, authors of "Old Nowa Huta"

Figure 2: Neighborhood around central Nowa Huta.





Figure 3: All the entrances to the apartments in Nowa Huta are reached from the inside of the block not from the street.

—the new town plan first stage, did not have much design practice experience and based the concept on the knowledge acquired during their studies, although their model could have been Russian new town Magnitogorsk. In 2004 Old Nowa Huta, the subject of this essay, was listed in the Register of Historic Monuments by the Malopolska Voivodship Monuments Conservator ((Małopolska Voivodeship, 2004):

“The urban layout of Nowa Huta district in Krakow, as a representative example of the urbanism of socialist realism in Poland. The subject of the protection is the urban layout, i.e. the layout of streets, squares, green areas, the location of blocks and dimensions of the buildings, architectural and landscape enclosures, the composition of greenery”.

It was to this first stage of Nowa Huta that Elizabeth Plater Zyberk, a doyenne of the New Urbanism movement in the US, at a conference in Krakow referred to by declaring that:

“... you have excellent examples of modern town building here in Poland. I was happy to hear that Nowa Huta is being rehabilitated in the literature. It is a remarkable achievement with a highly characteristic sense of place, connected to the city of Krakow by transit, and exhibiting so many of the principles of good urbanism. So you have beautiful models, in your distant history but also in the more recent history of planning.” (Plater Zyberk 2015).

From its neglect in the 1960s when urbanists were exhorted by Le Corbusier to destroy the corridor street, the rediscovery of the virtues of the street in the last two decades has resulted in this revaluation of the virtues of Old Nowa Huta. In order to ascertain the extent to which it fulfils the principles set out in the Charter of the New Urbanism, we carried out a short assessment of its characteristics in regards to those criteria.¹ Ref-



Figure 4: Nowa Huta street frontage without any entrances.

erence is made below to the criteria that are directly relevant to a new town or a district of a metropolitan area, and to housing in detail. The regional scale, the subject of the first section of the Charter, was not considered as appropriate to the case of Nowa Huta. The way the original project has been modified since its initial implementation is also noted in the following discussion. Of course, all the principles are linked and, when these connections are apparent, the principles have been considered together (Kantarek & Samuels, 2017).

Walkability and Connectivity

Almost all the entrances to the staircases and elevators are oriented towards the internal common space of the blocks, that is on the back of the buildings concerning the street facades. With a few exceptions, there are no entrances on the street side. Therefore, streets cannot be considered very pedestrian friendly, and this configuration reinforces the inhabitants' identity with the urban block rather than the rest of the town via the street network. Furthermore, postal addresses are set by urban block number rather than street address further reducing the residents' identification with the street.

Although the streets are such an important element of the plan, it is doubtful whether they can be considered as comparable with those of a traditional layout, where the entrances to the dwellings act as the interface between the public and private realms.

There is a high degree of connectivity within the semi-private space of the urban blocks, and the configuration of the wide and straight main streets makes the development very legible. However, with no traffic calming measures, high vehicle

¹ See the Charter of the New Urbanism at: www.newurbanism.org/newurbanism/principles

speeds are encouraged while some of the main streets have long central barriers which enable the trams to travel at high speed but hinder connectivity for pedestrians between the urban blocks. The neglect of these two critical aspects certainly reduces considerably the extent to which we can say Nowa Huta responds to the tenets of New Urbanism.

Diversity of Uses and Mix of Housing Types

Initially socially homogenous, Nowa Huta is becoming more socially diverse as its merits are being recognised by families with no connections to the steel plant, which locally is the only major centre of employment. However, the housing is entirely in apartment blocks with some retail uses fitted into the ground floors of the apartment blocks. Some new single storey units have been constructed which are better suited to modern retail functions.

Quality of Architecture and Neighbourhood Structure

The listing of Old Nowa Huta has acknowledged the value of the architecture, and the original neighbourhoods continue to function effectively by providing easily accessible facilities even though some of the original proposals have not been realised.

Density and Green Transportation

The predominant dwelling type has ensured a relatively high density (average 600 persons per hectare, or approximately 243 per acre), and has ensured a very efficient tram and bus service to the rest of the metropolitan area, particularly to the full range of employment possibilities available in the city centre. However, the high density was never planned to consider the rapidly increasing level of car ownership, resulting in much of the green space inside the blocks being taken over by parked cars.

Sustainability and Quality of Life

Although the initial decision to locate the new town on good quality agricultural land can be considered a negative factor for sustainability, its height above the Vistula conserves the river's catchment area, and agricultural land has been retained in the valley. The quality of public transit has already been noted, and some buildings have been given extra insulation and the windows upgraded, which must reduce the carbon footprint of the community. However, the increased car parking has reduced the area available for planting with a consequent reduction in the biodiversity of the whole development. While the quality of life is a result of the extent to which all the previous principles have been fulfilled, it is difficult to assess objectively. Nevertheless, the way wider social groups are now moving in, even if this is a form of gentrification, is an indicator of the advantages of life in Nowa Huta.

In conclusion, it will be noted that while Nowa Huta meets many of the requirements set out by the New Urbanists, it fails in those of walkability and connectivity. This is due to the configuration of the blocks and the way the private dwellings relate to the public realm of the street. This has produced inward looking developments more concerned about reinforcing the relation within the blocks at the expense of those with the rest of the town. This configuration also ensures a degree of control over the movement of the residents by making it potentially easy to control the reduced number of entrances and exits to the blocks. Although this potential has never been exercised in Nowa Huta, its introverted blocks are characteristic of a type which has many historical antecedents in forms used to control communities. Some of these followed by more recent manifestations will be discussed below.

Typologies of control

Monasteries, beguinages and colleges

If we exclude ancient walled cities and the gated quarters of cities such as the Venetian Ghetto because of their large size, we can consider monasteries or convents (Figure 5) as the direct European ancestors of the twentieth century introverted block. These institutions are built around a closed courtyard or a connected series of courtyards which are accessed through one or more controlled entrances. Accommodation and shared facilities

Figure 5: The Begijnhof in Amsterdam, an introverted block and a gated community.





Figure 6: Queen's College in Oxford.

ties, such as chapels or refectories, are grouped around these courtyards or cloisters, in the case of monasteries or quadrangles in colleges whose layout is based on the monastery.

Where this typology was inserted into urban areas or was incorporated to them by organic growth, they usually present blank walls to the surrounding streets, even though these walls may have windows or be decorated, as in the case of Queen's College, Oxford (Figure 6). In the case of Belgian and Dutch convents, they often consist of urban row houses surrounding a landscaped garden where a chapel, shared by all the members of the community, is located.

European interwar social housing

In various European countries during the period between the two world wars, social housing followed the model of the monastery: there were no entries to the dwelling from the streets but only from the interior of the block. The most extensive programme of this type of housing was built by the Social Democrat administration of Vienna which built 64,000 dwellings from 1919 until the fascist coup d'état in 1934 (Forster n.d.). The biggest and most famous of these complexes is the Karl Marx Hof, although there are many other smaller schemes which either established new traditional street patterns or followed existing networks (Figure 7).

Typical of these projects is their inward-looking perimeter blocks with no entrances onto the streets that they established or maintained. They contrast with their contemporary modernist housing projects in such cities as Frankfurt which, based on parallel streets oriented for maximum sunlight, rejected the perimeter block. At the time of their construction,



Figure 7: Karl Marx Hof is Vienna's most famous housing complex. (source https://www.designingbuildings.co.uk/wiki/Karl_Marx-Hof)

the Hof projects were criticised by the German avant-garde as "an eclectic architecture of compromise, heterodox, self-reflexive (sic), cut off from, and seemingly unaware of the larger discourse of modernism in European architectural culture." (Blau, 1999, p. 8).

Despite this criticism, they were widely emulated throughout Europe, especially by socialist authorities seeking to provide good quality housing environments to replace private slum dwellings. Among the English examples are the London Peabody Trust Estates, the Garths at Sunderland and Quarry Hill, Leeds. Started in 1938, Quarry Hill provided 900 flats near the city centre and, at the time, was the largest social housing complex in Britain (Figure 8). Its design, following a visit by a

Figure 8: Built in 1938 as England's largest social housing complex, Quarry Hill in Leeds was demolished in 1978. (photo by RAF, circa 1951; courtesy Phill Davison)



Leeds delegation to Vienna in 1932, was clearly inspired in the Karl Marx Hof. It was in direct contrast to the then predominant British housing model of the Garden City with low rise family houses. Quarry Hill was also criticized because it rejected the parallel blocks of the then architectural avant-garde. The complex was demolished in 1978 because its steel frame structure, an advanced technique for its time of construction, required too much maintenance and the Garchey waste disposal system, also advanced for its time, had ceased to function properly.

With a low site coverage of 14%, the scheme was laid out as a system of perimeter blocks which backed onto and followed the line of the surrounding streets. There were some parallel blocks in the interior. All the apartments were accessed from staircases from the courtyards which had a limited number of entry points from the surrounding streets. The range of facilities planned for these courtyards – playgrounds, nurseries, a swimming pool, medical facilities, were never built although a handful of shops eventually opened. Ravetz, who documented the project's design and implementation, suggests that it demonstrates "a belief in community and that a fragmented society could be made whole through architecture alone" (Ravetz, 1974, p. IX).

Although the individual apartments were liked, the public space and access proved to be problematic. As a former tenant observed:

"I remember walking through the Quarry Hill development in the mid-70s. It felt deserted and barren. I was nervous about walking through it because it had a bad reputation. It seems to me that it failed - not because of the buildings themselves - but because architects failed to realise that you cannot cage people and expect them to like being cut off from the rest of the city by their own dwellings, which acted as walls". (Edge, 2013)

This is a devastating critique of the introverted looking block type which, nevertheless, was a ubiquitous model in other European countries. For example in Rome, Villa Riccio, a development built in 1919 for a housing cooperative. With apartment buildings three or four storeys high around the edge of the block it covers the same area as three or four of the surrounding blocks (Corsini, 2018) (Figure 9). However, unlike Vienna, there is no extensive open space or shared facilities because the centre of the block, which is approximately the same size as the blocks of Now Huta, is occupied by lower apartment blocks which are laid out along an informal private route. The intensity of development at Villa Riccio is far higher than could be achieved if all the blocks opened to public streets. Is this a gated community before the concept became formalized?



Figure 9 Villa Riccio, Rome. A housing cooperative built in 1919. All the entrances to the apartments are from inside of the block.

A final European example is Square de l'Avre, built in 1932 in the Parisian suburb of Boulogne Billancourt (Figures 10 & 11). When these buildings were rehabilitated in 1992-97, the blocks in the central courtyard were demolished and two floors were added to the existing structures (as shows in Figure 10). The entries from the courtyard have been retained, and the perimeter blocks continue to present only windows and no doors to the surrounding streets. It was not considered necessary to revise this arrangement (Joffroy, 1999).

Contemporary introversions

The introverted block is a firmly established contemporary type, as demonstrated by the great variety of their locations and sizes found around the world. These range from the inner city to new out-of-town developments. Two inner-city examples in Milan are two adjacent projects by star architects whose names are used as part of the developers' marketing strategy. Completely ignoring the pre-existing nineteenth-century ur-

Figure 10: Square de l'Avre, Paris, built in 1932. There are no doors on the street



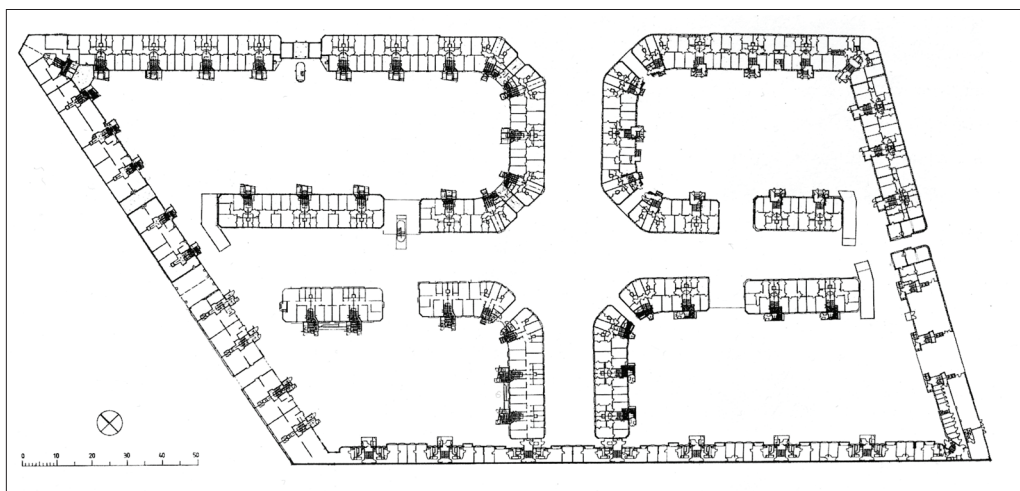


Figure 11: The Square de l'Avre, Paris, 1932.



Figure 12 a, b & c: Two gated developments recently designed by starchitects in Milan have no relationship to the surrounding streets and morphology.

ban tissue into which they were inserted, they are entered by gates and enclosed by steel fences which also enclose the pedestrian routes which traverse each scheme (Figures 12 a, b & c). Although these fences are partly transparent, due to the disposition of the buildings there is little if any surveillance of these pedestrian routes or the surrounding streets. It has recently been reported that these two privately owned public routes (POPRs?) are now closed at nights for security reasons.

A much smaller example is Long Walk Villas in Windsor, located outside London but part of its conurbation. This is a development of nine very expensive terraced houses which the promotional material seems to advertise row houses along a street, but the site plan reveals that there is a single gated entrance to this "street". The image of the street has a marketing value but only if privatized if controlled access.

At the end of the urban transect, on a greenfield site 39 kilometres (24 miles) from the Brazilian city of Belo Horizonte and de-



liberately separated from existing settlements, Alphaville Lagoa dos Ingleses is another example of an introverted community. Built and managed by Alphaville Urbanismo, a private developer responsible for numerous similar projects since 1971, it is an excellent example of the increasing number of gated developments in the Americas. It is the size of a new town, but it is divided into a number of walled communities, each with its own streets and no linkages between them. Each community is exclusively reserved for similar housing types and can only be entered through controlled gates (Figure 13). The whole project is of such a scale that it seems to represent a return to the Middle Ages when town gates served to keep out undesirable individuals from the whole of the settlement.

Conclusion

The widespread use of the inward-looking enclosed block type in the interwar years and its later manifestation as the gated community bring into question the widely diffused and generally accepted disintegration of the urban block as represented in Ernst May's iconic diagram (Figure 14). The introverted blocks, which have been largely ignored, presumably because they do not have "the imprint of CIAM" (Panerai et al., 2004, p. 36) follow traditional street layouts but tell a different story, the continuity of which has been suppressed and needs to be acknowledged. It would be tempting to link the introverted block to those regimes and authorities which insist on exerting control over the behaviour of their communities. However, this type of block, in the form of gated communities is now widespread including in societies which do not seek to control their citizens in any other way.

For the last half-century, arguably since the publication of Jane Jacobs' seminal book, urban designers have been preoccupied with the recovery of the street as the basis for making towns. This was a reaction against the modernist paradigm emphatically advocated by Le Corbusier in his exhortation to kill the



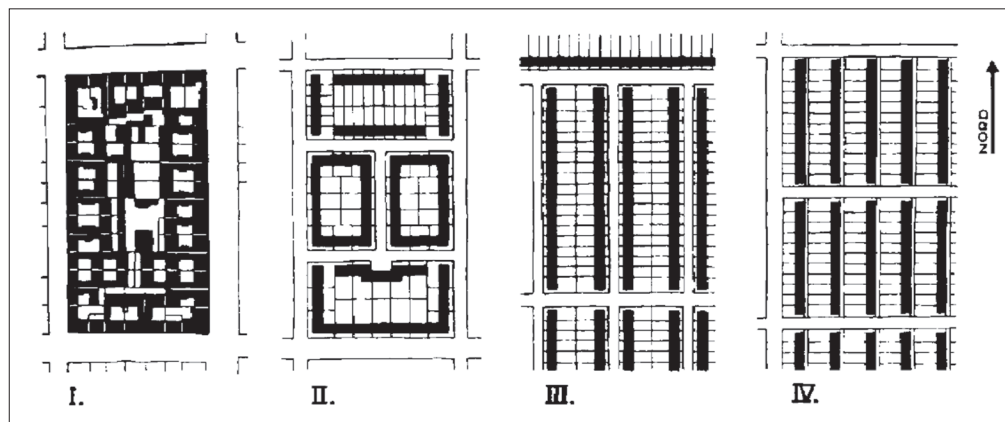
Figure 13: A gate to one of the residential walled communities in Alphaville Lagoa dos Ingleses, near Belo Horizonte, Brazil.

corridor street. In this desire to reclaim the street, those post World War II projects such as Nowa Huta, which went against the predominant grain by retaining streets, are held up as exemplary. Urbanism based on a return to the street has gained momentum in recent years, not only in greenfield projects such as Seaside in the United States and Poundbury in the United Kingdom, but also in initiatives to transform existing modernist projects, such as the Completing London's Streets recent report to the British Government (Savills, 2016).

Nowa Huta and the numerous gated communities being built all over the world demonstrate that, while streets are a fundamental component in the making of towns and cities, they are not enough by themselves if other aspects of the urban configuration are ignored or negated.

...

Figure 14: Ernst May's 1930 diagram showing the erosion of the traditional city block through the advancement of modernism.



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Lost Spaces as Hidden Assests: A Reflection on a Current Campus Design Issue

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University campuses face two common problems: lack of facilities for the expanding enrolment numbers, and inadequate spaces for the changing education and recreational needs. Based on his expertise and reseach, Amir Hajrasouliha discusses the potential of adapting left-over campus open spaces to respond to these needs, adapting their physical and technological capabilities to encourage multiple academic and non-academic functions.

Physical planning for higher education institutions is loaded with uncertainties, due to the volatile nature of higher education in the twenty-first century. The great campus planners of our time have implemented innovative design strategies to keep the American tradition of the campus alive and relevant. However, there is a growing disconnect between the concept of the “learning community” of past centuries, with the feasibility of providing the essential amenities to every campus. Higher education is experiencing a financial crisis, with federal and state funds increasingly diminishing over time. Existing facilities for most universities are over-utilized and crumbling while resources shrink, and the student population increases faster than improvements can be made.

The shifting nature of the way we learn is challenging modern campus planning as much as a lack of funding is. Some university facilities can become underutilized as the switch to online schooling becomes increasingly popular. As a result, the prospect of constructing new facilities, as much as they are needed, is not without huge risk.

Without the resources and funding in place to construct state-of-the-art facilities, the needs of students are going unmet. For an educational institution, especially a public university, funding can be tight, and updates to existing facilities can be nearly impossible. Furthermore, with constantly evolving technology, it is essential to be creative regarding designing learning environments. The bottom line is that the campus environment should address the academic and non-academic needs of students in cheaper and more efficient ways.

These challenges evoke a question regarding what type of facilities an institution should invest in, and whether it would have a significant impact on students’ well-being both academically and personally, without becoming a financial burden? One of

the solutions is rethinking the role of outdoor spaces on campuses; the patches of campus ripe with opportunity, practically begging for programmatic planning and a visual upgrade.

Although urban design scholars – most well-known among them being Trancik (1986) - have raised the problem of “lost spaces” in cities, this issue is much less explored on college and university campuses. The concept of “lost space” is about the inadequate use of outdoor spaces, which leads to the loss of value and meaning of space. Examples of lost spaces in the urban context are “ the leftover unstructured landscape at the base of high-rise towers....the surface parking lots....the no-man’s-lands along the edges of freeways that nobody cares about maintaining, much less using....” (Trancik,1986, P 3). The creation of lost spaces should be avoided from the beginning; however, they can be redesigned into valuables spaces with meaningful connections to their surroundings. Turning “lost spaces” on campus into “learning environments” can be an added value and meaning to campus as a whole.

Figure 1: Example of a lost-space in Cal Poly's campus.





Figure 2: Underutilized space across the street from Cal Poly's library.

An increasing number of planners and architects have been working with schools worldwide, particularly in elementary schools, to activate outdoor spaces and transform them from places of play to places of learning. However, these spaces go beyond a learning environment, and they foster collaboration, creativity, and can improve overall social wellbeing. In areas with a mild climate maximizing the use of existing outdoor spaces- instead of constructing new facilities- can save millions of dollars, act as an aesthetic reprieve, and enhance the overall cohesion and imageability of campus. What may have been previously considered a “lost” space, a lonely patch of dirt between two otherwise attractive buildings, can become a dynamic space that can foster student success, and can have the amenities needed to support it.

Campus Open Space and Student Success

There is a body of literature supporting the idea that outdoor learning environments contribute to overall student success. Strange and Banning (2001) suggest a ‘Hierarchy of Learning Environment Purposes’ where the three characteristics of an outdoor learning environment must foster (presented as tiers):

Tier 1: Safety and Inclusion - allows users of space to feel both safe and welcomed in their environment, encouraging a user to feel comfortable using and interacting with space;

Tier 2: Involvement - encourages a user to engage in a meaningful role, which can range from leading a group discussion to participating in local activism; and

Tier 3: Community - the presence and feeling of community is integral to a user's positive reaction to others in the space, being comfortable sharing thoughts, feelings and ideas.

Each of these tiers is essential when planning an outdoor space, whether educational or social. An ideal campus open space should provide safe, inclusive, interactive places that foster a sense of belonging among students. We need to study students’ daily needs and behaviors on campus to provide such an environment, fully maximizing the use of outdoor spaces. In other words, we need to see outdoor spaces as behavior settings. A behavior setting is a concept devised by ecological psychologist Roger Barker to explain a set of environmental and physical features that tend to generate the same types of social and human behaviors (Barker, 1968; Schoggen, 1989).

Behavior setting principles are successful when a user arrives in space and immediately knows its purpose. It is the practice of designing spaces that influence certain behaviors through cues. Educational spaces, when implemented through behavior setting, provide features and tools for users to interact with space educationally. Such spaces can have outdoor whiteboards, electrical outlets, and varying table sizes with moveable seating to support any size group with any need. Alternatively, if an outdoor space has no furniture and no shade, such lack of amenities will likely discourage the use of the space as a destination.

How to make it happen?

The question then becomes how can we design dynamic open spaces that encourage not only educational and social uses but also accommodate multiple activities, multiple needs, and various sized groups. No matter the institutional context, this space must be able to accommodate multiple uses, from a semi-formal classroom to a group study space, to social uses like getting lunch with a friend or perhaps an open-mic night. These activities can be categorized into two broad categories:

Academic: activities related to education and scholarship;

Non-Academic: activities related to students’ everyday lives, which are not directly related to their learning activities.

Some academic and non-academic activities can coexist in one space. For example, a small table and chair can be supportive of eating lunch or drinking coffee (non-academic) while also supporting studying or working on a project with a partner (academic). The design attributes within a space can allow for fluctuation in its nature and accommodate the needs of those wanting to use it, whichever their intended use. Therefore, it is critical to allow for a dynamic use of space, which can accommodate both academic and non-academic uses interchangeably.

Any learning environment should be designed as a behavioral setting for one or more of the following academic activities (Schuell, 1986):

Content Focus Learning (students are receivers): Activities which involve student interaction with content can include listening and watching a live or recorded talk, engaging with a written or visual text, engaging with multimedia, or a combination of these. Example: Live lecture.

Interactivity Focus Learning (students are interactive participants): Activities which involve social interactions, peer relationships, informal support structures, and teacher-student interactions. Example: Group Assignments.

Production Focus Learning (students are doers): Activities which involve design, application, creation, and production of something. Example: Studios and labs.
Reflection (students are thinkers): Activities which involve studying, memorizing, and thinking about what they already know and have experienced concerning the topic being explored/ learned. Example: Studying alone.

Learning environments should have some of the following qualities, based on the academic activities that they support. The qualities provided below are by no means an exhaustive list but will guide designers to consider various learning experiences of students.

Elastic: A space that is flexible, and open to various learning activities and promoting learning through manipulation of the environment.

Inclusive: A space that is welcoming to students of all disciplines, demographics, and backgrounds.

Interactive: A space that engages students in scientific activities and learning practices with others.

Innovative: A space that incites excitement, interest, and motivation to observe, explore, learn and interact with space, and promote creation, innovation, and exhibition.

Restorative: A space that allows for memorizing, reflecting, as well as relaxing.

Although it is easy to understand the importance of these qualities for learning environments, it is not easy to identify the environmental characteristics that create those qualities. For example, “inclusive space” is about creating a welcoming space for all students, but what that means regarding the physical manifestation of inclusivity is yet to be explored in its context. Although there is existing literature discussing how to design an outdoor learning environment at schools, there are very few examples of how to design such a space at higher education institutions. University campuses are typically larger with more specialized facilities and amenities. A comprehensive plan is needed to vision a spatial organization for campus open spaces and their function. Due to the larger size of university campuses, a hierarchy of spaces is needed to address various needs



Figure 3: A flexible space that supports multiple activities.

across campus. However, the most dynamic spaces of campus should be centrally located, in the middle of, or near a space where students and professors can easily access.

This physical connection also applies to the uses around them. Locating a space meant for active use next to a vacant building or other open space that is not frequently used will discourage users from accessing the space. These spaces should be placed between and in the vicinity of buildings or stores, such as a library, café, or classroom building, where there will be people in and out at all times of the day. Having active uses on the perimeter of an outdoor learning environment will encourage a sense of activity and can incentivize maximization of the space. Additionally, these spaces should have adequate size to accommodate all the necessary activities for a space to allow for both social and academic use, and there must be enough space for all the activities to coexist in one area while also having room for privacy when needed.

In addition to the size and location of these spaces, there must be design elements that blend it to the adjacent environment, while also being distinct. A space that is visually appealing can incentivize a user to interact with space before they can make a judgment on its functionality. Some ways this type of space may be designed to support social and academic use:

Flexible Urban Furniture. Furniture that is light enough to move when needed encourage users of space to manipulate the position of urban furniture to fit any need at any given moment.

¹ Georgia Institute of Technology Office of the Provost | Georgia Institute of Technology | Atlanta, GA. (n.d.). Retrieved August 21, 2018, from <http://www.provost.gatech.edu/educational-innovation/reports/lifetime-education/initiatives/distributed-worldwide-presence>

Landscaping. The presence of landscaping in outdoor areas brings natural elements into the space reducing stress, increasing the sense of privacy, and providing much-needed shade while blending the built and the natural environments. These benefits also support a sense of safety.

Performing Spaces. These can be for either academic or social uses, learning or socializing: presentations and lectures, or can concerts, theatre, or club meetings for instance.

These design attributes exemplify only a few ways how these spaces can be planned. Ultimately, the goal is to create an inviting space that attracts individuals and groups, accommodating various simultaneous activities. While a corner can accommodate a large group discussing club activities, another may serve a small group studying for an exam, while in between the two a solitary person might be studying. These spaces must accommodate different types of academic needs while remaining flexible enough for non-academic needs such as a rally, a small concert, eating, or relaxing.

The emerging concepts for outdoor spaces are technologically rich. The affordable nature of using outdoor spaces as new facilities can mean that resources be invested in having them incorporate advanced technology. Emerging technologies such as Virtual Reality, Augmented Reality, and Artificial Intelligence can be incorporated into a site for recreational, educational, or experimental use. These concepts revolve around “an open space that can be programmed to suit the needs of learners, a venue for performances and events, and a way to provide social glue for learners, professors, and others.”¹ This will be a gathering space for all: a place for professors, staff, and students to meet, for typically remote students to gather and work on projects and a to access university resources such as a bookstore or library. The purest form would be room in a co-working space that students in remote locations can use for chats and group meet-ups. A more developed model, which is currently under developed by Georgia Tech (Georgia Tech atrium), would have some staffing and specialized areas, such as a maker space, enhanced Virtual Reality or an Artificial Intelligence interface.

Haggans (2018) highlights the changing physical landscape of universities and how they are dealing with design and programming conflicts in the age of technology. Typical university design is around place-based classes, which is now challenging as classes move online, and students can work remotely. Some scholars are pointing towards how to use physical facilities interwoven with technology, and transform the traditional learning environment to meet current student and faculty needs. These are dynamic spaces meant to serve as hubs for various activities instead of serving only singular activities. The

use of technology can generate a classroom space so dynamic that its use is entirely up to those who choose to interact with it. These spaces can tremendously enhance student success and can lead to a holistic learning environment that doesn't necessarily have to depend on indoor facilities since the use of technology can transcend any physical space and move classes to the outdoors and even to our homes.

Particularly if a university has limited space and cannot accommodate a sizeable programmatic area in one spot on campus, this need can be dispersed in smaller areas around campus, creating a hierarchy of dynamic spaces. One central location can be the hub where more advanced technologies meet academic and social interactions. A smaller outdoor space next to a library or classroom building can accommodate group discussions and can offer technology such as Virtual Reality, charging stations, or interactive screens. Another small left-over space near the campus cafeteria can be used for social gathering, and for students to interact with technology, and test the limits of how to use them recreationally. No matter the size of the space, the potential for using it as a dynamic behavior setting incorporating technology is limitless, especially when considering how dynamic technology is.

Final Remarks

To utilize existing “lost-spaces” as successful learning and recreational behavior settings, educational and social goals should be addressed simultaneously. These spaces must blend aspects of learning environments, social environments, and technological capabilities all in one to maximize their potential.

These spaces have not been adequately conceptualized and planned for by both public and private universities and educational institutions. The implementation of such spaces can save money, improve efficiency and student success rates, and provide for innovation in education and research. The first step in creating a dynamic outdoor campus space that fosters creativity, collaboration, and success is to start studying the most critical users themselves: the students. It is essential to survey the student body; assess their needs, their habits, and their environmental preferences; figure out where they choose to hang out; and understand which design attributes can support their campus life. At the same time, we must look at emerging technologies and decide how they can be plugged into an existing curriculum, create new ones, and maximize the educational and recreational uses of open spaces. Such an analysis can begin to form an understanding of how each space can be designed and programmatically implemented to foster success in universities.

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Some Thoughts On Urban Sketching

Filipa Oliveira Antunes

Architect-urbanist and artist; PhD; Assistant Professor, Architecture and Urbanism departments, Universidade Lusofona de Lisboa, Portugal.

The CRP department recognizes the importance of sketching as graphic thinking and a means to learn from what we see. Filipa Antunes, a renowned urban sketcher and artist who recently exhibited at the Louvre in Paris, presents some thoughts on how she approaches sketching as both a rational and an emotional process. All illustrations in this article are by the author. Follow Filipa's work at <https://www.facebook.com/DesenhoFilipaOliveiraAntunes/>

Everything is clarified by sketching; I draw as I think! Sketching and drawing are part of an extensive process of understanding an object, place, person, or fact. The spontaneity of the drawing process is fundamentally about nullifying the superfluous and keeping only the essential. While this conscience must dominate, it requires courage. Courage to avoid the good codes of representation that our minds culturally assimilate.

Great works are born from the freedom of gestures and from rebuffing conventions. The geniuses of the art of drawing went far beyond the results: they discovered a sort of unique reality. They maneuvered their emotions through the graphic character a representative identity. The key to understanding a drawing is probably in the methodology organizing the sequence of stimuli producing it. The goals are to understand, clarify, and process an idea. But how can we get to our own identity, drawn and sketched in freedom of observation and conception?

Urban and architectural design feeds and is fed by drawing. Methodologies of graphic representation are essential tools for understanding and characterizing existing or idealized spaces. The graphic process is culturally touched by the emotions felt during the process of observing and representing these spaces. The sketch catalyzes the gestures that embody the idea of an object or space. In fact, one of the most essential working tools of the thinkers of space is drawing. How can we deal with a drawing, process and implement it?

"As soon as I understand the scale of the building and the relationship to the site and to the client, as it becomes more and more clear to me, I start doing sketches" (Gehry, 2000)

Drawings clarify and better explain, revealing an individualized perception in a manner that is universally understood. A sketch is more than a language because artistic freedoms are attached to the visual memory that arrives by abstraction of the (un)known –that which is no longer in front of us.

We draw as we idealize! We draw as we dream!

Sketches are printed sensations allied to records outside the plastic adjectivity because what really matters is the individual understanding and clarification.

"A representative function and plastic qualities are different things that mix in practice but are not to be confused conceptually. Because plastic qualities are not representative and do not refer to anything but themselves, they are poetic. But the representative function itself has its own poetic power." (Dias, 2010)

Sketches are more than three-dimensionalities on two-dimensional support: they are exploratory processes based on methodologies derived from the contents as they are visualized but, above all, understood individually and culturally.

In Figure 1, the drawing of an alley in Lisbon's Alfama focuses on the ability to suggest a visual order among the elements, thus structuring the value of the whole. The representation of a three-dimensionality implies a previous awareness of the place's sensory and morphological features - only by knowing the place well we can represent it.

Being and feeling; thinking and materializing. Methodologically I suggest starting by observing and making a mental list of the physical aspects that are essential to the scene and the sketch. A conscious analysis of the fundamental elements that will be transposed as graphics simulating the linear and surface systems. A representation by simulation and not by mimicry implies a much longer time for the observation, interpretation and mental preparation of the drawing than in its execution.

Figure 2 shows the process I used to select a scene depicting a downhill plaza in historical Torres Vedras. The option consisted of using the stain to represent the strong presence of the corner building. The tracing of the lines and the details were

added later. I used an inverted process of how sketches usually are done, and leave the first stage in a position of insecurity but leading to results free of preconceptions.

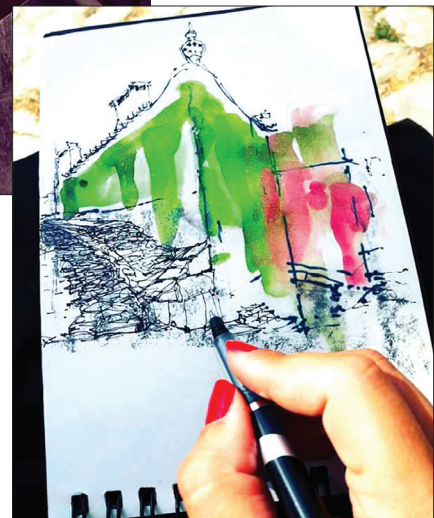
For this reason, getting to understand places, cities, public spaces, and buildings by sketching them is considered so important. Spatial notions are observed according to specific criteria that may pass through morphological, symbolic, environmental, emotional, or other issues.

Those who draw places acquire another level of understanding. A sketch expresses the essence of an interpretive thinking process, and incentivizes the fluidity of the drawing gestures, as platforms for conceptual thought. It is intended to dissociate the conceptual from the illustrative value and purify the essence of the drawing, its place in time, space and movement. The drafting process registers the reductive mechanisms but, at the same time reveals the catalysts of ideas.

The sketch in Figure 3 followed a process focused on defining the building silhouettes as scenarios positioned on the sheet according to the distance (near / far) of the observer, leaving in negative (white space) all the building elements. In structuring a methodology for sketching one raises the creative spirit



Figure 1: An alley in the historic Alfama, Lisbon. Watercolor and waterproof pen.



Figures 2 a & b: Sequence in creating a sketch at Torres Vedras historic center, Portugal. The watercolor brushes comes first, following the emotions, and the pen lining later.

Figure 3: Distant view of Torres Vedras historic center. Watercolor and waterproof pen.



contained in the three-dimensionality of a given or a projected reality. The proposal is to eliminate the observed scene as mere artifacts and impose the emotion on the intended message.

In urbanism sketching is a fundamental tool, based on the principle of adopting a methodic observational process in understanding the three-dimensionality of the scene: identifying the principal elements (formal and non-formal); in determining a hierarchy among these elements; in the selection of components to draw; in deciding on the figure and the background; in transposing your thoughts and emotions to the graphics domain (lines and surfaces); in the final synthesis stimulated by gestures.

When confronting a strategy for a sketch, our references will be of a high reflective spirit proportional to the value of the contemplation. The time invested in understanding will be directly comparable to the results, and we will retain the memory of that place. In an age of fast stimuli, approaching a space by sketching it implies in slowing down and restoring our natural ways to perceive the space and connect to it.

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Figure 4: Largo de Santo Estevão, Lisbon.
Watercolor and waterproof pen.



Figure 5: Rua do Capelão, Lisbon. Watercolor, waterproof pen and pencil.

Figure 6: Alfama, Lisbon. Watercolor and waterproof pen.



Variations on City Form

Carlos Almeida

Architect, Senior Design Manager,
AECOM, Baltimore and Hunt Valley studios.

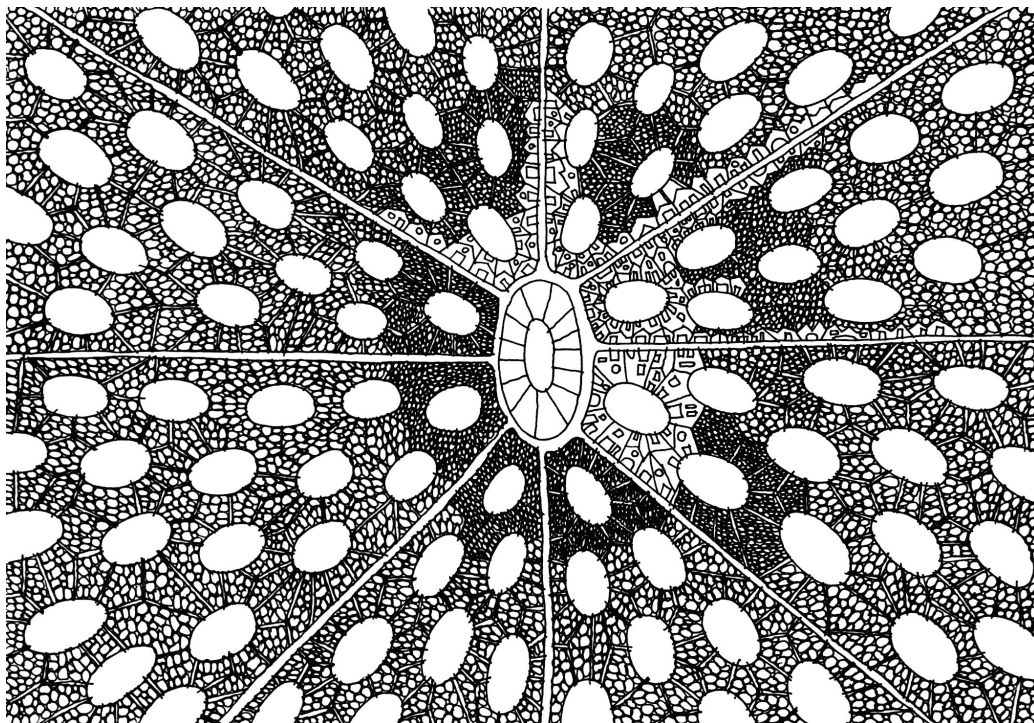
Carlos Almeida is a Portuguese-American architect licensed and accredited in the European Union with more than 30 years of experience in four continents. FOCUS publishes a series of his line-drawings that represent his poetic explorations of urban forms. An accomplished graphic artist, Carlos collaborates constantly with the Urban Sketchers group (see his work at <http://carlos-almeida.com/en>).

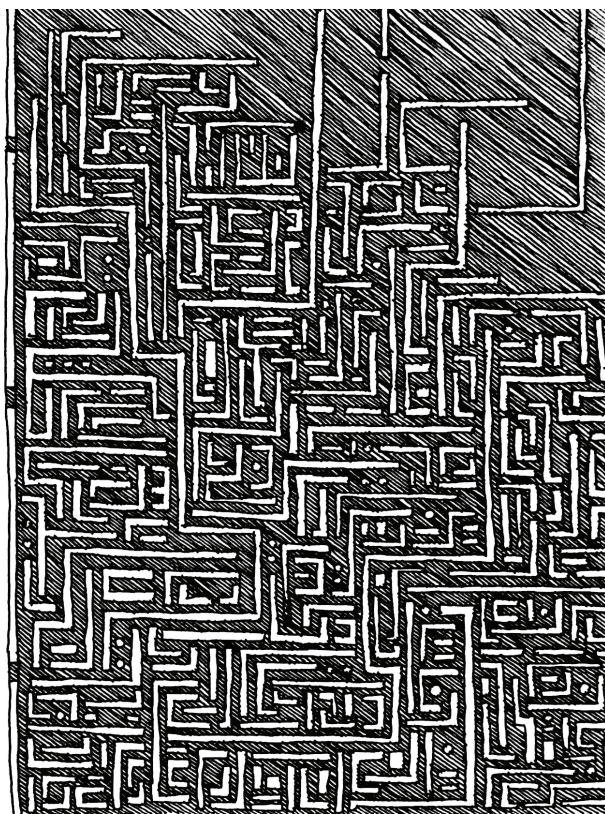
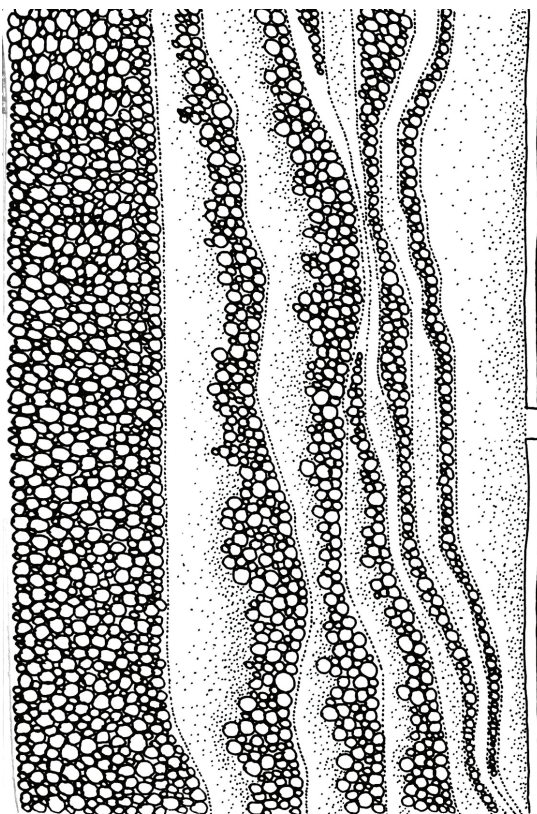
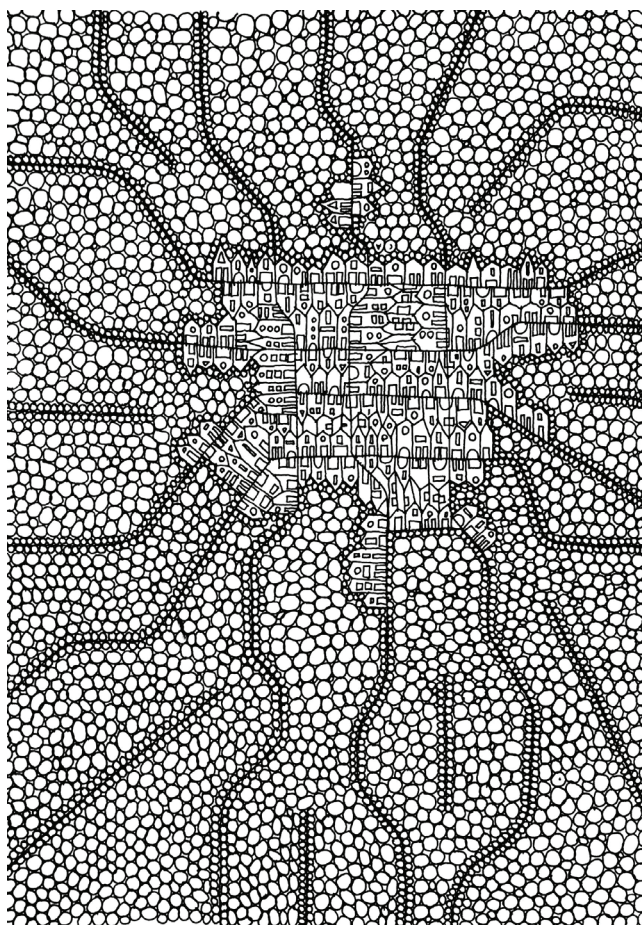
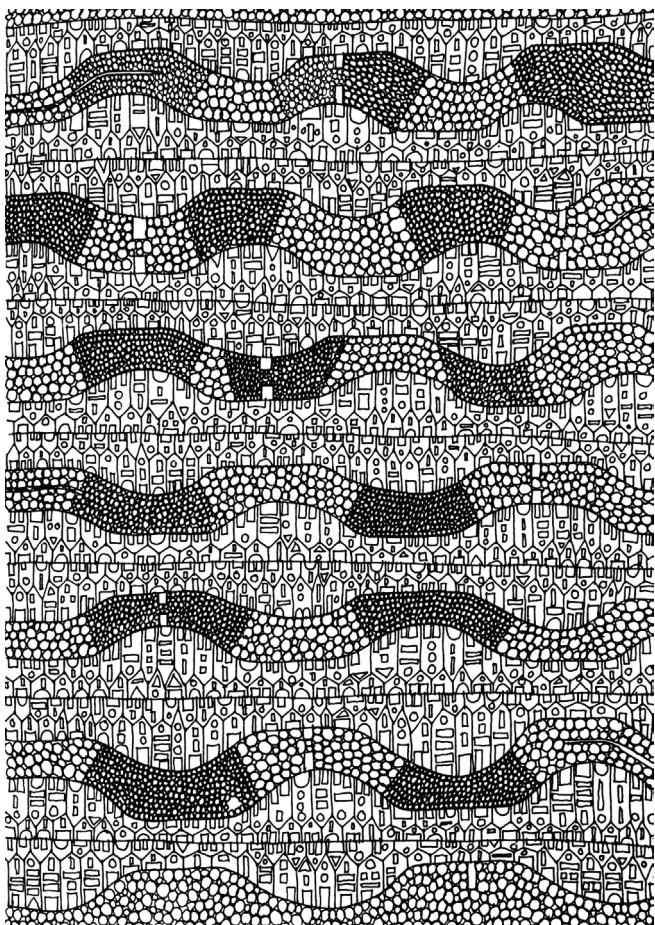
"I also imagined a model of a city from which I extract all other possible cities... It is a city made up exclusively of exceptions, impediments, contradictions, incongruences, paradoxes. If a city like that is most improbable, by decreasing the number of abnormal elements we increase the probability that the city really exists."

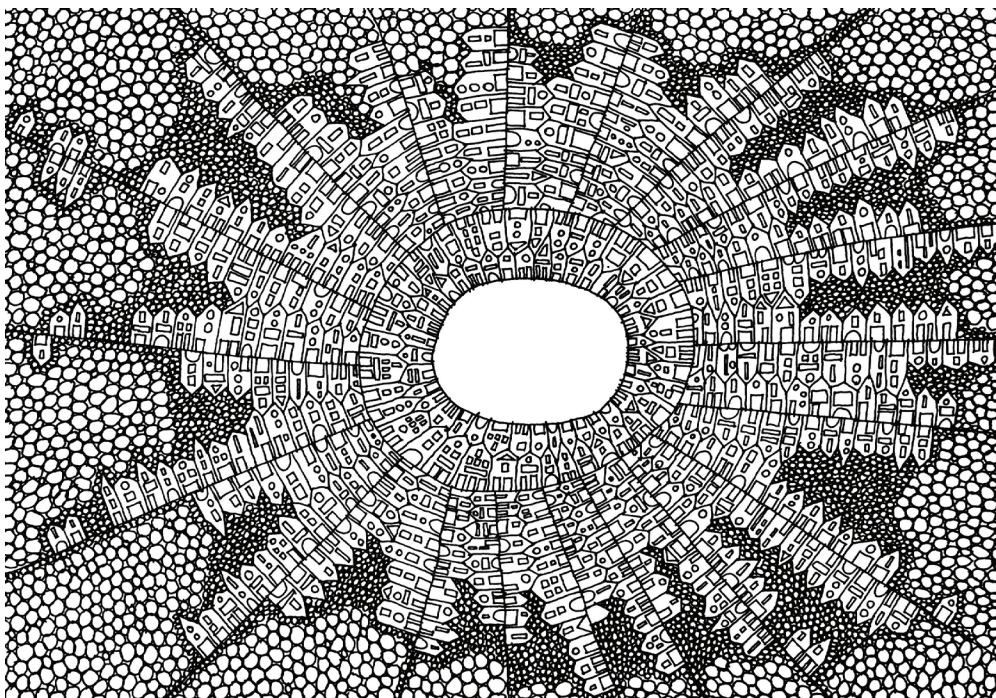
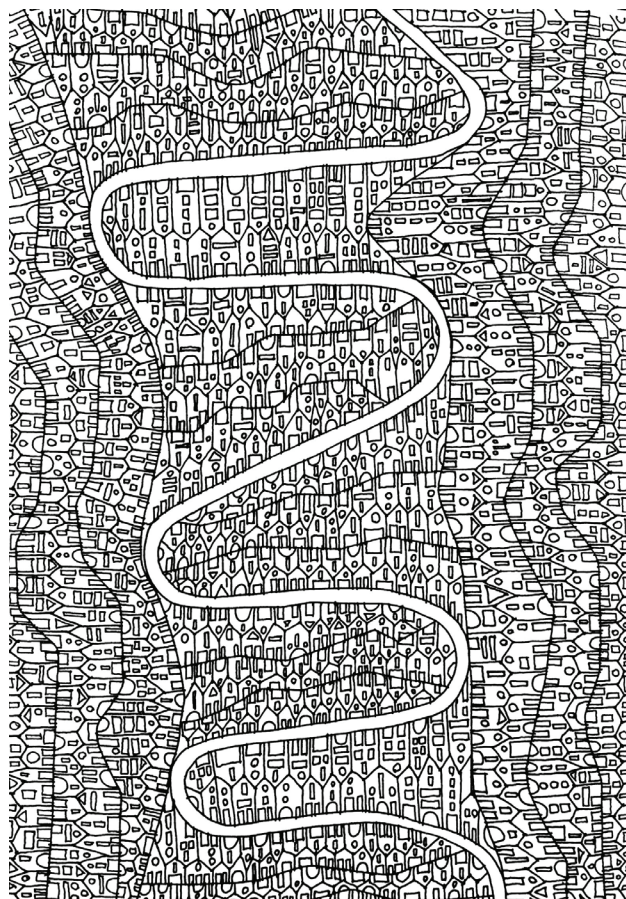
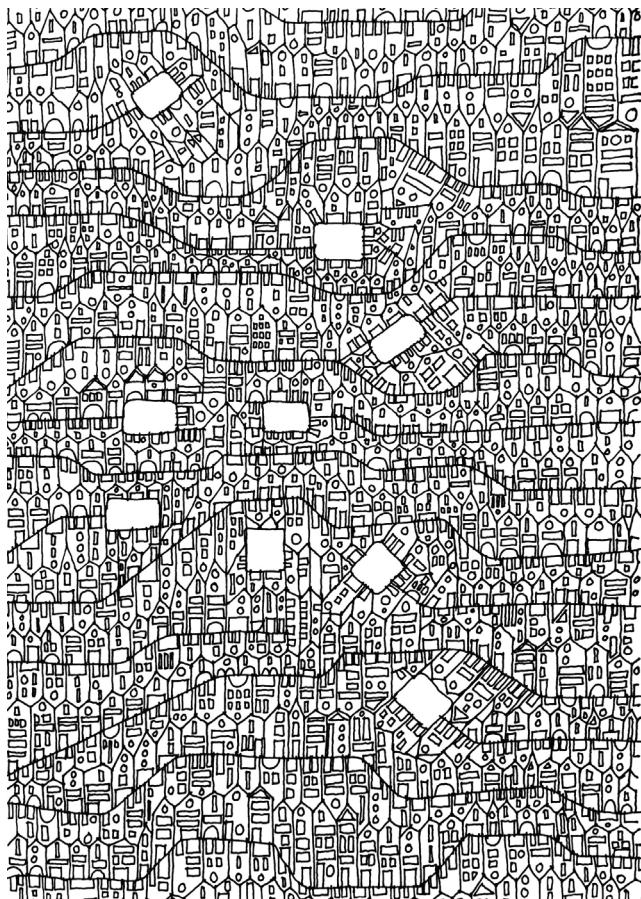
(Marco Polo to Kublai Khan, from Italo Calvino's *Invisible Cities*)*

The drawings that follow are intended to generate emotions and the understanding place characterization through the simplest of tools: the line. This approach is to be an anti-literal message in which the overall composition is not specific to any one city or town, but of several urban morphologies that, in a symbolic way, represent their cultural identities.

The dwelling, the street, the plaza, the water bodies, and other elements forming cities and towns are represented with simple lines but they all are part of a cohesive message that simultaneously identifies the place(s).







FOCUS 15

Faculty and Student Work



Designing for a Driverless Future in Downtown San Luis Obispo

Amir Hajrasouliha

PhD; Assistant Professor,
City and Regional Planning, Cal Poly San Luis Obispo.

CRP 512 students, MCRP Class, Fall 2018

Erik Anderson, Miles Barker, Kent Harrison, Edgar Hernandez, Sarah Howland, Madilyn Jacobsen, Justin Klaparda, Erin Kraft, Cara Meche, Mark Pasanen, Leeza Segal, Dustin Stiffler, Elizabeth Yee, and Qijun Zeng.

The graduate class CRP 512 Introduction to Visual Communication and GIS, focuses on skill development in visual communications and GIS through a planning exercise. In the Winter quarter of 2018, the class was assigned the re-design of two blocks in downtown San Luis Obispo. The students focused on developing visions and design ideas for a future with autonomous vehicles.

Offered for first-year MCRP students, the CRP 512 class focuses in developing fundamental skills in graphic representation and visual communications, from freehand to technical drawing to computer-assisted programs, and geographic information systems (GIS). For the winter 2018 class, students were asked rethink and design the streetscape at the intersection of Higuera and Nipomo Streets in Downtown San Luis Obispo, California. They had to plan it for 30 years into the future, when autonomous vehicles will be the norm.

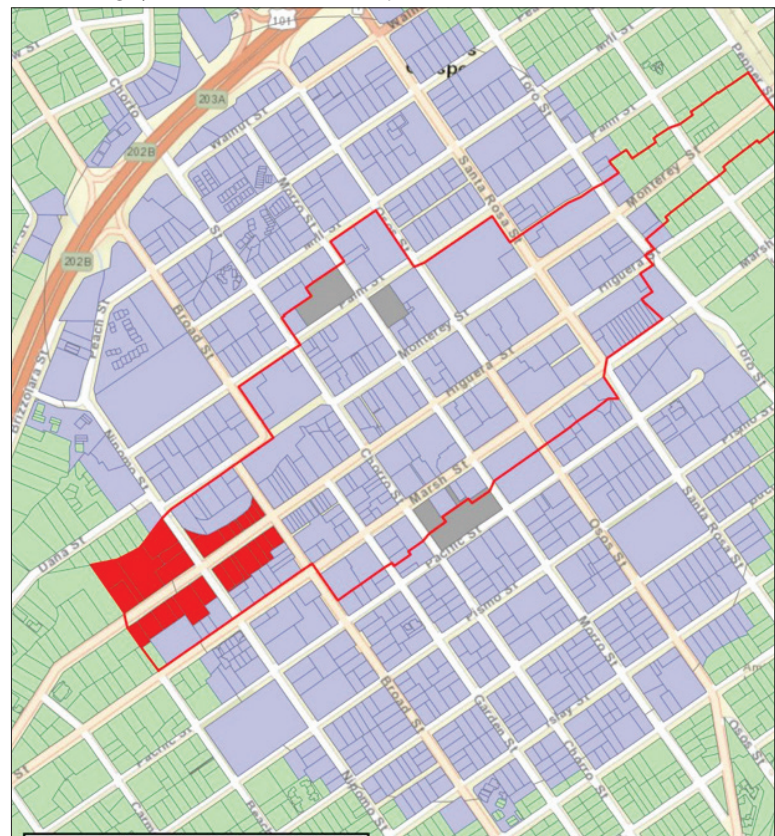
The focus was on changes in circulation that are expected to emerge in the era of autonomous vehicles. Circulation adjustments, such as designing loading zones, changing the flow of traffic, adding bio barriers between lanes, are proposed for the downtown SLO. In this academic practice, it was essential to balance the new mode of transportation with the unique SLO lifestyle. It was crucial to design places that facilitate art, culture and active lifestyles for the community since these characteristics are why people are proud to call San Luis Obispo home.

In order to gain an understanding of what a driverless future looks like, the project began with a research and literature phase, where students delved into the different impacts of autonomous vehicles (AVs) on the future of the built environment. Each team focused their literature review on different aspects of AVs, including:

- Policies and actions for autonomous vehicles;
- Impact on other modes of transport: cyclists, pedestrians and transit;
- Streetscape, circulation, signalization and related infrastructure;
- Autonomous cars and parking;
- Land use and redevelopment opportunities.

The initial review of these topics served as the foundation for the creativity and logic in the design process, specifically in approaches towards designating road-usage for autonomous vehicles. To gain a foundation of awareness about the site area, students analyzed historical properties, parking structures, speed limits, and other land use and transportation data, using Geographic Information Systems (GIS). For the demographic analysis, students analyzed population and job density, and

Figure 1: Project area (red) and the area within a quarter mile of existing parking structures (grey) in downtown San Luis Obispo.



the percent of workers that drive alone and carpool. These maps offered necessary background information about the project site.

In order to accomplish this project, students completed a series of design tasks. They first developed design skills in freehand renderings of a site plan, a section/elevation, and perspective views, manually. Then, they transitioned to rendering the site plan to 2D and 3D computer-aided representations using AutoCAD, SketchUp, Adobe Illustrator, and Adobe Photoshop. The final phase of visual presentations engaged students in the layout design of the final report in Adobe InDesign.

Managing the Transition: Policies and Actions for Autonomous Vehicles

The National League of Cities, in their 2017 Policy Preparation Guide, urges planners to start integrating autonomous vehicles and related technology into cities long-term transportation plans. As of 2015, only 6% of U.S. cities included autonomous vehicles in their master plans (Nelson et al., 2016). In order to plan for an AV future, all cities need to incorporate plans and policies regarding the issue. Policies can be changed in four major categories to help support this transition: zoning, building code, ordinances, and fiscal policy. The uncertainty surrounding the timing and scenario outcomes of the future of autonomous vehicles complicates the job of policymakers. Different future scenarios require different policies to regulate autonomous vehicles. Several guidelines for policymakers exist to ease the transition. Policies should be conservative and cautious, due to the uncertainty of the future. Besides, plans involving autonomous vehicles need to be continuously updated as it becomes more clear how autonomous vehicles use will manifest. Cities should support investments that are successful in multiple different AV outcomes. Some smaller cities, with fewer staff and resources, may need to rely on regional, state, or federal agencies to develop successful plans.

Implementation of AVs will completely change the way that land use is approached in urban and suburban areas. Advanced communication between AVs, made possible by sensors and modeling systems, will allow these vehicles to occupy less space and be able to travel close to each other in comparison to traditional vehicles (NACTO, 2017, p. 8). Current parking requirements are land-use intensive and focused on providing convenience for individual car owners. As shared AVs become superior to personal car ownership for a variety of reasons, the need for parking related land-use will decrease (WSP, 2016, p.10). Street parking, parking lots, and parking garages may become available for other uses. Also, as large big box parking lots are redesigned and repurposed, a higher emphasis will be placed on curbside space and management (Chapin et al., 2016; Nelson et al., 2016).

These areas offer an opportunity for placemaking and have the potential to become vibrant community centers that encourage mixed-use spaces and density. Dedicated space will also be needed to accommodate AVs that require fuel or maintenance services. Current zoning and land use ordinances must be made flexible to accommodate upcoming changes and conversions of current spaces to fit AV requirements. Ultimately, cities will need to independently decide how they will accommodate and adapt to these types of changes because current land usage and layout varies from city to city.

Early implementation of AVs will require dedicated traffic lanes to minimize interaction with human drivers to reduce collisions and increase transportation efficiencies attributed to AVs. AVs will not require wide buffer areas and medians to ensure safe travel, freeing up extra space for green space, pedestrians, or other means of transit. Intravehicular communication will reduce the variability and uncertainty associated with driver error and distractions (WSP, 2016, p. 15). AVs will move in a harmonized manner making the vehicular movement more predictable and thus, allow for changes in street signage and signals.

Although there is speculation about the specifics, street and road networks will be redesigned. The end goal will be to increase safety and minimize traffic bottlenecks. Overall, AVs have the potential to influence extensive changes in the built environment. Like any other transportation issue, benefits from the implementation of this technology will be maximized through thoughtful and people-focused planning. Strong policies need to be created in a manner that ensure benefits are directed towards the public rather than the profits of large corporations (Nelson 2016). Besides, the ability of cities and communities to successfully integrate and adapt to AVs will be directly correlated to the quality of the planning. Thus, it is important for planners to consider these needs and engage the community and all AV-related stakeholders to begin conversations sooner rather than later.

Design and Visualization

Students were able to initiate the design process by hand-drafting individual visions of the site-plan, whereby each person had an opportunity to freely draft their ideas about what the driverless future may look. The teams of 2 students each worked to merge their ideas into a single, hand-draft design. Then, students scanned and uploaded the hand-draft design into AutoCAD, and that led the way into the remainder of the design process in the digital format.

In AutoCAD, students first digitized the hand-drawn site plans into 2D models. In preparation for the next phase of the digital-design, students created 3D models in AutoCAD. While the focus of the work in AutoCAD was on preparing the streets, these

3D models served as the foundation for the design process using Google SketchUp software, where students expanded the work in a 3D environment. Through SketchUp, students adjusted the building types, mainly using the 3D Warehouse. Many teams used this opportunity to refine their streetscape design in SketchUp. Students selected three specific scenes to focus. These scenes evolved into the finalized perspective views.

Upon finalizing the three scenes, students exported them for the next phase of work in Adobe Photoshop. In Photoshop, students added more realistic features to the urban environment, including people, trees, benches, vehicles, buses, and more. Each team rendered one of their scenes as a night scene, in Photoshop. Transitioning then to Adobe Illustrator, each team created their street section, circulation site analysis, and site-plan rendering. Then, each of the final products was compiled through Adobe InDesign into a final portfolio. The final portfolio presented seven unique visions for a driverless future in downtown San Luis Obispo.

Selected Design Alternatives

This section depicts three scenarios and various design alternatives for the Higuera and Nipomo Streets intersection at downtown San Luis Obispo considering a future with autonomous vehicles. This impressive collection of work demonstrates some of the critical thinking and skills that the students were able to develop throughout the quarter.

Alternative 1: Bio-Swales and Community Spaces (by Cara Meche and Leeza Segal)

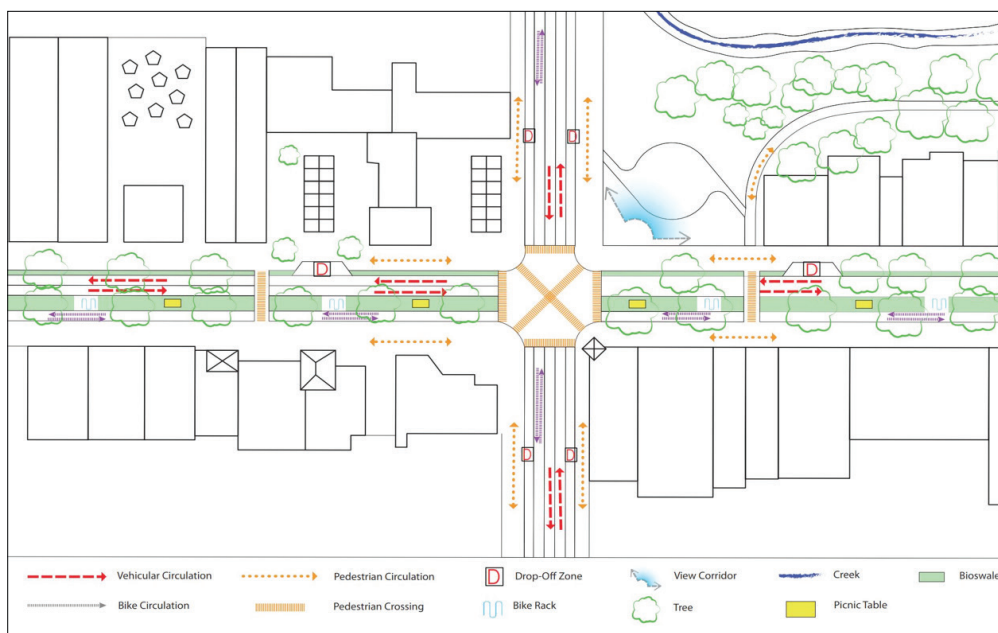
The first unique design element aims to convert every parking lot into fun community spaces. Parking will not be needed in the project area with the convenience of large drop off zones on Nipomo and two drop-off zones designated for deliveries and handicapped-use only on Higuera. The three converted lots will hold a park that expands south of the creek, an area that hosts multiple small food vendors and lastly a community event space that includes a small stage for concerts, booths for pop-up shops, a covered lounge area, and an open-air cafe.

The second design element includes two bio-swales with multiple functional uses. In addition to their environmental benefits, they will also act as buffers to encourage a safe boundary between pedestrians, bicyclists and autonomous vehicles. The larger bio-swale is twelve feet in width, providing spaces for bike racks and seating.

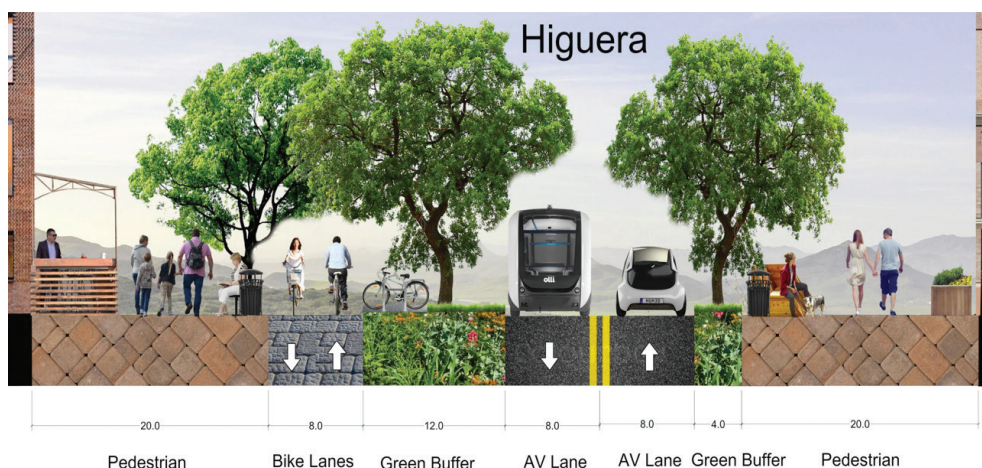
This alternative focuses on creating a social and retail center on Higuera Street. Existing parking lots are removed and converted into plaza space, new building construction, and a park located adjacent to the creek. The park includes a dog park and plaza suitable for temporary exhibits and pop-up events. The two plaza spaces located northwest of the intersection is open to outdoor vendor use. Overall, building density is increased, with several new constructions and average building height increased to 2 or 3 stories.

Higuera will be a two-lane street with one designated lane for traffic in each direction. These lanes are flanked by bio-swales on each side, the south side bio-swale will be expanded for park use and bicycle parking. Pedestrian sidewalks are wid-

Figure 2: Alternative 1 Circulation.



Figures 3 & 4: Alternative 1 - Higuera Street; street section and view of pocket park and intersection looking east.



ened to 20 feet on both sides to accommodate for increased sociability with the addition of benches, restaurant seating, and planters. Designated bike lanes are located between the south side sidewalk and bio-swale to place a buffer between bikers and traffic. Higuera will be an active scene, highlighting pedestrian use.

Alternative 2: Shared-Street
(by Qijun Zeng and Dustin Stiffler)

This design is based on the concept of shared-street. The autonomous transit is located in Higuera Street where transit shelters on Higuera Street provide a place for passengers to transfer and pedestrian or cyclist to rest. The implementation of the shared street design on Higuera Street will allow for all street users to utilize the street in coexistence.

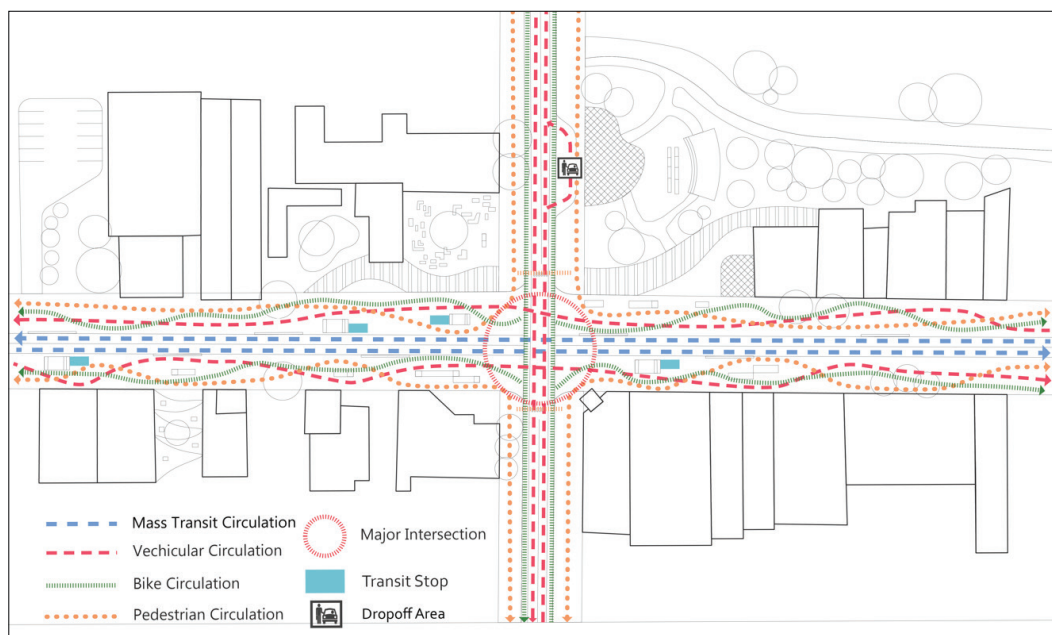


Figure 5: Alternative 2 Circulation.



Figures 6 & 7: Alternative 2 - Higuera Street; street section and view of pocket park and perspective view.

This alternative strives to incorporate the natural environment into the city by allowing the lifestyles and transportation systems of the future to coexist seamlessly. This is an environmentally-conscious design that employs natural recycled materials, such as wood, that connects the the natural and built environments and decreases the environmental impacts.

Alternative 3: Roundabout and Urban Parks (by Elizabeth Yee and Erik Anderson)

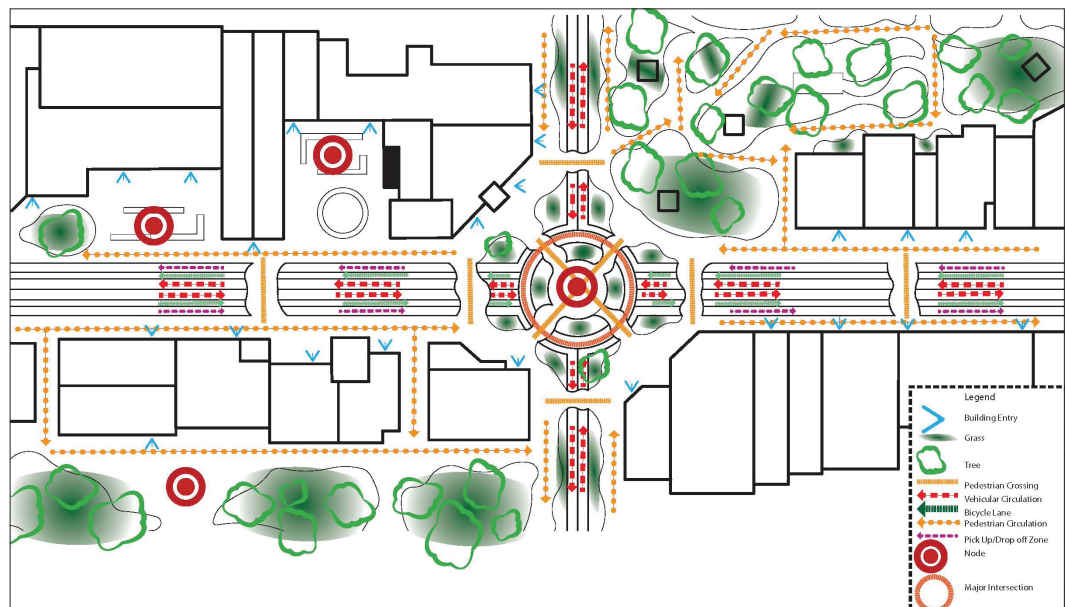
This team envisions a comfortable, safe, and active downtown and its design maintains the scenic views of the surrounding hillsides while promoting higher density with mixed uses. This involves the use of wide, activated sidewalks with ample outdoor seating.



In this alternative, the downtown supports multimodal transportation options, two-way streets for autonomous vehicles, dedicated bicycle lanes on Higuera with shared bike paths on Nipomo, and pedestrian-friendly mid-street crossing points with a large multidirectional crosswalk at the intersection. A pick-up/drop-off lane runs the length of Higuera to accommodate circulation for AV passengers, service vehicles, and transit.

Balancing greenspace and higher density with mixed-use would both beautify the streetscape and meet commercial, office and housing needs. Sidewalk are made of pervious pavers to assist in stormwater management and water retention., and while they are widened to a minimum of 18 feet to accommodate outdoor seating and active spaces, the vehicular lanes are shrunk to eight foot wide each. A roundabout is proposed for the intersection of Nipomo and Higuera Streets. Pedestrian

Figure 8: Alternative 3 Circulation.



crossings tie the business district to the adjoining park. As the sidewalks, the crosswalk is made of pervious pavers for better stormwater management and to differentiate from the street for pedestrian safety.

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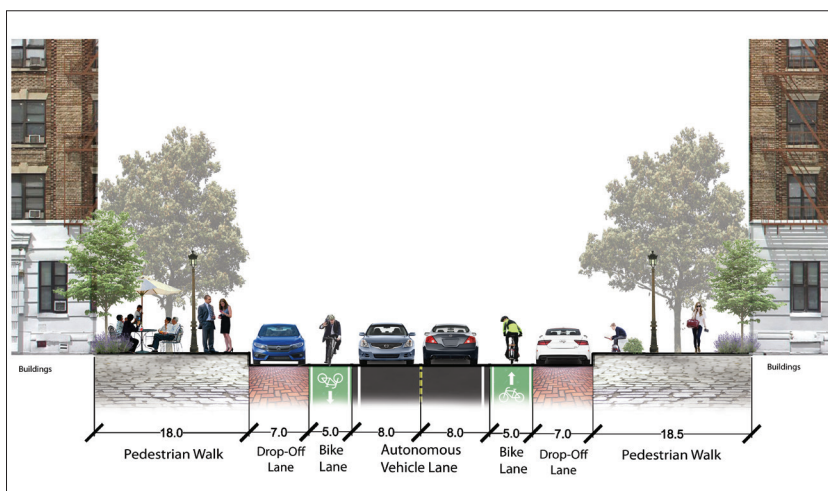
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Figures 9 & 10: Alternative 3 - Street Section and view of park.



Urban Water Scarcity in Sana'a, Yemen

Aliza Herzberg

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This essay is based on Aliza Herzberg's final paper for the CRP Department's Cities in a Global World taught by Dr. Laura Tate in the Winter quarter of 2018. Open to all majors, the class explores the social and economic implications of urbanization and the international political economy on global cities, such as authenticity, gentrification, migration, social and environmental justice, and urban security. Students also assess global challenges through specific case studies, such as the one discussed by Aliza in this essay.

The world's urban population is growing at an unprecedented rate; one half of the world's population is already living in urban areas (Emmerij, 1997, p. 104). Urban life often draws people from rural areas due to its "better quality and more choice in education, material comforts, medical care, employment opportunities, and self-expression. It [the urban setting] provides a wide variety of skills, services, cultures, delivery systems, and so on" (Emmerij 1997: 105). The benefits of the urban setting are especially attractive to impoverished rural dwellers who aspire for a better quality of life. While the growth of megacities often benefits the respective national economy and incorporates the country into the global world system, there are many social and environmental consequences associated with urban growth.

Urban life and increasing urbanization shares and exacerbates its own host of social issues, including "poverty, housing, unemployment and underemployment, slums, crime, drugs, and street children" (Emmerij, 1997, p. 105). These issues are a consequence of the "growing urban [economic] dualism and informalization," a phenomenon that emerges with increasing economic inequality, creating an inevitable divide among the powerful and wealthy elite and the impoverished masses. Poverty and marginalization are embedded as an inevitable aspect of the social structure of the megacity (Emmerij, 1997, p. 104). This paradox manifests itself in most urban spaces and is further intensified in periphery countries due to the lack of social services that would mitigate inequality.

Yemen's geopolitical and economic circumstances put the country in a disadvantaged position in a highly contested region of the world, Southwest Asia and North Africa (also known as the Middle East). Yemen has one of the highest populations in the Middle East, yet it has the lowest Gross Domestic Product in the entire region and lacks adequate infrastructure and

political control to sustain the growing needs of the country. The country's arid environmental conditions strain the available environmental resources, especially water, leading the entire region into an era of constant drought and insecurity. The constant arid climate is magnified by climate changes and desertification, making freshwater access a constant challenge for Yemeni people.

Urban areas are particularly vulnerable to water shortages because of high population density. Sana'a, Yemen's capital and the densest urban area in the country, faces constant water scarcity and issues of poor management. The country has a relatively weak central government system, preventing enforcement of policy measures to aid in public water management (Hovden, 2015). Yemen's inadequate and unsustainable water infrastructure, including the reliance on depleting groundwater aquifers and infiltration of contaminated water, dramatically contributes to Sana'a's water insecurity. Social and political conditions within Yemen, such as the localized social power structure, civil unrest and violence, and the national addiction to the water-intensive stimulant "Khat," all further worsen the water scarcity and threaten the stability of the region.

Yemen's Social Organization

Specifically related to public water law and management in Yemen, responsibility and power is considered a region-specific issue due to the "tribal social structure" that shapes the political landscape "based on the collective responsibility and accountability of tribal leaders (sheikhs) to their communities" (Al-Sabahi & De Santis, 2016, p. 56). Experts in Yemen water management find that this local "tribal" organization is an important variable which may cause a group to either defy or accept broader water management laws, further complicating efforts towards political stabilization and achieving peace (Mis, 2015).

This regional water organization is intertwined with traditional principles of the Islamic system, also known as *ala'ala-fa-ala'ala*, a principle that gives “upstream land senior irrigation rights over downstream land” (Al-Hamdi, 2000, p. 3). This principle is applicable when managing fresh surface water, including rivers, lakes, and streams. However, due to Yemen's arid physical geography and climate, Yemen relies on groundwater aquifers for 70% of the water supply, in which cases *ala'ala-fa-ala'ala* would not apply (Al-Weshali, et al., 2015, p. 216). Groundwater is an equally distributed resource because it is below ground and any successful well can reach the aquifer, whereas surface water makes access unequally distributed due to geography proximity near the water source. “Islamic principles treat [groundwater] as a communal property with a possibility of private ownership under special circumstances,” according to Yemen water expert Mohamed Al-Hamdi's dissertation titled “Competition for Scarce Groundwater in the Sana'a Plain, Yemen: A study of the incentives for urban and agricultural water use.” Spatial constraints regarding water access and distribution are reified by the localized system of power and social structure, challenging any potential national policy reform regarding water management.

The tribal social structure, grounded in the power of the sheikh, is reified as “people lose faith in government institutions” from unstable national authority, control or services. Accordingly, 65% of Internally Displaced Persons within Yemen choose to find safety or conflict resolution through their local leader. When international aid organizations intervene to provide resources or

services to these displaced populations, these groups often rely on the regional social structure through “approval of sheikhs” before intervening in the local communities (Alsabahi & Desantis, 2016). However, this can lead to an uneven distribution of needed resources, as illuminated by a study undertaken by Oxfam and published by the Yemen Community Engagement Working Group. In the study, 48% of respondents felt that humanitarian aid in Yemen was not reaching the most vulnerable populations. Arguably the most vulnerable or marginalized populations, such as the elderly, mentally disabled, or illiterate people, have difficulties accessing information about humanitarian assistance and consequently accessing the direct assistance.

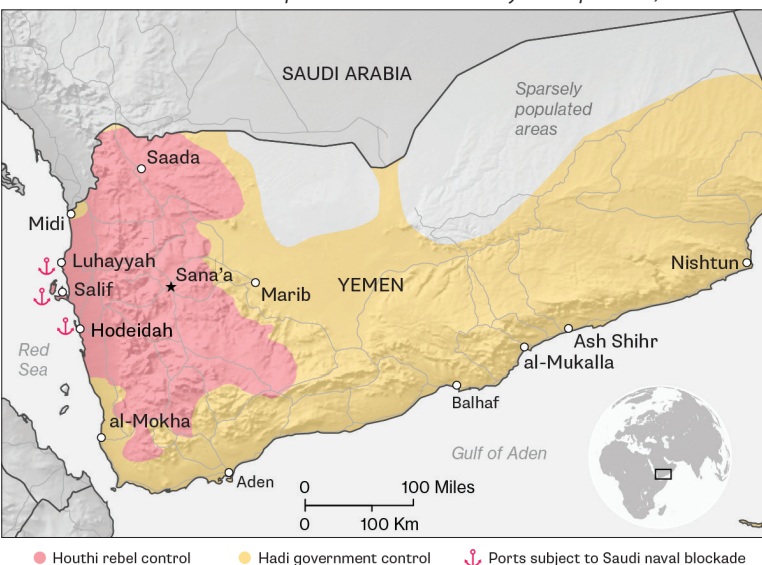
Identifying the most vulnerable groups in Yemeni society is even further complicated by continuous societal discrimination towards certain minority groups. These marginalized groups, which often do not belong to a more organized “tribe” or have a sheikh, are overlooked when aid organizations come into the country to offer humanitarian assistance. Because these minorities often have no organizational leader or group, either due to their informality or institutional discrimination against them, they have no credible or informed representative to advocate for them while navigating the international aid process (Alsabahi & Desantis, 2016). This further exacerbates social inequality and prevents aid from reaching the most at-risk groups in Yemen.

Yemen's Civil War and Political Turmoil

Similar to many other countries in the region, Yemen is facing an intense water crisis with effects magnified by several political and cultural factors. The country is currently in the midst of a proxy civil war between Saudi Arabia and Iran being fought on Yemen soil. The Saudi forces support the current Yemeni President Hadi, while Iran supports Houthi rebels (Asia News Monitor, 2018). In addition to this regional political tension being fought in Yemen between Saudi Arabia and Iran, the al-Qaida in the Arabian Peninsula (AQAP) and Islamic State (IS) have manipulated the regional instability and established a haven for terrorist activity and deadly attacks (Asia News Monitor, 2018). These violent quarrels exacerbate social inequality and increase the vulnerability of environmental management on a local and national scale. Instability leads to the lack of distribution of resources/public facilities, which can lead to private entities taking advantage of the situation through privatization, public resource deprivation, and the black market. When these critical resources are taken away, civilians often turn to the violence out of desperation, necessity, and security.

The tribal organization of Yemen is also influential when dealing with land and water disputes, which contributes to regional, smaller, and more frequent spurts of violence. The

Figure 1: Map of Yemen showing the front lines of the war. (by the American Enterprise Institute's Critical Threats Project as of 01/02/2018; source: <https://www.bloomberg.com/news/articles/2018-02-22/who-s-to-blame-for-pestilence-near-famine-in-yemen-quicktake>)



Government of Yemen estimates that this type of violence “results in deaths of some 4,000 people each year,” and probably contributes to “more [fatalities] than the secessionist violence in the south, the armed rebellion in the north, and Yemeni al-Qaeda terrorism combined” (Hales, 2010, p. 2). These conflicts have historically catalyzed collective, more organized violence, threatening stability in the greater public arena. In the context of Yemen urban areas, especially areas where new land developments are taking place, “disputes over ownership of, or access to, natural resources such as land and water” have become the “most prevalent type of social violence” (Hales, 2010, p. 2).

The conflict over water is strongly associated with land issues, due to control over sources of surface water and particular territory that accesses upstream water. “Dam construction... channel ‘improvements’” and other man-made alterations of the water infrastructure can “interfere with delicate social balances” due to the fragility of the diverse communities and their interrelationships (Hales, 2010, p. 3). Pre-existing environmental conditions like low levels of rainfall and lack of permanent rivers intensify these concerns even further.

However, due to the increase in groundwater withdrawal over the last thirty years, access to the underground aquifer has become a more critical territorial resource. Property owners, including domestic, industrial, and agriculture users, have continued to dig deeper wells in order to ensure their own share of the aquifer’s water (Al-Hamdi, 2000). Yemen’s constitution “declares all natural resources to be a state property” but “the absence of a detailed legal framework, the lack of proper institutional setup to administer and manage water resources, and the weak capacity of the government to implement and en-

force water-related policies” prevent further action from being taken (Al-Hamdi, 2000, p. 72). This has contributed to a conflict “among well owners drawing water from the same aquifer... lead[ing] to a ‘race to the bottom,’” contributing to rapid land subsistence and threatening the potential for renewable recharge of the aquifer (Hales, 2010, p. 4). These factors related to competition and conflict over water resources are further detailed in Table 1 below. These cumulative factors, including a weak political system and a tribal social organization, constant regional violence, and arid climatic conditions make Yemen’s current situation “the worst humanitarian crisis in the world” (Asia News Monitor 2018), the United Nations claims.

Sana’a Current Water Supply and Public Infrastructure

Yemen is one of the most water-scarce countries, compared both to other countries in Southwest Asia and also on a global scale. “The annual per capita availability of freshwater is 120 m³, which is only about 10 percent of the regional [Middle East] average” of available freshwater, meaning Yemen’s freshwater is only 10% of the national average of other surrounding neighbor countries like Saudi Arabia and Oman. Internationally, this water availability is “less than 2 percent of the global average” (Hales, 2010, p. 3). Yemen also has no permanent rivers, making water availability continually fluctuating with the season and resultantly inconsistent.

Due to lack of available surface water, groundwater aquifers are the primary source of water for urban areas and agricultural irrigation in Yemen, which together make up 70% of the total water use (Al-Weshali, et al., 2015:, p. 216). The national rate of depletion of groundwater is twice the recharge, meaning that

Table 1: Factors transforming water competition into conflict. (Hales, Muggah & LeBrun, 2010)

Factor	Explanation
Predictability of flow	More predictable flow creates the conditions for consensus about resource management; spate events give rise to intense stress and conflict.
Number of users	Large shared systems generate more potential for stress as individual control diminishes.
Visibility	Surface water flows are easier to measure and manage, but being visible may quickly give rise to conflict; groundwater sources are not.
‘Symmetry of cause and effect’	More direct competition between individuals is more likely to trigger conflict than, for example, depletion of groundwater affecting a broad community.
Power relations	Large power imbalances between winners and losers tend to mitigate conflicts.
External interference	The state, donors, and others can trigger conflict when they interfere with existing water management practices or ignore the management and maintenance implications of new infrastructure projects.



Figure 2: A woman carries jerrycans to fill with water from a charity tap in Sana'a. (CCTV/Facebook; source: <https://www.middleeastmonitor.com/20171121-2-5m-lack-access-to-fresh-clean-water-in-yemen-says-red-cross/>)

the groundwater supply is not being renewed at a sustainably sufficient rate and will have significant long-term environmental consequences once the groundwater depletes to the point of no recharge.

Yemen established a domestic infrastructure to aid water management by founding the National Water Resources Authority (NWRA), the Ministry of Agriculture and Irrigation, and the Ministry of Electricity and Water (Al-Hamdi, 200, p. 3-4). In 2002, the Sana'a Water Basin was "designated as one of the five critical basins" within Yemen. The National Water Resources Authority even established a Sana'a Branch in 2003 to directly implement water resources management for the Sana'a Basin region (JICA, 2007, p. 1). Although the establishment of these government-backed water and water-associated institutions was a great improvement for Yemen's water infrastructure, their execution is limited and generally unsuccessful. These companies "only supply some households in the major cities and 70% of Yemenis live in rural areas" (Whitehead, 2015); however, with a growing global trend towards urbanization, these demographics will shift towards growing urban populations.

Insecurity is even more magnified in Sana'a, the country's capital city and the most stressed water basin in the country. Because of the lack of surface water, the basin's reliance on groundwater (especially in the last several decades) has increased exponentially. The city's growing population places extra strain on the water supply, with a predicted basin population of 6.06 million by 2025 (Al-Hamdi, 2000, p. 4). The Tawilah aquifer provides all water needs for the Sana'a basin. Water usage in the city increased rapidly "after the identification of the Tawilah aquifer in 1972 and the establishment of the NWRA" (Al-Hamdi, 2000,

p. 6). This trend was illustrated by the following; "the number of wells in the basin went up from a few hundred in 1973 to around 6000 wells in 2001, and 8000 wells in 2009... the water balance of the Sana'a Basin indicates [extractions] to be five times higher than recharge" (Al-Weshali, et al., 2015, p. 221). If the region continues to extract water at a constant rate, predictions state that the "total usable storage would be depleted within 32 years" (Al-Hamdi, 2000, p. 5).

This dramatic and concerning reality in Sana'a, due to the public infrastructure's financial limitations, lack of sufficient water supply, and the high demand for a water municipal system within the urban area, have led the National Water and Sanitation Authority and other government agencies to agree to provide an "intermittent" water system to "maximize its coverage and implement a policy of equitable access to water" (Al-Hamdi, 2000, p. 30). However, even with these efforts towards improvement, only 40-50% of houses in Sana'a are connected to the public water supply (Al-Hamdi, 2000). The existing pipe network is estimated to lose up to 60% of the water due to leaks (Whitehead, 2015), and the "systematic low pressure in the system...and the local topography" contribute to a system that fails to accomplish its goal of equally supplying every part of each zone of the city (Al-Hamdi, 2000, p. 30). The weak central government in Yemen prevents any substantial improvement of urban water management, infrastructure, or policy.

Consequently, the city is reliant on private suppliers to provide the remaining water demand. The most common and predominant form of private water is "tanker supplies." The process consists of a tank owner, who is also the middleman and profit-maker, purchasing water from a well-owner. The tank owner sells the water for a much higher price, which is often defended by "the high cost of operation and maintenance of the truck and... the long hours of waiting to sell a tanker load" (Al-Hamdi, 2000, p. 30). The water is stored in household ground tanks to "bridge the unreliable 24 hour-cycle supply," although this water is presumed by consumers' to be "poor contaminated quality," creating yet another commercial opportunity for clean drinking water in Sana'a (Al-Hamdi, 2000, p. 30).

In the Sana'a basin, the agricultural sector produces Khat, grapes, and vegetables, all of which require intensive irrigation, using 85% of the groundwater extraction in this specific water basin of Yemen (Al-Weshali et al., 2015, p. 221). Many Khat farmers use "expensive pipes and plastic tubes" to direct water from the underground aquifer to the Earth's surface, rather than earthen channels (Al-Hamdi 2000: 100). The farmer's expensive investments in more advanced and intensive infrastructure are "driven by the limited supply" given many shareholders may all be extracting water from a single well. Farmers justify this more "extensive use of pipes" by claiming to "minimize conveyance

losses associated with the use of earthen channels" (Al-Hamdi, 2000, p. 100).

Additionally, Sana'a's geography and environmental conditions pose challenges for water management. The city is located 2,300 meters above sea level, which complicates getting access to water from rural places considering Yemen's poor infrastructure and difficult geography (Hovden, 2015). William Cosgrove, a Middle East water resources expert and former World Bank specialist, claims that Sana'a's problems are more complicated than just an aquifer running out of water, "but also that the city is hundreds of kilometres from the sea and has no alternative water supply" (Mis, 2015). This geographic landlock puts the city at odds to find creative solutions to water scarcity.

Incorporating Global Water Management in Sana'a

Global water management schemes often target developing nations with extreme water insecurity. In this case, Sana'a received funding from the World Bank to "solve the groundwater problem in agriculture," also known as the Sana'a Basin Water Management Program (Ward, 2015, p. 98). By signing onto this project in 2003, Yemen "committed itself to a long-term process [to transition to] Integrated Water Resource Management" (Ward 2015: 98), an intersectional phenomenon of water management and globalization being pushed by many intergovernmental organizations, especially the World Bank. By signing onto this program, Yemen is taking substantial strides towards becoming a more globalized and incorporated city, for better or for worse.

Integrated Water Resource Management (IWRM) is touted as "arguably the most influential global paradigm in water governance" (Newig & Challies, 2013, p. 440). The program views "fragmented and disjointed" water management through sector agencies as the major barrier preventing sustainable water governance. IWRM acknowledges and incorporates "underlying social and environmental drivers of change in planning" which influence water sectors, such as agriculture, energy, industry, municipal supply, and ecosystem management and preservation (Newig & Challies, 2013, p. 440). The three pillars of sustainability, including social equity, economic growth, and the environment, are incorporated into the IWRM strategy. Critics of IWRM argue that these concepts are intertwined with debates regarding "public versus private governance" and water as a commodity versus public good and human right (Newig & Challies, 2013, p. 440). The overall global consensus regarding IWRM is that its impacts are "at best marginal," with a recorded 20 out of 95 countries reporting "formal implementation" of its principles (Newig & Challies, 2013, p. 440).

The Sana'a Basin Water Management Program was budgeted and financed for a full 15-year implementation. Phase 1, which

included testing technology, analyzing supply and demand approaches to management, and organizational infrastructure, lasted from 2003-2010. After this phase in the program, the national governance began to plan for and implement the program by setting up political infrastructure, assessing and monitoring water resources, managing public awareness campaigns, and implementing measures for regulation (Ward, 2015).

Particularly regarding infrastructure, efforts towards enhancing water supply included improving structures for groundwater recharge, education on sustainable water management and improving the efficiency of water usage within agricultural "Water Users Associations," and investing in better technology like regional water pipelines and drip irrigation systems (Ward, 2015). Besides, technical support regarding water efficiency and irrigation productivity were provided to farmers. Results proved that these strategies towards limiting water use pumped 40% less water yet still increased incomes by 10 percent (Ward, 2015). This first phase of the program, which piloted IWRM approaches in Sana'a, demonstrated their success. Unfortunately, continuation and progress towards expanding the program have been put at a halt (possibly due to the political instability), which has prevented the transition to the official "2nd and 3rd phases" (Ward, 2015), despite the expired 15-year time frame of the program. Integrated Water Resource Management through the Sana'a Basin Water Management Program was limitedly successful in its preliminary efforts, but its lack of complete execution leaves Sana'a in an interim and uncompleted status of development.

Groundwater Contamination in Sana'a

Sana'a is faced with issues of water scarcity, distribution, and contamination regarding surface and groundwater. The latter issue is one that directly threatens all water resources, both above and below ground, which the urban area of Sana'a is reliant on. This is in large part due to the poor or completely lacking public waste infrastructure in Sana'a. It is not simple to "remediate" or re-clean water to its original state once it has been polluted. The consequences of contaminated water are far-reaching, creating "health problems for human beings and animals, deterioration of farmland (e.g. lowering the yields of crops), and adverse impact on the environment" (JICA, 200, p.: 13). Water contamination is even more threatening in developing countries, as "outbreaks of waterborne diseases usually associated with gastrointestinal symptoms and increasing carcinogenicity created by certain organic chemicals" enters the main water supply, having widespread implications in public and environmental health (Al-Hamdi, 2000, p. 52).

Sana'a's current waste management is limited and poorly run; a public sewage system covers 29% of the population in urban

areas. This sewage system utilizes a wastewater treatment facility, which “drained directly to an open channel.” Unfortunately, many uneducated farmers use this waste discharge for irrigation purposes, which poses a health risk and threatens the produce and fresh vegetables grown for Sana’a’s urban population. As a consequence, the National Water and Resource Authority of Sana’a Basin has “started to raise awareness among farmers not to use the drained water.” Unused water has “infiltrated into the ground...and the quality of groundwater downstream of the treatment plant has become worse” (JICA, 2007, p. 3). Domestic wastewater can also contaminate groundwater through “widespread use of on-site disposal facilities, leakage from sewer lines or infiltration from treatment facilities such as oxidation ponds” (Al-Hamdi, 2000, p. 50).

Approximately 75% of the population does not reach the public sewage network and relies on the cesspit, an underground pit that holds liquid waste and sewage, as their primary form of waste disposal (Al-Hamdi, 2000; p.50). In the case of heavy rain flow, rainwater overflows the cesspit and spreads contaminated water in previously clean areas. Cesspits have also proven to pollute the groundwater by infiltration through the soil, which threatens the safety and hygiene of the entire reliable water supply that Sana’a depends on. In Sana’a, “several hundred private wells” were proven to be affected by sewage contamination (JICA, 200, p. 12). This contaminated water in Sana’a’s central inner city area has a nitrate concentration two to three times higher than the “permissible limit for drinking water” according to the World Health Organization’s health standards (JICA, 2007, p. 13). Cesspits also threaten to disturb the pre-existing National Water and Sanitation Authority distribution network of sewage, particularly in identifiable areas more vulnerable to cesspit clogging and collection of wastewater in ponds (Al-Hamdi, 2000).

There is also concern regarding inadequate waste disposal in petrol stations, car service shops, medical units, and industry, mostly due to the lack of wastewater treatment facilities for these establishments. The disposal of wastewater from these sites is assumed to be uncontrolled, unregulated, and within the discretion of individual stakeholders (JICA, 2007, p. 13). This potential contamination poses a public health risk for those exposed to or in proximity to these establishments.

Government Subsidies and Limited Groundwater Supply

The Yemen government has little control over managing the extraction of groundwater. Government policy incentives, such as diesel subsidies, encourage well extraction, effectively stimulating inefficient and unsustainable water use for irrigation. These incentives are still prevalent and continue to magnify the consequences of poor water management (Al-Weshali et al., 2015).

Due to the Yemen government subsidization of fuel, private interests cheaply power water pumps (causing it to over-extract) and make a profit by selling it privately. Private entities drill new unregulated wells geographically near public ones, which threatens the groundwater supply and creates a privatized black market for water resources (Hovden, 2015). These private agencies are also well aware that the public infrastructure in Yemen is not able to support itself and its reinforcement and maintenance is lacking or non-existent. These private companies can manipulate the water prices due to their monopoly over the scarce resource and overcharge the impoverished and desperate urban Yemeni community.

The Yemen government has also placed a financial subsidy on “imported grains” which has pushed out the grain industry and creates a national reliance on outsourced cereal crops. This shift in cropping pattern has led to the more intensive cultivation of “water-demanding cash crops, particularly Khat, grapes, and vegetables” which depletes the domestic water supply faster than grain crops (Al-Hamdi, 2000, p. 109). This import subsidy also lowered the national market price of cereals in Yemen, resulting in grain cultivation that “covers less than 5% of the agricultural land in the basin” (Al-Hamdi, 2000, p. 85).

Environmental Consequences of Khat Addiction

Although there are natural constraints based on Yemen’s geography and physical environment, other factors such as cultural norms, government behaviors, political unrest, and policy decisions are escalating and magnifying the water shortage. The widespread habit of chewing low-stimulant “khat” is just one of these factors contributing to water scarcity in Sana’a (Hovden, 2015). The drug is a “full-blown national addiction” with “90% of men and 25% of women regularly chewing the leaves” (Butters, 2015). Chewing khat is considered the country’s primary form of socializing, given that the predominantly Muslim population is banned from consuming standard drugs or alcohol.

Culturally, Khat influences the Yemeni population in several ways. It encourages “complacency” about the government failings. Furthermore, Khat contributes to an unproductive work environment because it “keeps the country awake,” which enforces staying up late and sleeping in, and pushes establishments to open much later in the day (Butters, 2009). The effects of Khat delays the urgency that must be ignited to create widespread societal change. It also leads to exclusionary “khat ceremonies” which reinforces gender inequality. On the other hand, it can also be attributed to keeping people calm during situations of crisis, which happen quite frequently during a Civil War, and also “keeping them off the streets” (Butters, 2009). These unintended consequences of heavy Khat use could be a significant reason why the country is struggling in so many

ways, and staying away from the substance might be part of the solution towards shaping a positive future for Yemen.

A regular user's daily dose of Khat costs approximately five US dollars. Considering the extreme poverty and other more pressing needs of the growing population, it is quite astounding that so much of the population is still consistently purchasing and chewing khat. Most families spend more money on Khat than on food (Butters, 2009). The Khat market demand allows for cultivator's to spend excessive amounts of valuable water to grow the plant, and the profits make it worthwhile for the farmers. The standard "annual income of a Qat [Khat] farmer...is more than twice the national average of per capita income" (Al-Weshali et al., 2015, p. 223) and "certainly provides a steadier income than growing vegetables" (Butters 2009). Because this habit is widespread in Yemeni culture, its usage is uncontrolled and continually provides demand in the market.

Growing Khat, "a shrub whose young leaves contain a compound with effects similar to those of amphetamines," requires intensive and routine irrigation (Butters, 2009). The Sana'a Basin is environmentally optimal conditions for Khat cultivation. "The plant thrives in the high hill country" and "is easy to grow and harvest." To cultivate Khat fields successfully, they must be "flooded twice a month" and consequently consume approximately 30% of the national water supply (Butters, 2009). These agricultural techniques are sucking the limited water from Sana'a's Basin which could be used in other capacities to maximize the utility of the precious resource.

According to Al-Weshali et. al.'s article Diesel Subsidies and Yemen Politics: Post-2011 crises and their impact on groundwater use and agriculture, around "85% of [national] khat production comes from five governorates located only in the highlands region of the country" including Sana'a's greater water basin (Al-Weshali et al., 2015, p. 223). Khat agriculture "is estimated to cover around 1/3 of the total area" in Sana'a" (Al-Hamdi, 2000, p. 5). Groundwater extraction for Khat cultivation is often shared or split between many shareholders invested in one well. Although this "network of shareholding" may clash with the regional "tribal structures" which shape the social landscape, the possibility for "improve[d] awareness and facilitat[ed] collective action to reduce water abstraction" are potential areas of improvement regarding sustainable groundwater management (Al-Hamdi, 2000, p. 107). A hydrologist and local director of a German technical-assistance advising team for water management, argues that on a national level, quitting khat would double the amount of household water available, a remarkable potential improvement given the already-threatened water supply (Butters, 2009).

The national Khat addiction feeds into the increasing water scarcity in the region due to its high demand and costly irri-

gation requirement. The drug limits educational initiative to change the way things are in Yemen - and helps people mentally cope with their often violent or impoverished surroundings. Nonetheless, this tradition is creating widespread complacency for societal issues, creating a norm of unproductivity and unmotivation which hinders change, while also prioritizing water to go towards Khat irrigation instead of more necessary social needs like running water and food.

Looking Forward, Possible Solutions

Future water supply options for Sana'a will be organized into two categories, either in-basin water resources or out-of-basin alternatives. Regardless, Yemen's national government should clearly define water ownership and water use rights. This could be achieved through the "establishment and enforcement of both boundary and authority rules," which would clarify and identify access to groundwater (by halting the continuous increase in pumpers taking from the aquifer). Establishing authority rules would "reinforce [the political] boundary" and its scope in Yemeni society (Al-Hamdi, 2000).

Some in-basin options include "enhance[d] utilization of rain-water, intra-basin transfer... reallocation of water from agriculture to municipal use, and utilization of unconventional water resources" through wastewater reuse (Al-Hamdi, 2000, p. 45). Another proposed solution to addressing Sana'a's water crisis is for the local municipality to purchase well-water that would've gone towards agriculture or private companies. This would be a cheaper alternative compared to shipping water in from abroad. However, it would require political reform and changes to Yemen's constitution (Whitehead, 2015).

Out-of-basin or "imported water" options consist of inter-basin or regional transfers of surface water from various sources such as Surdud, Marib, or the Red Sea (Al-Hamdi, 2000). However, developing the infrastructure to execute this and the costs associated with inter-basin water transfer "face high costs that range from 1.7 to 6.4 times higher than the current expensive option of private tanker supply" (Al-Hamdi, 2000, p. 45). Specifically regarding out-of-basin alternatives, "political, social, legal and technical" barriers should also be taken into account.

Public education to promote lower water use in farming communities could also help reduce the risk of water insecurity in the future. "Better agricultural extension, introduction of water-saving technology, and information assistance to shift to other crops" are all valid and productive ways to reduce water use. Eventually, the Yemen government should "seek to invest in an alternative economic base" rather than relying on the current water-based economy (Al-Hamdi, 2000, p. 107).

Yemen has immense disadvantages. It is in a region of the world facing geopolitical conflict, lack of government control, and growing populations. These factors magnify the pre-existing regional water scarcity, which is impacting every country in the Middle East, but particularly Yemen. The capital of Yemen, Sana'a, is one mega-urban area threatened by water insecurity. Sana'a is currently reliant on a groundwater aquifer which is rapidly depleting and becoming contaminated. Cultural factors, such as tribal organization and national addiction to Khat, prevent policy initiatives from successfully mitigating future water shortages and obstacles. On a global scale, Yemen is a country in dire need of international support and guidance. While these issues facing Sana'a threaten regional stability, it also serves as an opportunity for potential productive change through positive Yemeni leadership and outside actors to help Yemen out of its humanitarian crisis.



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Planning for Sea Level Rise: Redevelopment Concepts for San Francisco's Embarcadero

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Vicente del Rio

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In the Fall Quarter 2017, the third-year urban design studio run by the authors collaborated with San Francisco's Port Authority in developing ideas for how the city's Embarcadero waterfront could be redeveloped to its full potential, enhancing livability and preparing for sea-level rise. The thirty-two students, organized into six teams, developed plans and ideas for different sectors, as highlighted in these pages.

In Fall Quarter of 2017, the third year BSCR students enrolled in CRP 341, the most advanced urban design studio in the undergraduate City and Regional Planning curriculum, were presented with a challenge: to develop a design strategy for one of the most iconic and famous waterfronts in the world – San Francisco's Embarcadero. Supervised by the authors of this article, their client was the Port Authority of San Francisco, a semi-independent entity that oversees the city's port facilities and real estate. With regulatory and economic jurisdiction of the land along the waterfront and the numerous piers and maritime structures that are connected to it and jut into San Francisco Bay, the Port Authority is financed by revenue from these waterfront lands and facilities. It, therefore, has a great interest in future developments in these properties and those around them, as well as in guiding these development to protect their assets.

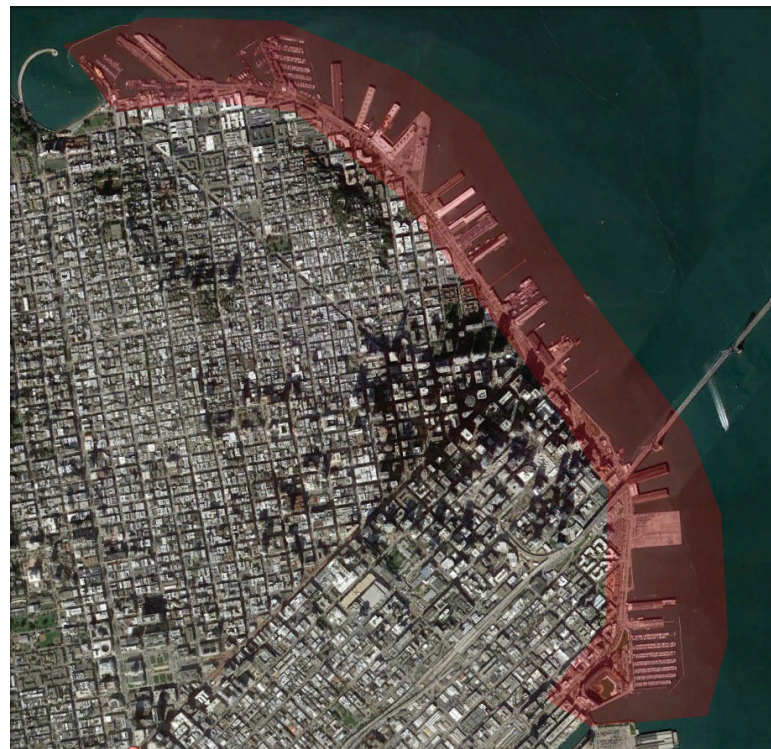
This was not a task for the faint of heart! The site included: as backdrop, the iconic skyline of the city, with its newly acquired "superstar" Salesforce Tower its glowing blue dome towering over the water at night; the iconic Ferry Building as one of the focal points of the waterfront, a hub for water connectivity to destinations around the bay; and, the destination Pier 39 with its stores, restaurants, trinket shops and sea lions and scenic views of Alcatraz and the Golden Gate Bridge (Figure 1). However, compounding the challenge was the client's mandate that the students were to address sea level rise impacts and design to mitigate and redevelop under these conditions. They were to concentrate in the area between the Maritime Park (North) and the ATT Park (South). These lands, under the Port of San Francisco's jurisdiction, required design proposals to include only those uses and activities with a maritime connection – as this was the Port Authority's prevue.

Not at all daunted by this task, the students formed six groups of five to six students and began to address different sections

of the site. A review of the literature and the standards provided by Port Authority engineers and planners helped establish the anticipated levels and timing of sea level rise, and literature searches and case studies revealed what other ports around the world are doing to address these issues proactively.

The group started their first-hand investigation of site with a field trip to the Port Authority offices on Pier 1, where presentations by Port Authority staff provided them with background history, overall intentions, and opportunities and challenges to address: to work at the scale of a preliminary concept specific plan and come up with design ideas that factored in the economic, cultural, political, environmental, social, regulatory forces that were explicit and implicit in the design to be addressed.

Figure 1: The initial study area along San Francisco's Embarcadero.



The groups had to work together to formulate how to connect the discrete nodes and districts along the Embarcadero, a strip of real estate rich in entertainment and activities, that make it one of the city's most significant tourist destination. Their proposals were to create an integrated and continuous promenade, featuring development that served to strengthen, and complement existing and very successful activities, and enrich it with the introduction of new attractions to broaden the "draw".

Students groups completed the field investigation of the whole study area and of their discrete sections along the Embarcadero. They surveyed the area, collected photographs, observed activity, and got a sense of place of their respective sites. The site across from the AT&T Park to the south was home to emerging high-rise residential towers. The Ferry Building with its food and gift stores, public plazas to front and back, the hustle and bustle of the ferries is a strong popular node. The Exploratorium on Pier 15 provided cues for complementary additions, and Pier 33, with the ferry to Alcatraz, was a highly energized and populated destination which deserved a careful redesign and better integration with its surroundings. Along the waterfront there were areas and entire piers dedicated to parking that could provide the community with a more livable and walkable waterfront, and the Port Authority and city with important revenue.

After a SWOT analysis of the study area and a specific assessment of the challenges and opportunities of their specific sections, the students went on to investigate case studies and start developing their visions and concepts. The seven group propos-

als featured numerous ideas within a redevelopment context resilient to sea-level rise. These ideas included: stronger linkages between both sides of the Embarcadero Boulevard; increased mixed-use, residential, retail, and entertainment uses along the waterfront; a sea-wall with berms and a raised walkway and pocket parks along the Embarcadero; an air gondola connecting the piers to the Coit Tower; an amusement pier and a Ferris wheel; a "boatel"; rooftop promenades; an expansion of the Exploratorium; a redesigned plaza and a floating stage behind the Terminal Building; restoration habitat piers; floating dendritic piers for community events and gardens; a sinuous boardwalk on top of a seawall creating a protective area for paddle boats; interactive parks and new beaches.

The student work culminated in a presentation to the client and other guests at Cal Poly, who were impressed by the students' range of creative and innovative designs. So much so that the Port Authority exhibited large format posters depicting all six proposals at their headquarter's public lobby in Pier for close to three months. It was a satisfying conclusion to a community-embedded project that promoted the understanding of the urban design process through real-life situation, and revealed to the students just how much impact their work could have on this beautiful and important site. And no doubt, for all involved, a visit to the Embarcadero will forever now be framed by the ideas and possibilities that were envisioned in these designs.

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Figure 2: Example of a concept diagram for one of the sectors, by E. Huang, E. Gomes, E. Shimanuki, M. Spector & R. Browsers.

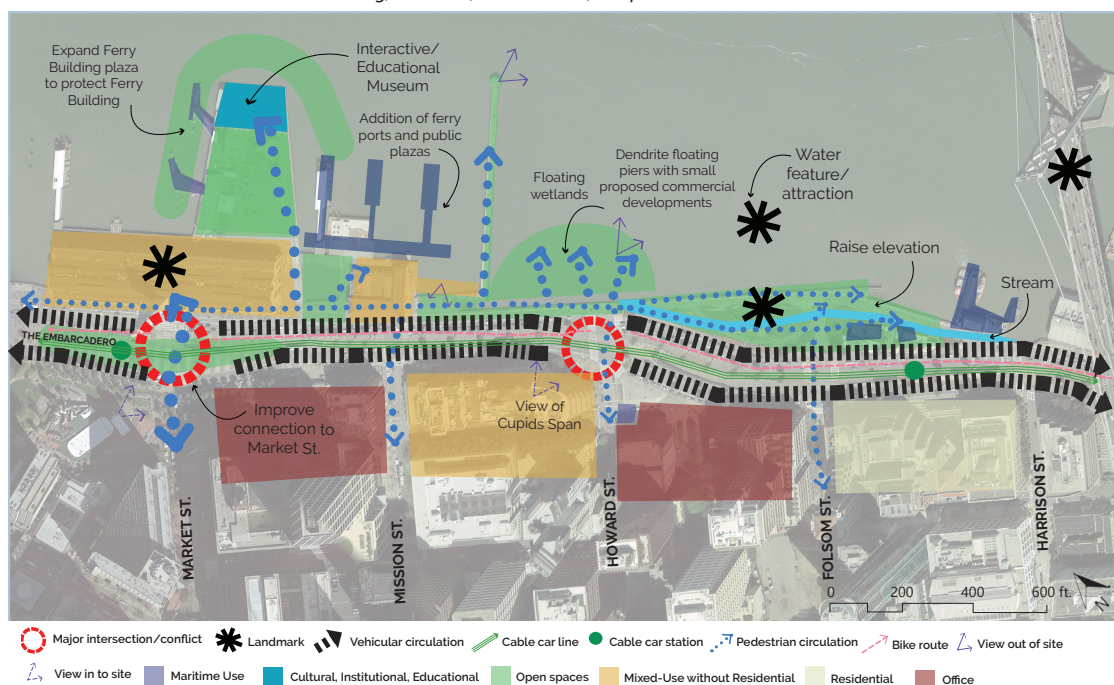


Figure 3: Sector proposal by E. Huang, E. Gomes, E. Shimanuki, M. Spector & R. Browers. Includes: public plazas, an amphitheatre, a floating stage and new piers behind the Terminal Building; floating dendritic piers; and a redesigned Rincon

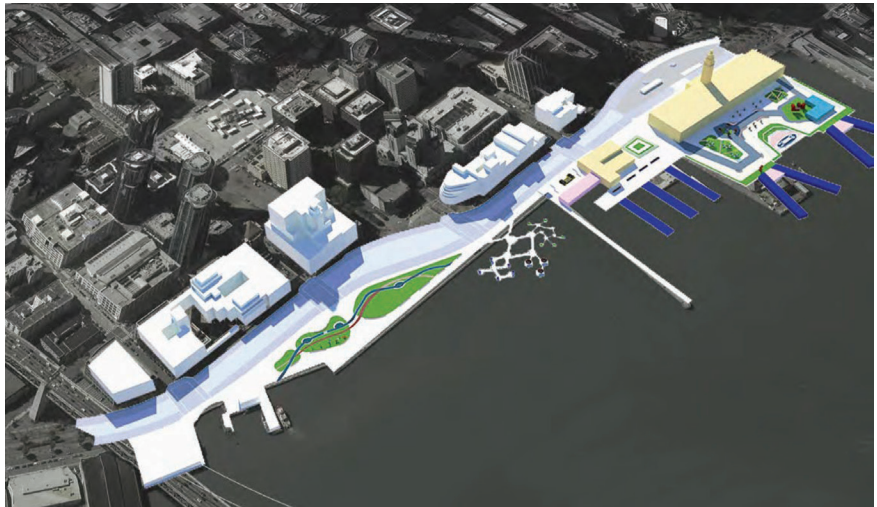


Figure 4: Sector proposal by K. Ferguson, E. Gatela, M. Gramajo, A. Herrington, I. McCarville & J. Setterlund. Includes: maritime museum, amphitheatre, incubators, leasable spaces, rooftop gardens, a tech campus, area for kayaking and floating barges, new mixed use buildings, and a Fire Department emergency pier.

Figure 5: Sector proposal by C. Bender, M. Hunstein, M. Rupard, E. Sugiyama & L. Traffenstedt. Includes a pier with a complex for the arts with an education center, a library, and a performance center, an observation tower and a beach park; piers with commercial development and rooftop gardens, and a seawall with a meandering boardwalk.

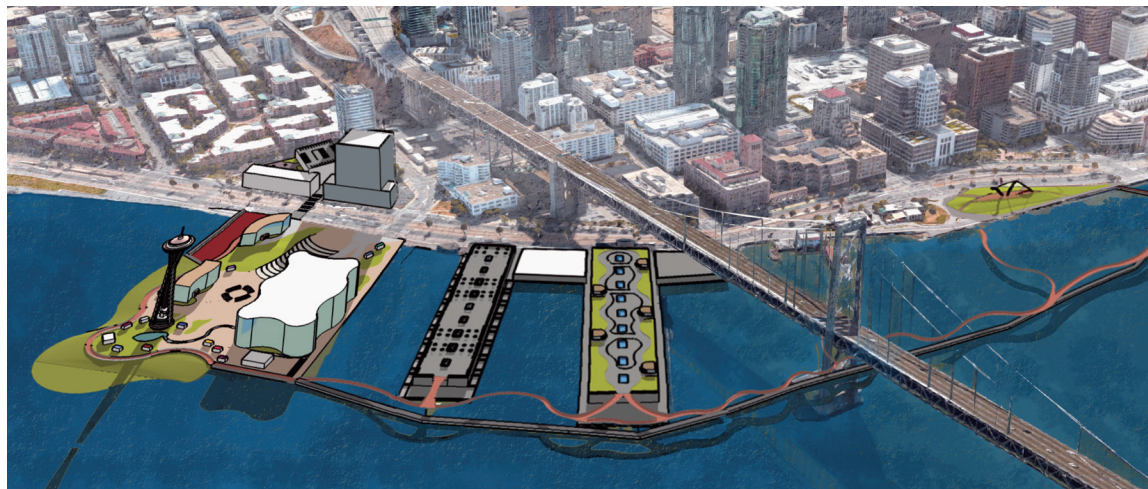
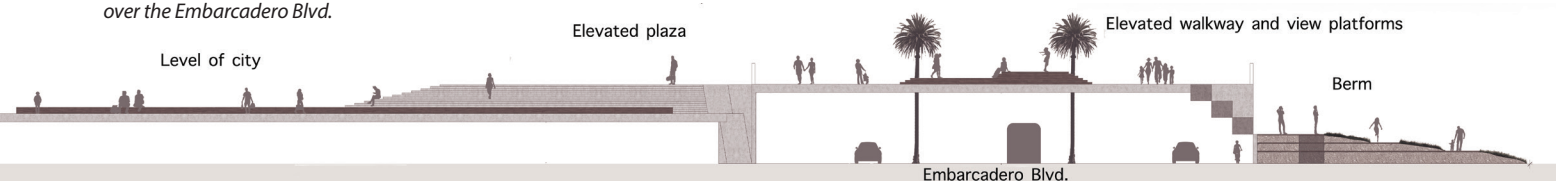


Figure 6: Sector proposal by C. Chen, A. Duran, E. Escher, A. Khaw & E. Rudger. Includes an area with oysters for bioremediation, a maritime education center, and an elevated walkway with parks over the Embarcadero Blvd.



Envisioning a Future for Dinuba: Revitalizing Downtown and the Railroad Corridor

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During the Spring Quarter 2018, a graduate and an undergraduate studio run by Hemalata Dandekar and Vicente del Rio, respectively, collaborated with Dinuba, a small town in California's Central Valley. Responding to a request from the city manager, the students were charged with envisioning how to redesign and revitalize the city's downtown and the abutting under-developed and under-utilized railroad corridor.

Reflecting Cal Poly's learn-by-doing philosophy and CRP's pedagogy, during the ten-week period of Spring 2018, two studio classes, graduate studio CRP 553 Project Planning Lab and undergraduate studio CRP 203 Urban Design II collaborated with the City of Dinuba, California to develop concept visions for the city's downtown and adjacent railroad corridor. These studios, part of the graduate and undergraduate core curriculum, are offered in the MCRP program's first year, and the last quarter of the BSCR program's second year respectively. The graduate studio traditionally engages in client-driven projects sponsored by a local jurisdiction or a private party. The objective is to envision development possibilities, design concepts, and implementation strategies at the scale of a specific plan. The undergraduate studio generally does not have external sponsorship or a real-world client.

Having received a request from the City of Dinuba to contribute with the city's efforts in re-envisioning the downtown, the instructor/authors of this article decided to have the graduate and undergraduate studios collaborate by assigning complementary projects to the two groups which were differentiated in substantive content and complexity, and addressed city blocks that were adjacent but separated by the railroad tracks that traverse and divide the city north-west to southeast. (Figure 1).

Located about 180 miles north of Los Angeles and 200 miles south of San Francisco, the City of Dinuba encompasses approximately 3.42 square miles of mostly flat land in California's San Joaquin Valley, at the northwestern corner of Tulare County. Tulare County is the second-leading producer of agricultural commodities in the United States, and raisins are a major product in the Dinuba area where 40 percent of the world's raisins are grown and dried. Not surprisingly, most residents are employed in farming or agriculture-related activities, and the city's top five employers are Ruiz Foods (America's leading frozen Mexican

food manufacturer), the School District, a tree farm, Walmart, and a Best Buy distribution center. From 1990 to 2010 Dinuba's population doubled to 21,453 of which 87% are Hispanic or Latino; the median family income is \$38,008 and the poverty rate is 27%. The largest neighboring cities are Fresno to the north and Visalia to the south. The biggest tourist attractions, nationally famed Kings Canyon and Sequoia National Parks are nearby.

Figure 1: Dinuba Downtown and the graduate and undergraduate study and project areas.





Figure 2: A view of L Street where Dinuba's downtown features new streetscaping. Most of the downtown area, however, is underutilized, has few social and economic attractions, and displays poorly maintained alleys and overall poor connectivity.

But, being slightly off the main entries to these national draws Dinuba has not captured much of the tourists traffic to these destinations.

Incorporated in 1906, Dinuba has maintained its small-town charm. Its downtown—covering only a couple of blocks—is very walkable with several attractive historical buildings. Its community is very engaged, and appreciates the downtown. Due to its physical characteristics, social composition, location, and good regional connectivity, the City of Dinuba has a great potential to, on the one hand, advance the development of its residential housing stock and, on the other, to become a portal to Kings Canyon and Sequoia National Parks. The City of Dinuba is working hard on a series of strategic redevelopment and urban design efforts, particularly aiming at community development, revitalization of the downtown and the abutting railroad corridor, improving accessibility, and implementing actions to forge a strong regional identity.

The student work developed in the two studios contributed to this city effort by envisioning sustainable, walkable, and socially and culturally appropriate concept development plans and projects that were responsive to the city's General Plan and to local needs and opportunities. Their ten-week effort culminated in the development of pre-planning insights, development strategies, and urban design concepts, for the City of Dinuba. The graduate studio focused on Dinuba's downtown core, while the undergraduate studio focused on the railroad corridor abutting and parallel to the downtown, but separated from it by the railroad tracks. The students went on a field trip to the city following an initial week-long in-class investigation of existing information, data, plans and land-use regulations applicable to Dinuba in general and in particular to their study areas. The graduate



Figure 3: Partial view of Dinuba's railroad corridor showing vacant and underutilized properties. The undergraduate studio focused on the redevelopment of this corridor, repurposing existing buildings and introducing new attractions and mixed-use development.

class spent two days in the city meeting with city officials, conducting meetings with several stakeholders at the Dinuba Vocational Center, scoping the city through a windshield survey, and studying several aspects of the downtown by walking, observing, and completing interviews and surveys to assess local development patterns and wishes. The undergraduate class spent one day conducting a windshield survey of the downtown area and an on-foot survey of development patterns in the railroad corridor, and its relationships to the rest of the city.

The Graduate Studio Challenge

The graduate studio, conducted by Dr. Hemalata Dandekar, included sixteen MCRP students¹ and concentrated on planning for Dinuba's downtown, an area of approximately 54 acres containing the historical core and abutting the railway. The early city grid which related to the railroad is a result of late 1800s sub-division for a settlement of families engaged in farming. It prevails in the downtown and railroad district. The historic architecture that has fortunately remained intact in the downtown provides a testimony to the city's origins as an agriculture outpost and a rail stop. The newer grid morphology of Dinuba is angled from the old and presents a challenge to make the downtown accessible to passing traffic. The challenge for the students was to plan for a vibrant and walkable downtown featuring a mix of residential, retail, office, institutional and open space uses.

The studio work was performed in three general phases: 1) assessment of context and problem (including background re-

¹ The MCRP students in this studio were: Erik Anderson, Miles Barker, Devin Ciriaco, Kent Harrison, Edgar Hernandez, Sarah Howland, Madilyn Jacobsen, Justin Klaparda, Erin Kraft, June Lai, Cara Meche, Mark Pasanen, Leeza Segal, Dustin Stiffler, Elizabeth Yee, and Qijun Zeng.

search, on-site lot-by-lot and surveys, and interviews with various stakeholders and community representatives) and SWOT analysis; 2) identification of four zones for specific planning and design thematic concepts; and 3) development of concept vision plans for the zones. Each of the proposed four thematic zones has its own identity and provides a unique set of services.

The Downtown Business District (Zone 1) includes a tree lined entry to the downtown from the east, strengthens existing businesses and offers several new housing types. The Civic Zone (Zone 2) concentrates public/civic functions and services around a traditional city square featuring a new city hall. Zone 3 is the Downtown Main Street where a contiguous façade of upgraded, adaptively reused, or infilled buildings and activated alleyways augment Dinuba's small town charm. Finally, the Entertainment Plaza (Zone 4) expands recreation and entertainment opportunities and offers several public plazas.

The resulting plan includes proposals for land uses, circulation, streetscaping, signage, public spaces, design guidelines and façade renovations, and activated alleyways, resulting in a cohesive urban design concept and delineating a phased implementation strategy. The plan integrates with the undergraduate studio proposal for the Railroad District, and the changes and new attractions proposed would effectively strengthen Downtown Dinuba's identity and functional role, transforming it into a local and regional destination. The final concepts and proposals were presented by the students as a powerpoint illustrated presentation and a series of posters at a public session in Dinuba. The work was documented in the form of a final report which has been submitted to the city.



MCRP - Downtown: The Business District - Different housing types in redeveloped blocks with Dinuba's iconic water tower as backdrop (above), and a new corner plaza as a gateway to the Arts Corridor (below).

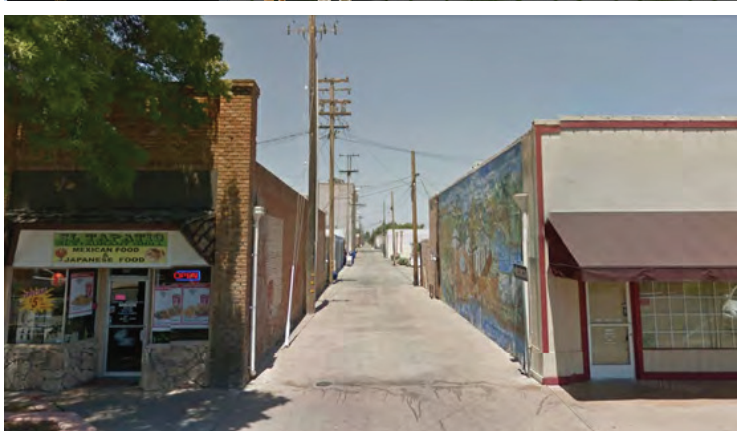


MCRP - Downtown: The central plaza in the proposed Civic Square Zone, showing the existing Vocation Center at the top left corner of this image.

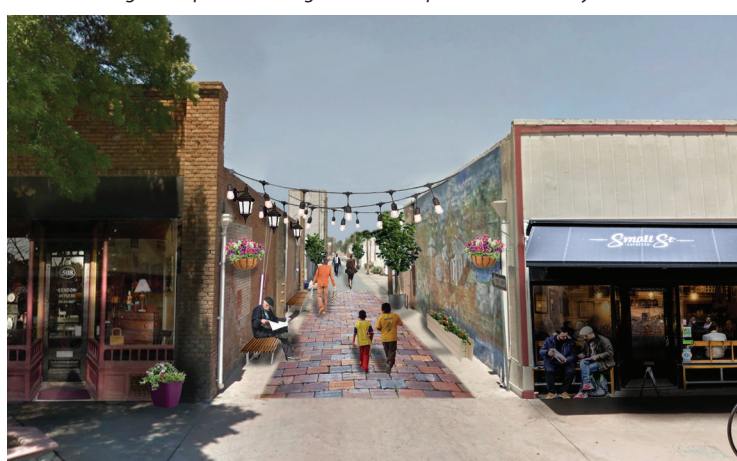




MCRP - Downtown: A vacant lot is redeveloped as a linkage and animated with food trucks and landscaping, at the Civic Square Zone.



MCRP - Downtown: The poorly maintained network of downtown alleys is redesigned to provide stronger and active pedestrian and bicycle connections.



The Undergraduate Studio Challenge

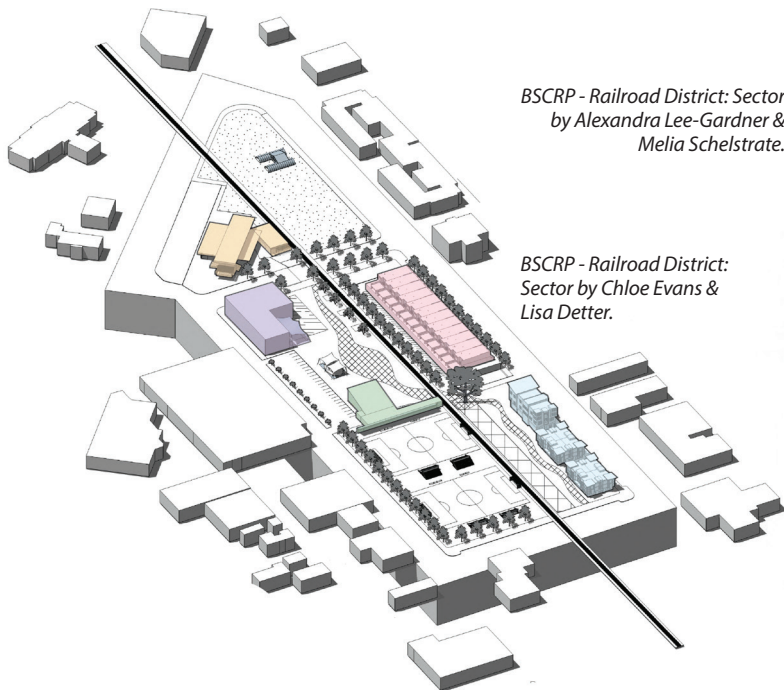
The second-year undergraduate studio involved with the Dinuba effort included two cohorts with a total of 25 students, and instructors Dr. Vicente del Rio and Beate Von Bischofink.² The teams focused on redevelopment concepts for discrete sections of the railroad corridor paralleling Dinuba's downtown and the railroad tract. Totalling approximately 54-acres, the area includes several underutilized and vacant buildings and parcels, and the railway is only modestly utilized, featuring one freight train a day. It represents a strong physical barrier as well as a visual and economic challenge for Dinuba. City officials wanted the studio to envision its redevelopment as a Railroad District.

The project's first phase included in-class studies of available on-line information, city plans and regulations as well as a one-day trip for windshield studies of the whole downtown and on-site surveys of usage, circulation, and development conditions in the corridor. An assessment of challenges and opportunities and a study of planning precedents in other cities led the class to adopt the following development principles: create a unique, themed district; use the railroad ROW as an opportunity for connectivity; encourage mixed uses, public uses, parks, and open spaces; enhance residential opportunities and mixed typologies particularly for the work force; provide for recreational and leisure opportunities; and reutilize and add value to the historical/industrial architecture.

In the next phase, the district was sub-divided into two to three-block sectors and distributed to twelve student teams who came up with redevelopment and design concepts as well as preliminary programs for the short and long terms. The proposals were careful in integrating the Railroad District to downtown, and in facilitating smooth visual and physical transitions. The proposals included ideas such as: a linear park along the railway ROW featuring old train wagons as restaurants and bike paths continuing to the surrounding areas of Dinuba and linking to other towns in the region; traffic calming; vertical mixed-use; town-homes and apartments for varied income groups; a library; a community center; a museum; an incubator for small businesses linked to Fresno State University; community gardens; and recreational and sports facilities for the community. The teams organized and edited all phases of their work and the final proposal into posters and a final report that were submitted to the city.

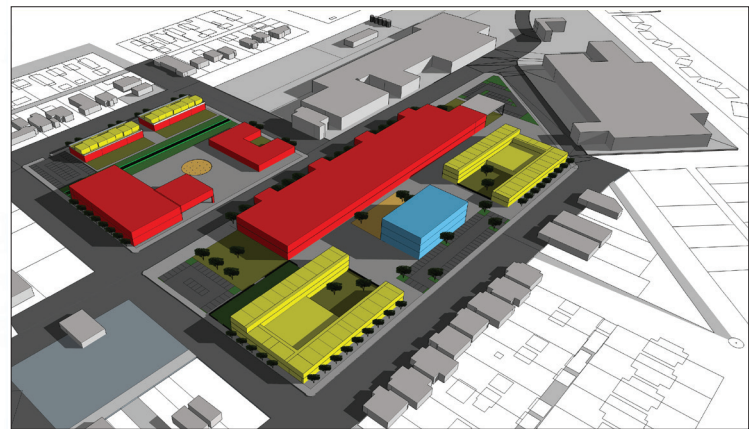
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¹ The BSCR students in this studio were: Adam Wasowicz, Alexandra Lee-Gardner, Brendan Norton, Camille Frace, Camille Kelem, Chloe Evans, Chris Cortez, Chris Dedo, Clarissa Flores, Elizabeth Farin, Erik Valentine, Jack Balfour, Jeremiah Rogers, Kyle Courtney, Lane Sutherland, Lisa Detter, Madison Driscoll, Melia Schelstrate, Nick Johnston, Oscar Gake, Paul Chytla-Hinze, Shayna Gropen, Sheridan Nansen, Tessa Houseman, and Valeria Diaz.

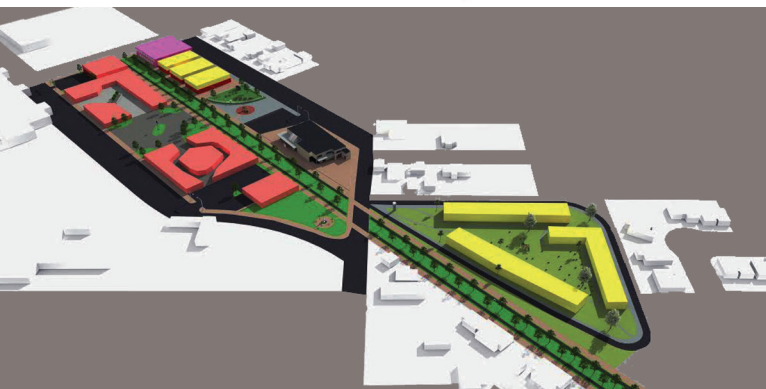


*BSCR - Railroad District: Sector
by Alexandra Lee-Gardner &
Melia Schelstrate.*

*BSCR - Railroad District:
Sector by Chloe Evans &
Lisa Detter.*



*BSCR - Railroad District: Gateway to railroad
ROW linear park, by Chris Dedo & Eric Valentin .*



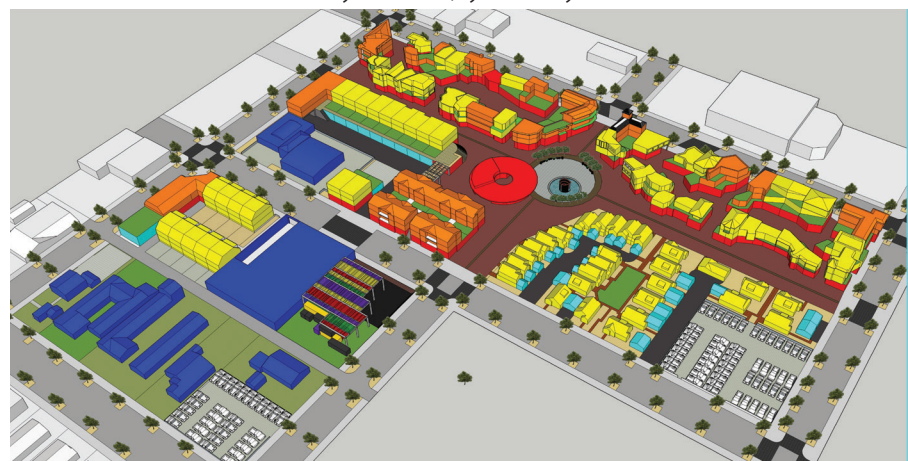
BSCR - Railroad District: Sector by Brendan Norton & Madison Driscoll.



*BSCR - Railroad District: Detail of
Clarissa Flores & Nick Johnston design.*

*BSCR - Railroad District: Sector by
Jack Bafour & Valeria Diaz.*

BSCR - Railroad District: Sector by Oscar Gake, Kyle Courtney & Adam Wasowicz.





by **Blaze Skyra**

A Cal Poly alumni, Blaze always enjoyed art and design. After receiving his BSCR (2002) worked with the M-Group in Mountain View, CA where he got involved in all sorts of plans and projects. He now lives in Ericeira, Portugal. Blaze is an accomplished artist with a long list of clients, including the clothing company Patagonia. His work featured in FOCUS VII (2010; cover illustration) and VIII (2011; cartoon corner).

FOCUS 15

International



Studying Urbanism in Copenhagen

Laura Traffenstedt

Senior, BSCR, City and Regional Planning, Cal Poly.

Justin Wong

Senior, BSCR, City and Regional Planning, Cal Poly.

Travelling and learning from other places, cultures, and experiences is a fundamental aspect of education. Copenhagen, Denmark's progressive capital and one of Europe's most livable cities, has long been a laboratory for sustainable planning and design ideas. Seniors Laura Traffenstedt and Justin Wong comment on their experiences studying urbanism in Copenhagen at the Danish Institute for Study Abroad - DIS.

Laura's Experience

Following my junior year in the City and Regional Planning Department at Cal Poly San Luis Obispo, I registered for a month-long summer program with the DIS in Copenhagen, Denmark. I always knew I would study abroad, but I was elated when I found a course related to my major. Copenhagen, a city that was entirely off my radar before, became my dream city; it has been implementing essential urban design concepts and techniques that made it my own City Planner's heaven.

At the DIS I took Bicycle Urbanism, a class overall that looked at the best ways a city can encourage and accommodate bicycle traffic in the present and future. We used Copenhagen as our primary case study and examined how the city has been integrating bicycling into urban planning and design. The course focused on the hardware and software of creating a bike-friendly community while looking into the spatial components of creating a bikable city, effects of bike use on health and environment, policies for developing bicycle infrastructure and programs, and best practices in bicycle facility design and implementation.

The course was set up so we would have lectures in the mornings, and in the afternoon, our professors, Josh and Bettina, would take us on a bike ride in the city to show us how these bicycle policies and plans were implemented in Copenhagen. We were also able to see that they worked. Jan Gehl, a Danish architect and urban design consultant, focused his career on improving urban-life and integrates humanity into urban design. It was easy to see the human-focused design elements and to see that the city was made to human scale.

During the course, we took a week study tour to the Netherlands to compare the biking techniques and use of public spaces between the two countries. We visited Amsterdam, Rotterdam, Utrecht, and Houten during our five days in the Neth-



Figure 1: Laura with her classmates during a field trip pose at Museumplein, a famous public space in Amsterdam, Netherlands.

Figure 2: Public spaces in Copenhagen, Denmark are great examples of human scale and social settings.



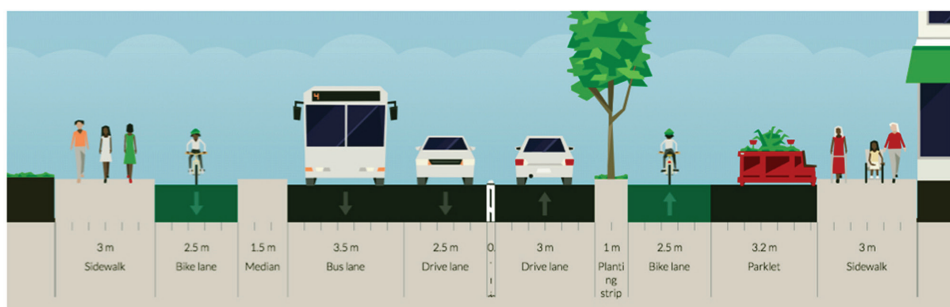


Figure 3: Proposed section for the redesign of Massachusetts Ave focused on MIT's campus.

Figure 4: Laura "learning by doing" while biking in Copenhagen, Denmark.

erlands. The main difference between the biking in the Netherlands and Denmark was that the Netherlands were much more free-flowing which made the bike ride more stressful. Denmark focused on safety and order. Biking there allowed me to clear my mind and enjoy my surroundings. My commutes were more peaceful and low stress which is what I would want commuting to class or work every day in the US as well.

At the end of my time in Copenhagen, our class was tasked with redesigning certain streets in Cambridge, Massachusetts using the techniques and theories explored in the course. My group redesigned Massachusetts Ave and mainly focused on the section of the street that splits MIT's campus in half. Not only was it necessary for us to create a more cohesive campus feel to this block, but we used techniques that would also make it more pedestrian and bike friendly. Our first technique was to repave the street to red brick to match to match the color of the bricks already in place on MIT's campus and seen throughout the sidewalks of Cambridge. This is also used as a traffic slowing technique, making cars notice that they are in a pedestrian zone, and not just driving through another street.

The other significant techniques used were raising the pedestrian walkway as a sort of speed bump, and widening the bike lanes to 2.5 m (8.2 ft). The desired outcome MIT campus will have a stronger sense of togetherness, and more people will spend time in the area thanks to the addition of food trucks and seating. The traffic will be calmer in the area, and the widening and emphasis of safer bike lanes will encourage more people to bike in the area.

After spending a month studying Bicycle Urbanism, I fully realized the significance of the subject. Improving bicycle infrastructure can improve economic vitality, public health, social capital, environmental factors and so much more. This class and my time in Copenhagen strengthened my planning skills, and I feel so grateful for the experience to travel the world while learning what I am so passionate about.

Justin's Experience

I had the opportunity to spend the Fall Quarter of 2017 studying in Copenhagen, Denmark. Studying abroad has allowed me to gain a broader, more international perspective on urban planning and design, and provided the opportunity to meet many great people, eat amazing food, and experience Copenhagen's world-class bicycle infrastructure.

The program I attended was offered by the DIS, Danish Institute for Study Abroad. It is based in Copenhagen and consists of mostly American and Canadian students. However, there were also several European students who were studying at American schools. At DIS, I was in the Urban Design Studio core course with five more students, and it was an enjoyable and intimate way to learn different urban design principles.

Preparing for the trip

The preparation leading up to the trip and approving credit transfers was indeed time-consuming, and I certainly wished that I had started planning it much sooner than I did. In the beginning, I was on the fence on whether I wanted to study abroad or not. There was so much uncertainty associated with being in a new country and being around new people whom all spoke a different language. The anticipation leading up to the trip was nerve-racking, but also exciting. In the end, I couldn't be happier with my decision to go.

Homestay

My first week in Denmark was not smooth sailing as I had initially hoped since there were many things to adjust to in a short

period. My first challenge was figuring out how to get to and from class every day. Grocery shopping was also tricky, because everything was packaged differently, and all the food was labeled in Danish. Getting used to the fact that people around me spoke in Danish also took a little while to get used to.

My housing accommodations were quite comfortable. I lived, in a small home with a lovely Peruvian-Danish host family. My host mother was a Danish native and middle school math teacher. My host dad was a retired chef who moved to Denmark from Peru at around age 30. I also had two host siblings, Erling and Rose, who were both about my age. We also had a young family dog named Morpheus, who was always full of energy and ready to welcome me home.

Luckily, my host family was accommodating while I was transitioning to life in Denmark, and always made an effort to spend time with me. I was invited to many family events and parties, and I was treated like another member of the family. On some weekends we would cook together and my family would take me on short trips to smaller towns around Copenhagen to see less-known, local attractions. I believe that the homestay gave me a more prosperous and immersive cultural experience, allowing me to experience things that many students living in different settings would not have had the opportunity to.

Getting Around

My home was in a quiet suburb called Greve, about 40 minutes east of Copenhagen by train. The commute was long but enjoyable. The trains were comfortable and the service was frequent, making it very convenient to get to and from the city. My commute also gave me plenty of time to do some reading or get homework done on my way to the city. An additional perk of taking the train is that they allowed bikes on the trains at no additional cost, further shortening my commute to and from school.

Urban Design Studio

Every DIS student's schedule consisted of a 6-unit core course and several 3-unit supplemental courses. The Urban Design Studio core course consisted of four other students, including one other from Cal Poly's CRP department. The other three students had architecture or landscape architecture backgrounds, which diversified the expertise of the students in the class and allowed us to learn from each other.

Working in this studio was an interesting but challenging experience because Copenhagen was the first large city I had worked in. It introduced many new challenges that were not present in the types of projects we had been exposed to in our Cal Poly studios. Some of the challenges included considering



Figure 1: Justin at the top of Copenhagen's tallest church spire.

Copenhagen's extensive public transportation network, higher densities, existing urban spaces, and especially the community's love for bicycling. Because the city's streetscape, population, and overall preferences were so different, I had very different design goals and objectives in mind.

Our uniquely small class size gave us the opportunity to work very closely with our instructor Rasmus Frisk, an architect and urban designer. Some days, before starting the studio work, he gave short presentations on drawing, project representation, and other graphic communication techniques. On other days, we would go on mini mobile lectures throughout the city to see different urban design projects. On the studio days, Rasmus always made sure to save enough time to work with each of us and provide feedback tailored to our individual needs.

The kind of work we completed in this studio was relatively very similar to the work we completed back at Cal Poly. We did two urban design projects: a redesign of a small square in the central city, and a large master plan in the northern harbor. I really appreciated that in this studio we had the freedom to choose how we wanted to present our work. Our project had no 'minimum requirements', which meant that we could present our work in any format we wanted. For example, we could entirely omit our section drawings as long as we showed the side dimensions in another way, such as an isometric drawing. As long as our audience was able to understand our work and we were able to stand behind our choices, we had the freedom to do almost anything.

A particularity about this studio was that we were all required to submit our own work. While I understand the advantages of that, particularly for the grading process, I also believe that there is a lot to learn through collaboration on projects.

In addition to the regular day trips that our class went on, our core course had a week-long study tour to Germany and Switzerland. Conducted by the Architecture and Design Department this tour included students from the Urban Design, Architecture, Studio Art, and Furniture Design Programs. We visited unique architectural pearls, art museums, repurposed industrial facilities, designer furniture factories and other unique urban spaces.

Transportation in Urban Europe

Another class that I took was called Transportation in Europe. At first, I wasn't sure if I would learn anything by taking this it because I had already taken a basic transportation class back at Cal Poly, and this class was geared towards non-urban planning students. However, what I learned far exceeded my expectations. Because not all the students in this class were planning majors, each had different perspectives on transportation; they had very diverse educational backgrounds, including: neuroscience, psychology, architecture, and urban planning. Although some of the material may have been similar to the Cal Poly curriculum i, there was a lot to learn from other students.

Compared to the CRP transportation class, this class at DIS had a much heavier focus on public transportation and active transportation modes. We were also able to go out and physically ride each transportation mode to make observations about what worked and what didn't work well. Our final project was to create a 'serious game' about transportation and present it at the end of year showcase. This was a very educational experience because it made us think about how to communicate different planning issues and ideas in a way that is simple enough for the community to understand.

Final Thoughts

I had an incredible experience in Copenhagen. Being immersed in a foreign culture was terrifying but life-changing. Not only did I get a chance to spend a semester in a different country, but I was able to learn about differences in planing, transit infrastructure, culture, and teaching styles. Having the opportunity to live and travel in Europe was amazing. I loved the experience and I can't wait for my next adventure.

• • •



Figure 2: Justin's project, showing a collage of the anticipated uses of an enclosed area located adjacent to the canal running through the site.

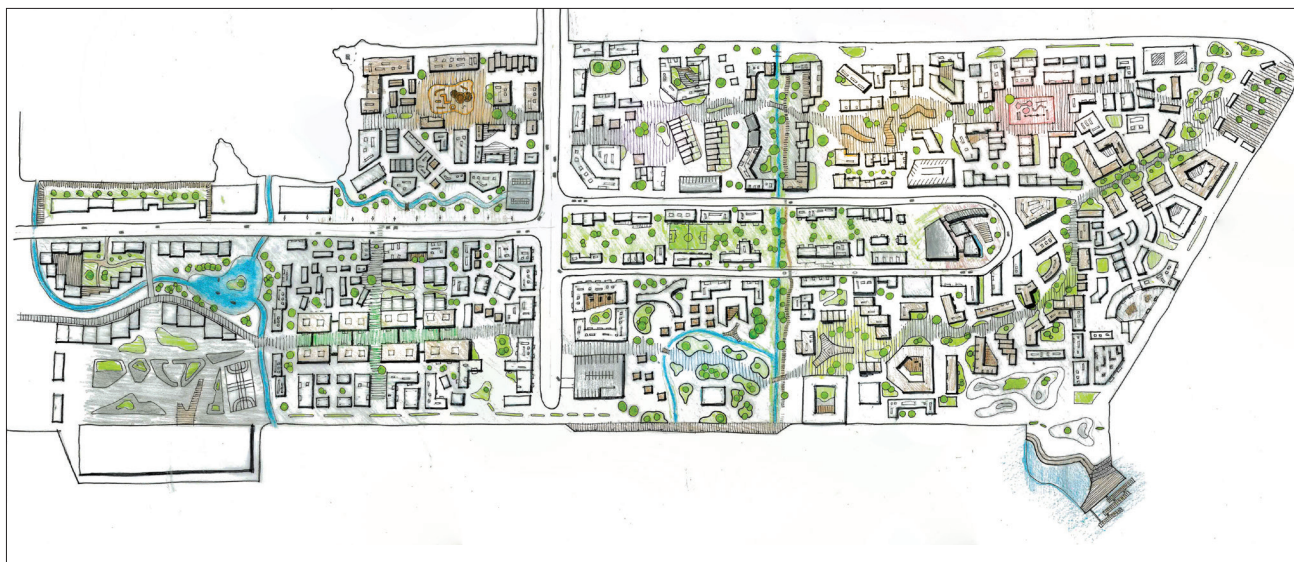


Figure 3: Plan view of Justin's proposed masterplan development.

Urban Design Workshop in Lisbon - Summer 2018

Vicente del Rio

PhD, Professor, City and Regional Planning, Cal Poly.
Visiting Professor, Universidade Lusofona de Lisboa.

Diogo Mateus

PhD, Professor and Coordinator, Urbanism Program,
Universidade Lusofona de Lisboa.

The CRP Department has a long established relationship with the Departamento de Urbanismo at the Universidade Lusofona, Lisbon, and over the years there has been various short-term programs between the institutions.¹ In the Summer 2018, the authors coordinated a two-week-long urban design workshop that included study visits to Lisbon neighborhoods and the development of urban design ideas for an area in the Alvalade neighborhood.

From July 16 to 27, 2018 a group of eight CRP students (six BCRP and two MCRP) participated in an urban design workshop at the Universidade Lusofona de Humanidades e Tecnologias, in Lisbon. They were joined by two architecture seniors from Germany and one from France, and a young engineer from a planning department in a small town in Brazil. Promoted by Lusofona's school of architecture and urbanism, the workshop, was coordinated and taught by professors Diogo Mateus and Vicente del Rio, with the participation of professors Mario Moutinho (Lusofona's rector and founder of the urbanism degrees), Pedro Ressano Garcia (director of the school of architecture and urbanism), and Carlos Smaniotto Costa (Center for Interdisciplinary Studies in Education and Development).

Titled *Walk-Experience-Design*, the workshop focused on walking as a method to understand cities and as a planning/design goal to make them livable and sustainable. The workshop was based on two theoretical foundations. The first, Walter Benjamin's interpretation of the concept of the *flâneur* as a wanderer who enjoys the anonymity of being embraced by the city and its crowds, as a method of analysis of the urban condition. Based on this concept, Vicente del Rio proposed seven urban design qualities that support the *flâneur's* joy of walking and experiencing urban spaces.² The second was the C3 Places, a project on inclusive places run by Carlos Smaniotto Costa and Diogo Mateus and sponsored by the European Union.

During the first days of the workshop, the students were taken to several famous Lisbon areas, and tasked with spending a couple of hours in each of them, walking, observing, and ana-

lyzing their urban qualities. The areas were the Alfama, Baixa, Rossio, Bairro Alto, Oriente, and Alvalade, each representing different historical epochs and planning/design paradigms. The students were also briefed by Costa and Mateus on the methodology of place analysis adopted in the C3 Project. The next task was to perform a day-long study of a pre-determined area located in the Alvalade Freguesia or Parish, including a talk and a field visit with the freguesia's political representative and manager. Totalling approximately 63 acres and in an excellent location between three important avenues and a commuter train line and station, the project area is currently a hodge-podge of different epochs and urban design models, resulting in a disjointed, unattractive, and car-oriented environment.

The students were divided into four interdisciplinary and international teams who came up with imaginative and feasible short/long terms proposals for the area, including a redevelopment vision statement and three major goals, site plan diagrams, and design concepts. The teams presented their proposals at the university and the final products (powerpoints, posters, and reports) were offered to the Alvalade Freguesia as contribution to their planning efforts.³ The workshop success prompted Universidade Lusofona to offer it again in 2019.

Figure 1: A local area administrator and Diogo Mateus presenting to students during a visit to the project site.



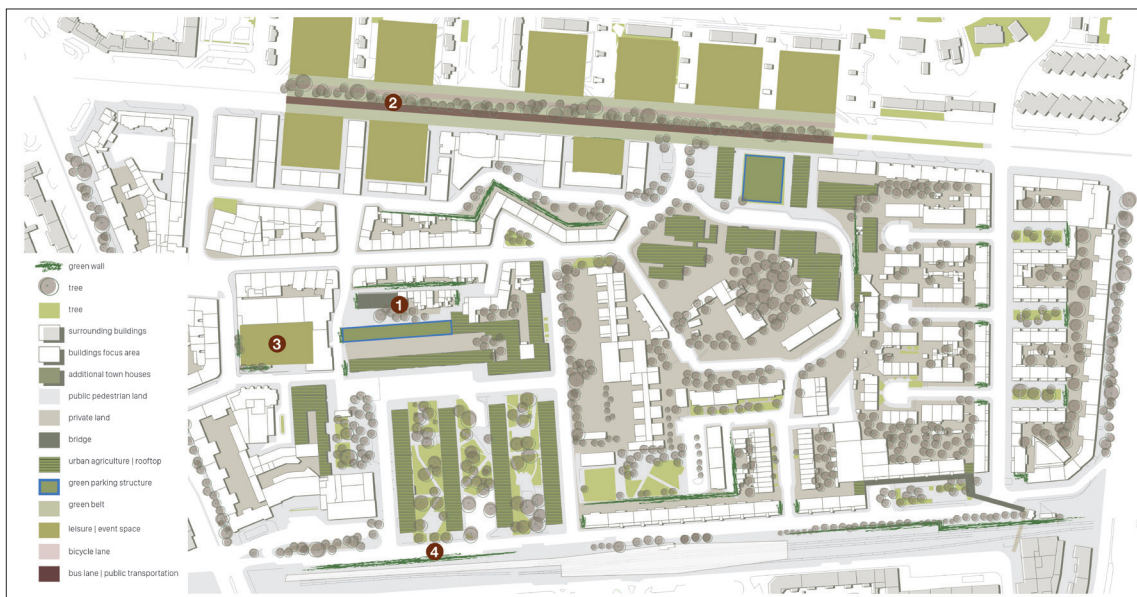
¹ See, for instance, del Rio, V. & Hahn, J. (2012). Lisbon: Between History and Modernity. *FOCUS* 9, 85-89.

² del Rio, V. (2015). Urbanity, the Flâneur, and the Visual Qualities of Urban Design. *FOCUS* 12, 66-72.

³ The student work from this workshop can be seen at: <https://www.dropbox.com/sh/80wg95y2rdcg9lb/AACyYImzYsEX1oaXoaijNLvBa?dl=0>



Figure 2: The project area in Alvalade, between three major avenues and a train/subway station. A hodge-podge of different epochs and urban design models since the late XIX Century.

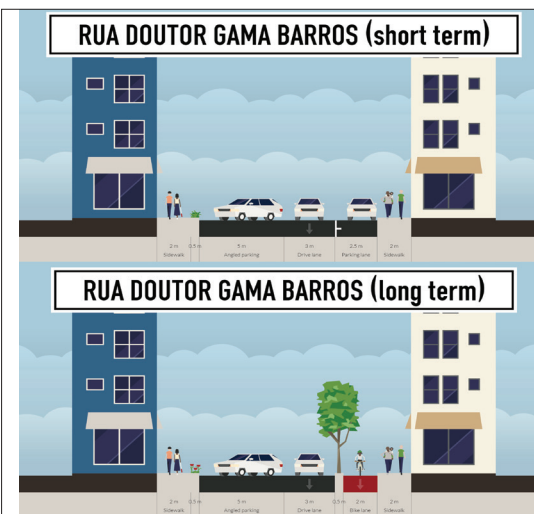


Figures 3 a, b & c: The site plan and two details from the proposal by Hannah Tesch, Kyle Ferguson, and Nishita Kandikuppa. Detail 1 shows a new structure with a community garden on top of an existing surface parking lot. Detail 3 shows the concept to revitalize an existing abandoned plaza.



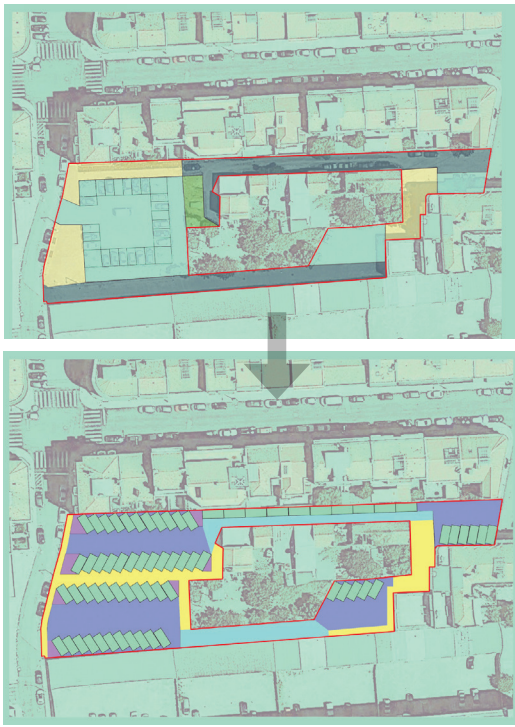


Figures 4 a & b: The partial site plan and a details from the proposal by Dewi Bleher, Jack Balfour and Oscar Gatke. Diverting a street for traffic calming allows a plaza, more comfortable sidewalks, and temporary parking in front of the local school.



Figures 5 a & b: The proposed circulation and the redesign of one of the streets, by Chris Cortez, Nick Johnston, and Amauri Ramos. Implementing traffic calming to increase walkability.

Figures 6 a, b & c: Before and after images showing the redesign of three spaces in Alvadade, by Miles Barker, Elizabeth Yee, Benjaminy Yip, and Ander Subiron Cedarry.



FOCUS 15

Spotlight



Conversations with Alumni

Ray Hashimoto

AICP; Bachelor of Science in City and Regional Planning, Cal Poly, 1981

Currently, I am a Principal at HMM Engineers, a San Jose based Land Use Planning, Civil Engineering, Landscape Architecture and Surveying Company. I have also had the honor of serving as the Chair of Cal Poly's City and Regional Planning Advisory Council (CiRPAC) for the past two years.

Over my 37-year career, I have managed to stay in love with my profession and enjoyed time in both the public and private sectors. My first job out of school was a Planning Intern position with the City of Palo Alto in the fall of 1981. I recall sitting in the Planning Department Lobby, waiting an hour for the chance to talk to the Planning Director and convince him that he should hire me as an intern. My experience in Palo Alto was invaluable in that I learned from the ground level all the tasks that went into the public planning office. From working at the Public Information Counter to preparing public notices and processing Architectural Review Board applications, my Cal Poly "learn by doing" education was extremely relevant as I was required to complete many tasks with "on the job" training. I spent 3 ½ educational years in Palo Alto.

My next stop was Planner II position with the City of San Jose in 1985. San Jose was quite a change from the City of Palo Alto. It was the "big city". During the mid-1980's the City was growing rapidly, the Downtown was beginning its transformation aided by redevelopment funds that help to build the Fairmont Hotel and the San Jose Arena. The North San Jose Industrial Park was also growing rapidly with companies like Cisco Systems, Sony and Hitachi Data Systems. Learning San Jose geographically was a challenge and learning the idiosyncrasies of City Hall was equally as challenging. I would estimate that it took at least a year to learn the geographic districts of the city and the same amount of time to learn the City Hall protocol. The most important lesson I learned at San Jose was that it paid dividends to take initiative and build your network of contacts within city hall to assist you in moving your projects through the review process. I spent almost 10 years at the City of San Jose, 5 of those years as a supervising Senior Planner, all in the implementation/current planning. The work was rewarding as I saw a great many of my projects approved and built in a relatively short period.



My move to the private sector occurred in 1994 with JM Consulting Group. I was swept up in the telecom wave that saw many telecommunication companies like GTE Mobilenet and Cellular One that were building new networks cell sites to serve the exploding demand for cellular telephones. JM Consulting provided real estate, entitlement and construction services. This work was interesting at first as we were charged with securing leases, entitlements and constructing of cellular antenna sites all over Central and Northern California. In the end, the static issues for every project (aesthetics and potential health concerns) made the work somewhat mundane after a couple of years. However, career-building skills that I learned with this job were: the importance of client care, project budgeting, construction issues, and most importantly creating a network planning profession contacts in many jurisdictions throughout the state.

In 1998 I joined HMM Engineers and spent one year there until I was recruited to be the Assistant Planning Official and Zoning Administrator back in Palo Alto. As it turned out, my return to the public sector taught me that I was no longer interested in being on the regulatory end of planning anymore. After one year back in Palo Alto I returned to HMM Engineers in 2000 and have been there ever since. I have been fortunate to be part of an ownership group at HMM and continue to provide entitlement consultation to our broad client base in the Bay Area.

There is no question that my education at Cal Poly opened career doors for me, gave me confidence, and provided me with a skill set to be successful. What I believe that you need to add to that skill set is the initiative to learn on the job and take on as many challenges that present themselves to you. Beyond that, personal communication and building a network of clients, design professionals, and agency staff is a must in our profession. I have maintained contact with many of my CRP classmates from 1981 who are an integral part of my professional network.

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Conversations with Alumni

Kevin Valente

AICP; Bachelor of Science in City and Regional Planning, Cal Poly, 2011

I remember the exact feeling I had when Vicente (FOCUS editor) asked me if I was interested in writing a piece for this alumni Spotlight section. I was so excited, I immediately responded yes and called my fiancé right away to tell her the news! I imagined my story and my picture in the annual publication and sharing my experiences with my fellow alumni. When Vicente shared the previous Spotlight entries with me, the doubt immediately set in. I haven't been doing any fantastic work or any exciting planning projects in faraway places and countries around the world. I have just been writing CEQA documents and doing contract planning in different jurisdictions. Would anyone really want to hear my story?



After spending some time reflecting on my career so far, I think my story and my experiences could provide students and young professionals with a glimpse of what I went through and perhaps provide them with some encouragement, just like I needed at the start. Although my career cannot be considered glamorous, I am becoming a very successful planner in my region. I have been managing countless projects through the planning process that actually get built and make a difference in their communities. So, here we go...

Before studying City Regional Planning at Cal Poly, I studied architecture at my high school in Stockton, California and at Cuesta College. Since I was a kid, I always knew I wanted to go to Cal Poly to become an architect. Having studied architecture for almost ten years, I never thought I would contemplate changing my major. However, after a 20-minute presentation from a Cal Poly planning professor in one of my architecture classes, I was hooked. When transferring to Cal Poly for architecture turned out to be more difficult than expected, I decided to apply to the City and Regional Planning Department.

As fate would have it, I was accepted, and so I began my planning journey. After years of studying architecture and knowing what to expect, I found myself trying to navigate a new campus and learning a brand-new curriculum. I remember sitting confused in CRP 212 listening to Professor Paul Wack while trying to understand the differences between the Planning Commis-

sion, City Council, and Board of Supervisors. I sat there questioning my decision to step away from architecture to learn something new. Nevertheless, I focused and worked as hard as I could, asked questions, and made friends – some I keep in touch with to this day. The classes and material started to become easier, and I began to thrive.

The decision to transfer into CRP would later prove to have been one of the best choices I have ever made, but not before I confronted some very tough obstacles in my personal life. I had been successful in my design labs,

but with what I was going through in my personal life by losing people close to me, my focus and grades began to slip. With my back against the wall and facing dire outcomes, I reached out to Professors Kelly Main and Zeljka Howard for guidance. With their help, as well as Professor Vicente del Rio's, we devised a plan to get me back on the right track. Zeljka's fourth year planning lab, her Planning Boot Camp as she liked to call it, focused me, and with her assistance, I was able to get an internship at the San Luis Obispo County Planning Department. Through the support of my professors, I graduated with a Bachelor's Degree in City and Regional Planning in the Spring of 2011.

Degree in hand, I finally felt accomplished. Little did I know that the hard part, finding a job, was on its way. I moved back home to Stockton, California and applied to jobs in every city I could think of. Yet, a few months after graduation, I found myself still working at the same restaurant I did in high school, without a single interview to speak of. Discouraged, I started rethinking the choices I had made and wondered if my planning degree would ever be put to use. I seemed stuck until December of 2012, when I met someone who decided to take it upon herself to help me refresh my resume, find job opportunities, and really make it her mission to get me out of the restaurant.

Soon, I started receiving responses and requests for interviews. Oddly enough, I even had an interview with an architecture firm. I had been working on some hangar remodelling plans for a family friend when an architect saw my plans and wanted to meet me, though they were not hiring at the time. Not long after, I received a call from a company in Sacramento that I

had submitted my resume to about three months earlier. I had applied for an affordable housing position with them even though I didn't have much affordable housing experience – it was that special someone's idea. Although they decided to hire someone else for that position, they had kept my resume on file for when they needed a planner. I remember feeling very different going into this interview than to my prior interviews. The two people interviewing me were both Cal Poly alumni, and it felt like we just talked about how much we all loved San Luis Obispo for thirty minutes. About twenty minutes later on my way home to Stockton, they called to offer me the job. They also commented on my enthusiastic attitude toward the planning profession and my level of excitement during the interview – again, it was that special someone's idea to let my excitement about being a planner show. I know what you are thinking... I sure owe her a lot, and you are right – Amy and I are getting married in September 2018!

So, in December 2013, my planning career finally began with Raney Planning and Management, Inc., a full-service consulting firm established in 1999 that provide environmental, planning, and housing consulting services to public and private sector clients. In January 2003 the firm merged with Laurin Associates, a firm that provided pre-development financial feasibility and policy analysis for cities, counties, and private developers. Complementing Raney's services, the Laurin Associates Division offers affordable housing and community development consulting services.

Raney's full range of services includes: contract planning; project management; environmental consulting, including California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documentation; air quality studies; housing market studies; grant applications, administration, and implementation; tax-credit, tax-exempt bond, and state bond applications; housing and community development studies; residential relocation plans and implementation; housing rehabilitation program management; first-time homebuyer program management; housing elements; labor standards compliance; annual monitoring for HOME-assisted rental projects; and other municipal-related planning services.

Applying the knowledge and skills I gained from Cal Poly and its learn-by-doing approach, I jumped into preparing environmental documents for several cities in northern California. During my first year with Raney, I always remembered Professor Chris Clark's teaching: "You will learn more about the planning profession in the first three years of your career than what you will learn throughout the rest of it." That was such a bold statement, but he was so right!

Working at Raney as a planning consultant gave me such an incredible opportunity to experience the planning profession on

every level. I quickly became very knowledgeable with CEQA and NEPA projects both as a consultant and as a contract planner for a small rural community in Yuba County. Through a variety of projects, I have been gaining experience in current and long-range planning at both the private and the public sectors. I have written countless EIRs and Initial Studies for many different jurisdictions (rural, urban, and coastal), a comprehensive update to a Zoning Code, as well as long-range planning documents, including a Bike and Pedestrian Master Plan, a Downtown Corridor Improvement Plan, Community Design Standards, a Housing Element, and Climate Action Plans.

My current planning duties for several different jurisdictions range from working at the public counter, reviewing business license applications, design review, building permit plan checks, preparing staff reports, managing planning projects, presenting to Planning Commission, City Council, and Board of Supervisors, and most recently processing all cannabis applications for a major northern California city. I have also been serving as the contract Planning Director for a northern California city in Sutter County since December 2017. Furthermore, with the support and encouragement from my supervisors and colleagues at Raney, I recently passed the AICP exam.

As I mentioned, I may not work on glamorous and innovative planning projects, but I do get to manage projects through the planning process that improve the communities I work in, including a public charter elementary school for an underprivileged neighborhood, additional single-family housing in a community that desperately needs more housing choices, low-income farmworker housing, habitat for humanity and senior living projects, a new sheriff station to better serve a rural community, comprehensive Zoning Code updates to implement new State legislation and General Plans, and the preparation and adoption of a Housing Element to allow a city to pursue much-needed grant funding.

I often think about my experiences at Cal Poly and how that curriculum and all the wonderful professors in that program have given me the education and tools to succeed in the planning profession. I love being a planner, and I love contributing to better the communities I work in and how each project in every jurisdiction is different with its unique set of issues, which brings new experiences. I look forward to continuing my planning education as the profession changes over time and to the opportunity to contribute to the professional development of students, interns, and beginning professionals, just as so many people have done for me.



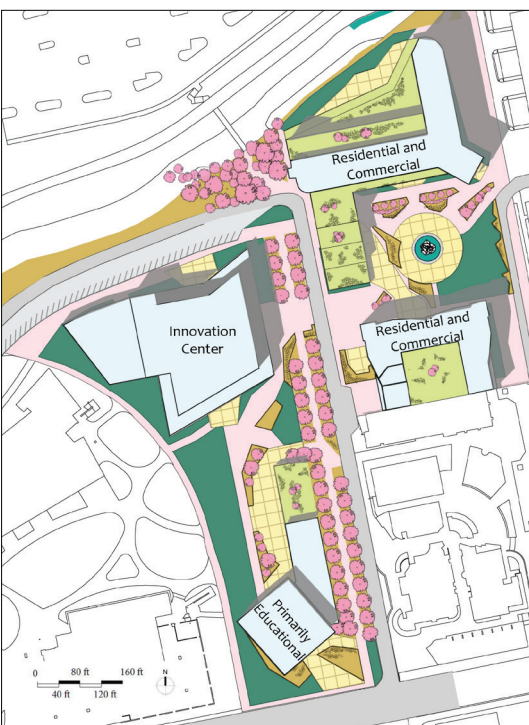
Learning from California: Highlights from CRP Studios 2017/2018 AY

Planning and design studios are fundamental for the CRP department mission and the undergraduate and graduate curriculae. As the best vehicle for Cal Poly's learn-by-doing pedagogy, the studio experience allows students to engage in quasi-real projects and work with real cities and their officials, stakeholders and communities, helping them to become better prepared for professional life.

Undergraduate Studio: CRP 202 Urban Design Studio I (Winter 2018). Instructors: Amir Hajrasouliha and Beate Von Bishopink.

An Urban Design for Collaboration and Innovation at Cal Poly.

The objectives of this studio are to introduce students to the urban design process and to creating people-friendly environments, and continue the development of their design skills, particularly computer-assisted programs. In Winter 2018, the class worked on an area on campus at the intersection of Highland and University Drives, between the Brizzolara Creek and Perimeter Drive. Currently containing two parking lots and a food processing unit, the students had to rethinking the area as a multifunctional space with residential units, an innovation center, educational facilities, and 50 parking spaces. The students were organized in teams of two and, after a thorough campus analysis and an investigation of case-studies, came up with their ideas. A common vision was to create a vibrant campus atmosphere by maintaining a variety of academic and entertainment opportunities, improve campus connectivity, and promote innovation through interdisciplinary, collaborative opportunities and social interaction.



Urban design proposal for Cal Poly's campus, by Chloe Evans and Oscar Gake; CRP 202,

Redevelopment along Dinuba's Railroad District, by Jack Balfour and Valeria Diaz; CRP 203, Spring 2018.

Undergraduate Studio: CRP 203 Urban Design Studio II (Spring 2018). Instructors: Vicente del Rio and Beate Von Bishopink.

Railroad District Redevelopment, Dinuba CA.

This studio, involving two co-horts and 25 students, collaborated with CRP 553 (graduate studio) in assisting Dinuba, a town of 21,453 (2010) in California's Central Valley. While the graduates focused on the entire downtown, this studio focused on re-envisioning the railroad corridor that abuts the downtown, represents a strong physical barrier and contains several vacant and underutilized parcels and buildings. Organized into 11 teams, after a field visit and a SWOT analysis, the students came up with a series of visions and design ideas for the redevelopment of the corridor and the railroad ROW itself. Combined, these projects generate a thriving and memorable Railroad District well integrated with the surrounding city. Ideas included restaurants and commercial activity; work-force housing, apartments, and town homes; office parks and a business incubator; a hotel; a museum and a community center; community gardens, plazas, and a linear park and bike trail along the railroad ROW connecting to nearby towns. *(Read about this experience in the Faculty and Student Work Section)*



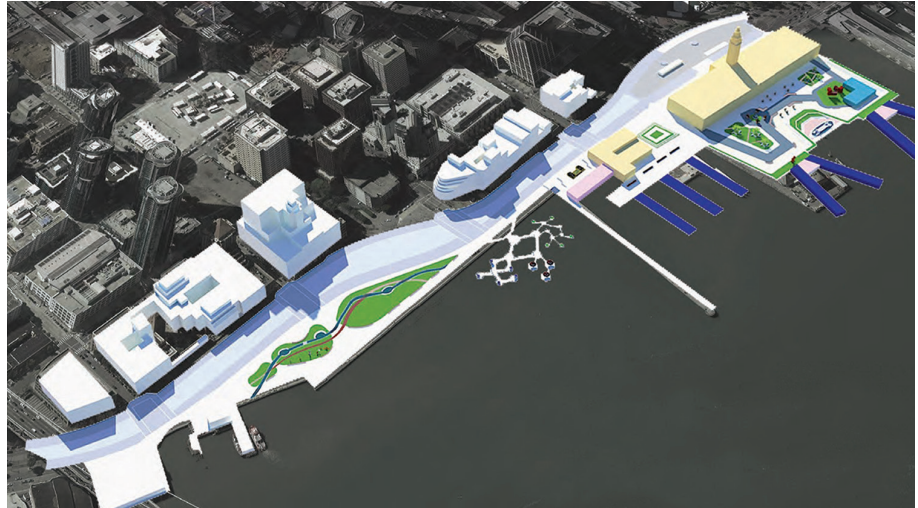
Undergraduate Studio: CRP 341 Urban Design Studio III (Fall 2017). Instructors Hemalata Dandekar and Vicente del Rio.

Preparing San Francisco's Embarcadero for Sea Level Rise.

Partnering with the Port of San Francisco, this studio's two cohorts included 32 students who engaged in envisioning how the Embarcadero become resilient to sea level rise. Organized into six teams, the class prepared concept plans illustrating how renovated and repurposed buildings, warehouses, and piers could be combined with new buildings, parks, and rede-

signed public spaces. Inspired by solutions in other cities, such as New York's Resilience by Design competition, the teams proposed several innovations such as a meandering seawall topped by a pedestrian promenade, lagoons for public use, a floating amphitheatre, a new recreational arcade with a Ferris wheel, and floating islands for different activities interconnected by boardwalks. The reports and powerpoints were presented to the Port of San Francisco, and the posters were exhibited in their Embarcadero headquarter's public lobby. *(Read about this experience in the Faculty and Student Work Section)*

Seaport Plaza, proposal for San Francisco's Embarcadero by E. Huang, E. Gomez, E. Shimanuki, M. Spector & R. Browers; CRP 341, Fall 2017.



Graduate Studio: CRP 553 Project Planning Lab (Spring 2018). Instructor Hemalata Dandekar.

Re-Imagining Dinuba's Downtown.

This graduate studio was challenged with developing a concept design plan and development strategy for Downtown, Dinuba, a city of 21,453 residents (2010) in Tulare County. The city has experienced an economic shift away from the agriculture base that characterizes much of the California's Central Valley. The challenge to create a vibrant, mixed-use downtown was responded by the class a plan with four complementary zones: 1) Downtown Business District, with its tree lined east

gateway, various housing types and arts and entertainment; 2) Civic Zone, focusing on public/civic functions and services with a traditional city square featuring a new city hall; 3) Downtown Main Street, retaining the small town charm with a contiguous façade of upgraded, adaptively reused or infilled buildings, and activated alleyways; and 4) Entertainment Plaza, with expanded opportunities for recreation, entertainment and enhanced outdoor plazas. The concept plan brings new attractions effectively transforming Downtown Dinuba into a local and regional destination. *(Read about this experience in the Faculty and Student Work Section)*

SketchUp view of the urban design scenario for Downtown Dinuba; CRP 553, Spring 2018.



Graduate Studio: CRP 552/554 Planning Studio (Fall 2017 & Winter 2018). Instructor: Cornelius Nuworsoo.

City of Guadalupe General Plan Update.

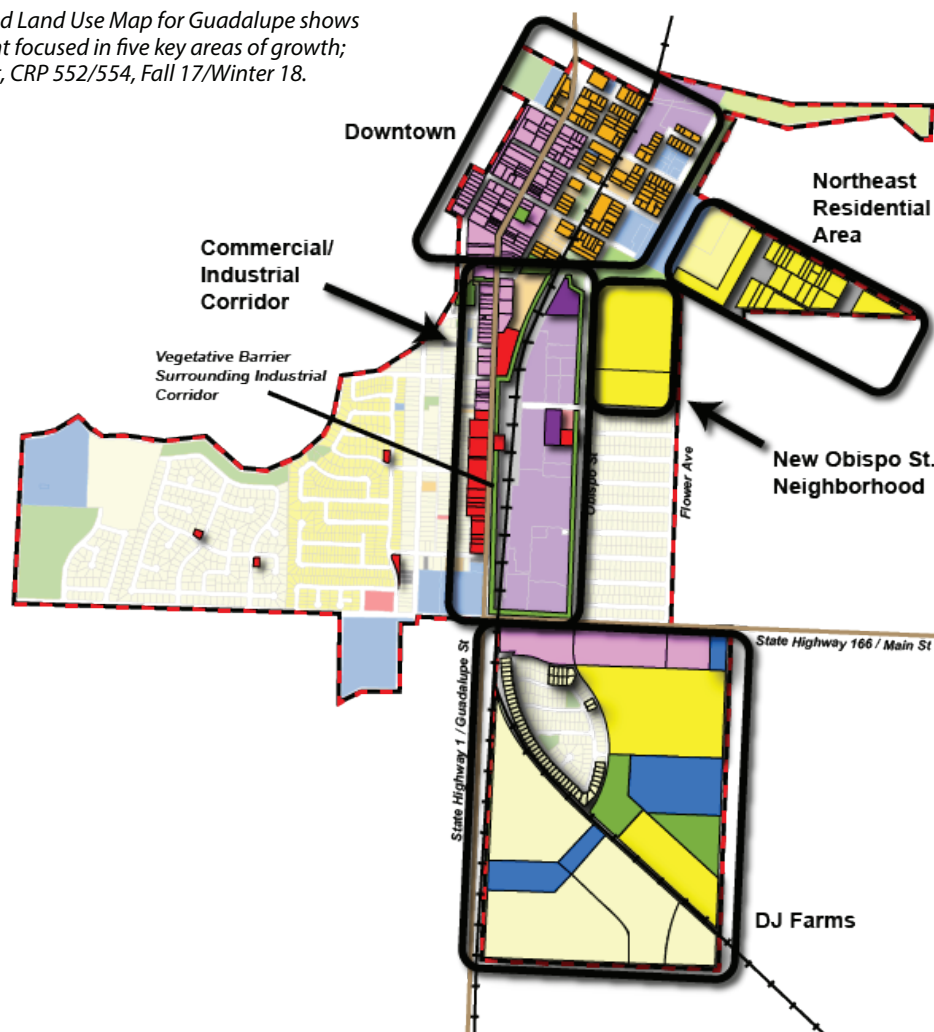
This graduate studio's 14 students collaborated with residents, stakeholders, and city leaders in a thorough analysis and comprehensive update of the City of Guadalupe's General Plan. Located in Santa Barbara County, California and in the heart of fertile agricultural lands, Guadalupe is served by California's Pacific Coast Highway that traverses its downtown. In 2015 the city had 7,220 residents of which 85 percent claims Hispanic or Latino origins, and the median household income was \$43,710, well below the Santa Barbara County and California state medians.

Comprehensive research on the community as well as public feedback guided the class in developing an administrative draft General Plan with long-term goals, objectives, policies, and pro-

grams for thirteen Elements: Land Use; Circulation; Conservation; Housing; Environmental Justice; Economic Development; Public Facilities; Safety; Health; Open Space; Noise; Community Design; and Air Quality. The Preferred Growth Scenario for 2040 reflects a combination of features from three alternative scenarios presented to the community, and captures its desires: (a) for vibrant, walkable, and attractive neighborhoods; (b) to preserve the City's character; (c) to provide an adequate and diverse supply of housing; and (d) to increase the number of jobs within the City. The Plan can improve Guadalupe's quality of life, provide diverse housing options, generate economic vitality, and enhance the city's tourist potential and attraction as a relatively affordable coastal community to live in.

...

The Proposed Land Use Map for Guadalupe shows development focused in five key areas of growth; class project, CRP 552/554, Fall 17/Winter 18.



Theses and Professional Projects: 2017/2018AY

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 2017/2018 AY. They are available upon request. Most can be download from Cal Poly's Kennedy Library at <http://digitalcommons.calpoly.edu/theses>

Exploring the Relationship of Urban Form and Mental Health in the 500 Largest Cities of the United States.

Daniel Sam Harrison

Sustainable development efforts frequently focus on understanding and promoting the factors that influence health and wellbeing. Despite hypothesized reports of urban environments being less conducive to good mental health than natural environments, few studies have investigated the effects of urban form (size, density, nuisances, transportation, and housing characteristics) and mental health measures at the city level. The aim of this study is to test the association of urban form and psychological distress using a cross-sectional analysis of individual health survey responses. Mental health data was collected from a study by the Center for Disease Control on the 500 largest cities in the US. Urban form data was collected from both the US Census and GIS datasets. Linear regression and factor analyses were used to estimate the relationship between psychological distress and urban form, and the results suggest that urban density is negatively associated with mental health status at city level, confirming existing research. However, housing cost and diversity were slightly negatively associated with mental health, while transportation cost and employment access were slightly positively associated.

Assessment of the Potential of the Stations of the California High-Speed Rail as Hubs for Physical and Economic Development.

Seitu Akira Coleman

This study investigates the potential for developing catchment areas around the proposed stations of the California High-Speed Rail System. It was prompted by a review of practices of Japanese railway groups that engage both in train operations, and in business diversification and property development in the station areas. These actions allow the groups to diversify their revenues streams, increase ridership on their lines, and operate as a whole with net profits. This is in contrast to transit agencies in the United States, which only focus on transporting passengers along their lines and do not engage in other commercial activities. Since planning for station areas to turn

into commercially successful activity centers is a new concept in the United States, a methodology has to be developed to assess the potential for development of station areas. This study set out to answer the two questions: 1) To what extent are the locations of the California High-Speed Rail System's planned stations currently attractive to development within their respective contexts? 2) Given the information gathered from the study, what policies should be taken to enhance the future development potential of the California High-Speed Rail System's planned stations as activity centers within their respective station areas? The findings of this thesis suggest there is potential for all stations to enjoy substantial development opportunities if the proper plans, policies, and business strategies are implemented early on and at the corridor level to make the station areas attractive for development.

Developing a New Tourist Economy for a Historic City - A Strategic Plan for Guadalupe.

David Christie

Guadalupe is a small an agrarian city at the intersection of Highway 166 and the famous Highway 1, in the Santa Maria Valley, a beautiful region of California's central coast. Lying between fields, hills, and ocean, Guadalupe is less than four miles away from the Pacific and the dunes it lends its name to, while its northern border is marked by the, often dry, Santa Maria River. The town is rich in history and cultural heritage, the oldest vineyards are in the same valley and wine tourism is burgeoning in the region, but Guadalupe is not a part of this economy. This project develops a Strategic Tourism Plan for Guadalupe, envisioning the town as a regional gateway with a sustainable tourism economy that is respectful of existing natural and cultural resources. The plan promotes a planning process directs social, economic, and environmental benefits across a wide range of sectors.

Bus Stop Enhancement Strategy in the City of Guadalupe.

Jessica Edmondson

This project seeks to promote sense of place and improve the waiting environment at bus stops in the City of Guadalupe

through urban design. Because bus stops are embedded into the neighborhood, the recommended improvements will not only benefit riders, but also the immediate public realm. A well-designed public space leads to greater walkability and a safer environment conducive to more active transportation. In addition, a more comfortable waiting environment leads to greater rider satisfaction and shorter perceived wait times, leading to higher ridership. Seven major goals were identified for a good bus stop: safety, thermal comfort, acoustic comfort, wind protection, visual comfort, accessibility, and integration. The goals can be achieved by ten urban design techniques: lighting, seating and surfaces, cover, amenities, information, vegetation, traffic management, pedestrian infrastructure, bicycle infrastructure, and public art. These techniques are applied to bus stops in the City of Guadalupe. With appropriate urban design expertise, municipalities can quickly develop and visualize public space designs with low costs and widely available technology.

City of Guadalupe Food Action Plan.

Kylie Hensley

In the City of Guadalupe, a small community in the California Central Coast, many of residents work in the surrounding agricultural fields growing produce or in industrial processing facilities, as part of a global industrial food system. A food system is the network of activities, resources, people, and policies involved in producing, processing, distributing, consuming, and disposing of food. Food system planning is a collaborative process that brings together people across the food system to assess how they can make changes to improve community well-being. This Food Action Plan identifies stakeholders within the food system in Guadalupe and examines community-based strategies to build on existing initiatives to increase food access, build community understanding and engagement, fight adverse impacts such as exposure to pesticides and groundwater contamination, and invest in local economy and ecology.

Affordable and Accessible by Design - Universal Design of Accessory Dwelling Units in Guadalupe, CA.

Kyle Jordan

The United States is experiencing a demographic shift to an increasingly larger aged population. As this population segment continues to grow, cities like Guadalupe will benefit from enhancing the ability for individuals to age in place. As homeowners grow older, their ability to age in their own homes diminishes for many reasons, including housing costs and health or physical disabilities. One solution to rising costs and shortages of housing is to add an accessory dwelling unit (ADU) a primary dwelling unit on a residential parcel. ADU units can utilize existing infrastructure, typically cost less than other types of housing, can ease rental housing deficits, and can provide homeowners a source of supplemental income. Along with affordability, older individuals may have accessibility challenges in these living spaces. A Universal Design for

ADUs can help mitigate against the industrial-design appearance of accessible adaptations, and provide a design for individual dignity. This project provides approaches to construct ADU units as affordable senior housing, educates designers on how to design with Universal Design concepts, and provides an analysis of, and make recommendations for, the City of Guadalupe's updated accessory dwelling unit ordinance.

Community Design Guidelines – Guadalupe, CA.

Jenny Nguyen

The City of Guadalupe, CA has a rich history manifested in the character of its downtown commercial corridor. Clearly influenced by Spanish architecture and early ranching settlements, the buildings along the corridor create a distinct community identity and are a source of pride. The goal of the Community Design Guidelines for Guadalupe's commercial corridor is to preserve and enhance buildings, structures, places, and landscapes that contribute to the City's historic and cultural character, providing design professionals, property owners, residents, staff, and decision makers with a clear understanding of the City's expectations for the planning, design, and review of development proposals. Since Guadalupe does not have a Design Review Process, the Guidelines are even more significant to help the administrative body and board of supervisors, can cohesively enhance the identity and character that is widely supported by the community and its residents.

A Seal Level Rise Vulnerability Assessment and Adaptation Strategies for the County of San Luis Obispo.

Jacqueline N. Protsman

This project assesses the vulnerability of physical assets to sea-level rise (SLR) in the coastal areas of San Luis Obispo County and proposes adaptation strategies to reduce their vulnerabilities and increase resiliency. Safety Element policies. A SLR vulnerability assessment was completed for 187 assets and asset groupings including essential facilities, infrastructure, private property, high potential loss and hazardous facilities, areas of special consideration, and historic, cultural, and natural resource areas. The assets were mapped and scored for impacts, adaptive capacity, risk aversion, and onset. The results convey the adaptive needs of all assets or asset groupings, and informed the development and prioritization of adaptation strategies utilizing the Vulnerability Assessment Toolkit (Brechtwald, 2018). The project helps to partially complete the requirements from Senate Bill 379, conducts a climate change vulnerability assessment and informs the County Planning Department about vulnerabilities to physical assets that can be addressed in the update of the Safety Element and Local Hazard Mitigation Plan.

City of Guadalupe – Urban Greening Strategy.

Alyssa P. Way

Evidence shows that an urban greening strategy not only beautifies cities and improves air quality, traffic safety, and econom-

ic activity but also helps in reducing the effects of greenhouse gas emissions, urban heat islands, and flooding. The City of Guadalupe has recognized the need to adopt an urban greening strategy that includes street trees and landscaping, low impact development, park vegetation, urban agriculture, vegetative barriers, and land preservation. Considering case studies in several cities that demonstrate the practicality and benefits of such strategies and techniques, this work analyzes the current living and climate conditions in the City of Guadalupe and identifies ten focus areas where such strategy and techniques are recommended. As creating and implementing an urban greening network can be costly, especially for a resource-poor city as Guadalupe, this work also identifies a series of regional, and federal funding sources and opportunities. In particular, the State of California provides cities with various grant opportunities for urban greening strategies that are sourced directly from the Global Warming Solutions Act (AB 32).

Enhancing Mobility on Guadalupe Street: A Complete Streets Approach.

Kevin Yost

The cultural and geographical center of the small town of Guadalupe, Calif. is its downtown. Running through its center is Guadalupe Street, or State Route (SR) 1, an important road of the California State Highway system under the California Department of Transportation (Caltrans) jurisdiction. Buildings along Guadalupe Street contain historical architecture, murals, restaurants, and other businesses, which combine to make it the City's 'Main Street' and busiest and most active commercial center. This project examines the downtown segment of Guadalupe Street and proposes enhancements through a complete streets approach, improving its safety, comfort, and accessibility all transportation modes, notably to walking and cycling. Funding sources and implementation phases of the recommended design alternative are reviewed. This project's implementation should provide several benefits to the Guadalupe community, including improving the overall health and safety through encouraging more active transportation trips, jumpstarting economic growth by an increase in property values and business transactions, and increasing street vitality through more pedestrian and bicycle traffic.

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