

Sustainable City-Region Research Archive 2009

Grand Challenges, Student-Mentor Relations and Research Productivity

TRIBAL POLICY AND PLANNING

US-MEXICO BORDER PLANNING

TRANSPORTATION PLANNING

ENVIRONMENT

ARCHITECTURE AND URBAN DESIGN

URBAN AND REGIONAL PLANNING

PUBLIC HEALTH AND SAFETY

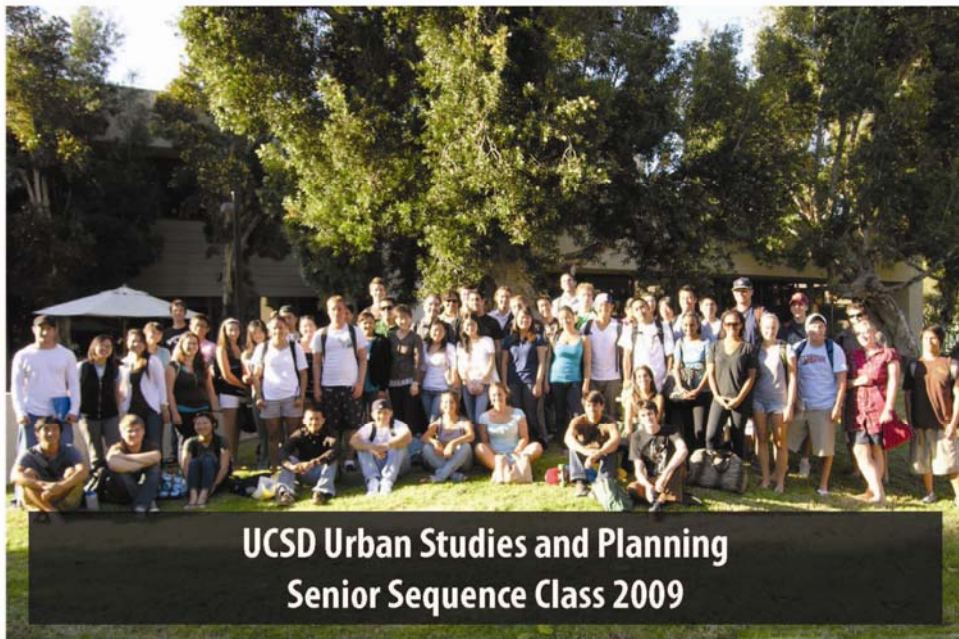
US-MEXICO BORDER PLANNING

HOUSING

PUBLIC HEALTH AND SAFETY

INFRASTRUCTURE AND PUBLIC FACILITIES

COMMUNITY & ECONOMIC DEVELOPMENT ENVIRONMENT



UCSD Urban Studies and Planning
Senior Sequence Class 2009

TRIBAL POLICY AND PLANNING

COMMUNITY & ECONOMIC DEVELOPMENT

URBAN AND REGIONAL PLANNING

ARCHITECTURE AND URBAN DESIGN

HOUSING

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Sustainable City-Region Research Archive 2009

**A collaboration of students, faculty, researchers, and community-based
partners**

**University of California, San Diego
Urban Studies and Planning Program
Senior Sequence (USP 186/187)
2008-2009**

Edited by Keith Pezzoli, Ph.D. and
Mirle Bussell, Ph. D.

With editorial assistance from Kim Roeland

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Sustainable City-Region Research Archive 2009

Grand Challenges, Student-Mentor Relations and Research Productivity

Introduction by:

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Fifty four students enrolled in the Senior Sequence for the 2008-2009 academic year. The students are seniors poised to graduate with a BA in Urban Studies and Planning. We grouped the students into 15 Research Teams aimed at addressing a series of Grand Challenges across 10 Areas of Concentration. The Grand Challenges were collectively defined through interaction between the course instructor and prospective mentors. Students self-selected their Grand Challenge and research team based on their interests. In some cases students created new teams. A robust database inspired by the Regional Workbench Consortium (RWBC) facilitates the process of knowledge networking and research productivity.

The Reader is designed to help: (1) promote excellence in undergraduate research education, (2) encourage research integration across disciplinary boundaries, (3) cultivate critical and holistic approaches to solving problems in urban and regional development, and (4) build capacity for science communication and civic-engagement in the context of promoting sustainable development.

The Reader targets several groups: (1) undergraduate seniors as well as graduate students who need to design and carry out field research as part of their academic program, (2) faculty who teach research methods classes requiring fieldwork, (3) faculty looking for ideas and support to do their own civically-engaged research, and (4) community leaders, NGOs, think tanks, public and private sector organizations interested in policy and planning for sustainable city-region development.

This Sustainable City-Region Research Archive 2009 highlights the fruit of the student-mentor research teams. Each team produced a narrative of their overarching aims and lessons learned. The participation of faculty and staff from Urban Studies and Planning, as well as from other UCSD Departments, research organizations, and San Diego planning agencies is crucial to the success of the Senior Sequence. Our dedicated mentors and internship placement supervisors also play a vital role along with those who have provided funding and/or in-kind services (see Acknowledgements at the end of this report).

The class web site can be viewed at <http://seniorsequence.net/>

Below we describe the purpose and function of the student-mentor research teams. The aim is to promote excellence in undergraduate education by developing meaningful opportunities for civically engaged research, service learning, teamwork, and science communication.

I. Each Research Team is composed of 3 to 6 students who:

1. Share a common set of research interests (the team's overarching conceptual framework gets worked out in collaborative fashion through interaction among the professor, teaching assistants, students and mentors)
2. Support one another during the six month Senior Sequence journey: Sept 2008 to Mar. 2009 (the team should function as a source of critically constructive feedback and encouragement)
3. Seek mutually reinforcing opportunities to collaborate with one another on certain tasks (finding/sharing contacts, reviewing literature, selecting methods, conceptualization, etc.)
4. Create a categorically organized list of readings, web sites, experts, ideas, questions, data, etc. useful for researchers in their domain of investigation (this effort will build on initial input provided by the team's mentors)
5. Contribute a collectively written section (Research Team Report) to the Sustainable City-Regions Reader
6. Provide an integrative framework for the team member's presentations (poster board displays) at the annual USP Urban Expo.
7. Produce a short multimedia vignette short 5 minute video clip about their team's efforts and main lessons learned.

II. Each "Research Team" has two or more designated mentors (faculty, researchers and/or other professionals).

Mentors are asked to:

1. Play a facilitators role by providing intellectual guidance at the outset of the Senior Sequence (mainly in the form of a short written guide prepared in consultation with the course instructor).
2. Meet with the student Research Team on at least three occasions over a six month period: once at the beginning (Oct), middle (Jan) and end (Mar) of the Senior Sequence.
3. While the burden for managing the Research Teams falls on the shoulders of the instructor and course TAs; the mentors are asked to help compose their student Research Team's (a) section of the Sustainable City-Regions Reader, and (b) multimedia video vignette. Mentors are also asked to help judge the students posters as part of our poster awards competition.

Process, Problem Solving and Perseverance: Direct Connections Between GIS & Urban Studies

Tracey Hughes, GIS Coordinator
Social Sciences & Humanities Library
UC San Diego

Incorporating geographic information systems (GIS) in urban studies research by students and advanced scholars just makes sense. The flexibility, robustness, and applicability of GIS to all of the Grand Challenges presented in the Senior Sequence course makes it an ideal research method and allows students the opportunity to begin to develop GIS proficiency. Such proficiency goes further than a distinguishing point in a resume; it is now listed by the American Planning Association as a skill a successful planner must possess. Perhaps more importantly, GIS requires its users to focus on three fundamental components of urban studies: process, problem solving and perseverance.

“It is good to have an end to journey towards; but it is the journey that matters in the end.”

Ursula K. LeGuin

All those involved in planning recognize the importance and impact of process. For the developer, process may bring to mind money; for the community member, process may mean the opportunity to contribute their thoughts, concerns or ideas. Regardless of what it brings to mind, there is no denying the fact that it is through detailed processes that problems are identified and articulated, solutions are crafted, and hopefully an end goal is achieved which is beneficial to the community at large.

GIS is a highly process oriented tool and can assist the urban studies researcher in a variety of ways at multiple points in the process. One example might be a proposal for a zoning amendment for affordable housing; a researcher could use GIS at the beginning of the process and have to start to think about not only land values, but about the relationship of the housing location to transportation routes, location of major employers, retail centers and/or child care centers. Another example might be at the later end of a process with a GIS map illustrating the impact of a new roadway or bicycle route to the public. These are only two examples out of many where it is clear that utilizing GIS at key points in the process can have significant benefits in terms of organization, management, analysis and visualization of information.

“Computers can figure out all kinds of problems, except the things in the world that just don’t add up.”

James Magary

Problem solving pervades our day to day lives. GIS highlights spatial thinking and spatial problem solving and in doing so, trains the urban studies scholar how to better assess problems that exist in the built environment. We all think spatially in our day to day lives even if we don’t realize it. Take your day today – you probably planned a route to work or school by envisioning the fastest route, or the route that provides you an efficient way to complete your errands. That’s spatial thinking! While this example is a simplification, spatial thinking inherently entails imagination and visualization of concepts. As the problems and pressures facing those in the urban studies profession increase in volume and complexity, new techniques to address those problems become increasingly important. A spatial approach recognizes the interdependent relationship between the natural environment, the built environment, and actual people – it is the recognition of this interdependency that leads to innovative solutions.

“By perseverance the snail reached the ark.”

Charles Haddon Spurgeon

Working in the urban studies profession requires commitment, conscience, creativity and potentially the ability to hammer on an issue for years before it is resolved. This type of perseverance and tenacity is often a result of personality, but can also be developed through experience. GIS is a marvelous training ground for learning perseverance - anyone who uses GIS will attest that no matter how long you use GIS or how much you know about it, GIS just plain requires perseverance. The good part about it is that if you do keep at a GIS problem, the feeling of success is tremendous and makes it all worthwhile.



Notes: All quotes accessed in March 2008 from <http://www.quotationspage.com/>.

UC San Diego Students Pave Way to Cleaner Water*

The 90 UC San Diego students hard at work in a canyon neighborhood in Tijuana on a Saturday afternoon are learning about environmental sustainability, municipal infrastructure and border economics one street paver at a time.

The UC San Diego Urban Studies and Planning Club is part of a binational pilot project to reduce water pollution by applying porous or "pervious" surfacing technology to dirt roads. The project focuses on the Tijuana River Watershed, which stretches across the U.S.-Mexico border, and its Los Laureles Canyon where 80,000 Tijuans live in makeshift homes with no streets, sewers or power.

With support from both the U.S. and Mexican governments, the students are helping residents build and install 35,000 pervious street pavers to absorb wastewater and prevent runoff into the Tijuana River Estuary and the adjoining San Diego Bay.

"There is one thing you might keep in mind," Oscar Romo told the students at a midweek orientation. "We're doing this project in Mexico in part because we're trying to save wetlands in the United States."

An international border doesn't stop pollution, and it doesn't stop poverty.

Romo, a pioneer in transborder environmental protection efforts, works at the Tijuana River National Estuarine Research Reserve and teaches at UC San Diego. He has spent decades trying to alert the public that runoff from unsustainable development creates hazardous erosion, pollutes dwindling water supplies and spreads disease.

Border demographics and economics have given Romo's campaign a new urgency. With a population that has increased sixfold from 235,000 in 1964 to more than 1.5 million today, Tijuana has outpaced Las Vegas as North America's fastest-growing city. Those numbers have spiked over the past decade since the North American Free Trade Agreement ushered in border manufacturing plants, called *maquiladoras*, that attract low-wage workers from throughout Latin America.

The Los Laureles neighborhood of Colonia de San Bernardo has sprung up as a settlement for *maquila* workers and their families. Homes are thrown together from scrap plywood, used cinder blocks and even discarded garage doors, much of it from San Diego.

As student club leader Adam Krohn explained on the bus ride to the project site, "The people of the *colonia* can't afford building materials, so they've become very good at using things that we throw out."

Krohn reminded the students that the *maquilas* are thriving (and driving the population surge that strains the environment) because they produce electronic goods that are wildly popular with young U.S. consumers.

"This isn't meant as a guilt trip on you guys," he said. "I just want you to recognize while we're here that everything is interconnected. An international border doesn't stop pollution, and it doesn't stop poverty.

The interdisciplinary value of the Tijuana project extends to cross-cultural studies. During the orientation, a student asked if she could bring bags of used clothing to donate to the impoverished canyon residents.

"Thank you, that is a kind offer," Romo said gently. "But I would advise against it. The people of the *colonia* are very proud. They appreciate our help with the pavers, but any kind of gift would be an affront to their dignity. The kids might like it, but the parents would not."

Colonia residents have set a goal of laying 70,000 pavers to cover a half-mile stretch of the main road. The foot-wide hexagonal pavers are made of gravel, cement and water poured into wooden frames and allowed to harden. Once in place, they drain wastewater into the ground where naturally occurring bacteria remove harmful effluent. If the pilot project succeeds, its binational backers, which include the city of Tijuana and the California Coastal Conservancy, will look to replicate the low-cost technology throughout the region.

For the UC San Diego students, paver construction is a hands-on lesson about how good science can produce good public policy through local empowerment.

"This is a wonderful example of civically engaged service-learning with a strong research component of deploying new biomolecular tools in a community setting," said Keith Pezzoli, a UC San Diego professor in the Urban Studies and Planning Program who also does research for UC San Diego's Superfund Basic Research Program.

The ultimate payoff of the students' Tijuana project may occur back home in San Diego. Krohn, whose senior thesis is on best practices in watershed management, believes that pervious paving technology could catch on in the United States, where construction of roads, sidewalks, parking lots and driveways has typically relied on impervious surfacing.

"The fact that it can be done here in Tijuana on an informal basis gives students a one-of-a-kind opportunity to see how sustainability and planning theory can be directly applied to the world around them," Krohn said.

*This article originally appeared in the March 2008 edition of *Your University Online: A Report from the President of the University of California for Friends and Advocates of U.C.* Reprinted with permission from the Office of the University President. The article is available online at: http://www.universityofcalifornia.edu/advocacy/your_university_03_2008/story7.html.

1. Architecture and Urban Design





Research Team Title: Parks and Open Space Planning for the Public Good

Grand Challenge: Designing Regional Parks for Civic Vitality and Sustainability

Key Terms: open space, green space, landscaping, social interaction, community parks, civic vitality, park design, community involvement, park design, participatory process

Student Leader: Vera Putzolu

Student Members:

Vera Putzolu-*The Value of Open Space*

Tae Kwon-*Planning Parks for a More Social Experience*

Laura Comstock-*Designing Parks with the Community Involved*

Jose Diaz- *The Effects of Park Design for the Otay Valley Regional Park*

Mentor: Judy Tjiong

Research Team Narrative:

Parks and open spaces enhance livability, quality of life, and the sustainability of communities. A successful park can be considered one that is frequently used by neighboring residents, is safe and encourages social interaction, and contains aesthetic landscaping to benefit the community. Open spaces, though not as frequently used by the community, are equally important for providing environmental benefits such as habitats for native species, stabilization of slopes to reduce erosion, and runoff filtration, among others. Shifting lifestyle patterns along with varied demographic and cultural preferences have made it challenging for park planning to

meet the specific needs of the entire community and secure support for future park and open space development.

The four students in this research team addressed this challenge through research, observation, and surveys in the San Diego region. Tae Kwon compared three San Diego Parks and explored how features in the design of parks can enhance social interaction. Laura Comstock sought to understand specific dimensions of participatory, user-involved, park design and planning. Jose Diaz examined an underused park and considered strategies to increase its usage. Vera Putzolu researched methods for placing a value on open space, looking for consistency and successes with existing models in encouraging the development of open spaces.

The three parks that Tae Kwon identified for his study were explicitly designed to promote social interaction among visitors. All three contained local art, culturally informative shared activities, and landscaping that encouraged sociability. Kwon identified several features in particular that enhanced the social atmosphere: multi-use fields, exercise stations intended for groups, and benches located in shady areas near children's play structures for parents to sit together while their children play. He concluded that emphasizing the development of these areas during the overall planning process and especially during public/designer conferences is critical for enhancing the social atmosphere of parks.

Laura Comstock studied the Tijuana River Valley Regional Park to identify measures taken to include the community in the design of parks. She also considered whether or not the measures were mandated by policy or were voluntary. She argued that if the parks are created for the community, then community input is important during the planning stage. Though her research identified few mandated guidelines for involving the community, she found that park designers for the Tijuana River Valley Regional Park worked hard to involve the community through surveys, meetings, and charities. Based on her research findings, she recommended that a City of San Diego policy on community notification and input for park development projects could be improved to more efficiently encourage community participation.

If the community is not involved in the planning of its parks, then the parks are at risk of being unused as is the case with the Otay Valley Regional Park located in Chula Vista. Jose Diaz used this park as a case study to explore the design qualities required in order to increase use of the park by the community. Diaz identified three reasons for the limited use of the park: 1) a perception that the park is unsafe; 2) lack of time of neighboring residents to visit the park; 3) a complete ignorance of the existence of the park. Diaz concluded that if the design features were more compatible with the interests of the community, this could contribute to higher usage rates and community satisfaction.

Although open spaces in urban areas are vital to a thriving city, they are often underfunded and/or compromised for more profitable development. Vera Putzolu's research examined

the process by which value is assigned to open spaces through the lens of a non-profit (The San Diego River Foundation) and a local government (The County of San Diego). Putzolu argued that we do not have easy and consistent models for quantifying the value of open spaces. Quantifiable models are used to assign a value on environmental goods such as open spaces; a value is based on different benefits such as watershed recharge, habitat protection, and proximal increase in property value. Assigning value to these spaces can justify their protection, redevelopment, or even reclamation. Her research explored the models or mechanisms, if any, that are currently used by these organizations, and she evaluated the degree of success they achieved in protecting open spaces from more profitable development.

These four studies enhance our understanding of the challenges inherent in park and open space planning. United by their emphasis on stakeholder participation, the four students present a compelling case for increased participatory planning for parks and open spaces in the San Diego region.

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Links:

http://www.pps.org/parks_plazas_squares/info/design/planning.org/cityparks

<http://www.parkspractices.org/>

<http://www.co.san-diego.ca.us/parks/>

<http://www.balboapark.org/>

<http://www.parks.ca.gov/>

Multimedia Archive

Tae Kwon - <http://www.scivee.tv/node/10225>

Laura Comstock - <http://www.scivee.tv/node/10271>

Jose Diaz - <http://www.scivee.tv/node/10273>

Vera Putzolu - <http://www.scivee.tv/node/10211>



Research Team Title: Green Building: Design Innovation and Implementation

Grand Challenge: Greening of Buildings

Key Terms: LEED, energy management and efficiency, sustainable design, economic development, design innovations planning, redevelopment, new development, green building, American Institute of Certified Planners

Student Leader: Luke Hazelwood

Student Members:

Luke Hazelwood- *Going Green: Retrofitting Residential Homes for Improved Energy Efficiency*

Joshua Potroff- *Greening of Buildings and LEED*

Mearon Okonsky - *Biomimicry and Sustainable Urban Design*

Mentors: Wendy Tinsley Becker and Paul Linden

Research Team Narrative:

California's State and Consumer Services Agency reports that buildings and the water, power, and gas systems that fuel them account for more than 25% of the US greenhouse gases produced each year and consume nearly 39% of the energy consumed in the United States each year. Green building, involving the use of sustainable building practices and materials, has emerged as a way to reduce the impact buildings have on energy and water usage. The Leadership in Energy and Environmental Design (LEED) Green Building Rating System sets the benchmark for high performance green buildings. Unfortunately, these environmentally-friendly building practices are costly; this not only limits the types of consumers that can afford a LEED-certified buildings, but it also limits changes toward energy and water efficiency on small scales such as home improvement projects. The two students on this research team considered these

challenges. Joshua Potroff examined the LEED certification process to identify costs associated with obtaining a high rating. Since green building practices are frequently utilized during the construction of new, large structures, Luke Hazelwood looked at ways in which the practices of green building can be applied to a wider range of building types including existing homes.

Existing buildings use enormous amounts of energy, water, and materials throughout their entire developing process and lifecycle, and they produce large amounts of waste from building use and maintenance. The interior quality of many buildings in the United States is also problematic as these buildings often contain materials that are harmful to the environment and the occupants. For his research project, Joshua Potroff asked: can a green product save on energy expenses and provide a healthier environment? The purpose of his research was threefold: 1) to show the reasons and benefits for making green improvements on existing buildings, 2) to consider the benefits and arguments in favor of “going green,” and 3) to provide data on how specific green products perform better, last longer, and can save on energy expenses when compared to the conventional products they replace.

Luke Hazelwood’s project sought to identify how individual homeowners can retrofit their homes for improved energy efficiency. His research focused on energy efficient technologies such as residential solar arrays, high efficiency heating and cooling systems, proper insulation, low-flush toilets, and energy efficient lighting. He argued that adding these improvements to a home can greatly reduce energy consumption thus reducing the size of our collective ecological footprint. Hazelwood examined the incentives for “going green,” focusing on benefits both to the homeowner and the environment. He argued that since only a small proportion of the population is able to purchase new construction green homes, more emphasis should be placed on retrofitting existing homes for higher energy and water use efficiency. He concluded that reducing residential energy use is of the utmost importance to the health of the environment as well as being economically viable to individual homeowners due to the long-term energy savings and increased property values.

Biomimicry is a new science that links nature's best designs into human applications. Although biomimicry is a newly developing field, it has been applied since the beginning of man. It has great potential for helping us create innovative sustainable buildings and cities. Mearon Okonsky’s research examined the science of biomimicry within the realm of the built environment and considered its utility. Case studies were used to understand where biomimicry has been applied and how it can be applied in the future. Okonsky’s methodology included case studies and expert interviews with architects, biologists, entomologists, engineers and urban planners. This enabled him to understand the challenges of sustainable design, the flaws in current building techniques, and uncover new techniques which use biomimetic technology to address these problems. He concluded that we need to shift the focus of green design from managing the environmental impact of the destructive system to creating buildings and materials that create positive effects for people and nature.

As the green building movement continues to gain acceptance by a range of public, private, and individual stakeholders, more analytical research on the net gains and losses of such efforts will be required. Potroff, Hazelwood, and Okonsky's findings contribute to this important line of inquiry.

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Links:

www.greenbuilding.com

www.usgbc.org

<http://olivebranchgbs.com>

Multimedia Archive:

Luke Hazelwood - <http://www.scivee.tv/node/10221>

Joshua Potroff - <http://www.scivee.tv/node/10286>

Mearon Okonsky - <http://www.scivee.tv/node/10250>



Research Team Title: San Diego Architectural Foundation Built Environment Education Program

Grand Challenge: Urban Design and Master Planning

Key Terms: design, green architecture, community, campus climate, campus environment, smart growth, sustainability, architecture, green design, LEED, sustainable communities

Student Leader: Angelica Aquino

Student Members:

Angelica Aquino-*The Impact of UCSD's Price Center Expansion on Community Environment*

Eric Chen- *Green Urban Design*

Kyle Ancheta-*The Costs and Benefits of Green Architecture*

Kim Le- *Sustainable Architecture and Affordable Housing*

Mentor: Mirle Rabinowitz Bussell

Research Team Narrative:

Urban design and master planning operate at many scales. While master plans typically encompass large design challenges such as a university campus, a large mixed-use project, or an urban neighborhood, successful implementation depends on individual user satisfaction. User satisfaction, however, can be measured in different ways according to varying criteria. The four papers in this research group explore different dimensions of urban design and master planning in a range of contexts with many intended users. Employing a range of methodologies including survey research, stakeholder interviews, and a careful review of scholarly literature, the four papers expand our knowledge of challenges and innovations in urban design and master

planning. Angelica Aquino surveyed UCSD students to assess their opinions as to whether or not the expansion of the student center created a greater sense of community. Eric Chen explored the impacts of green design on consumer shopping patterns. Both Kyle Ancheta and Kim Le considered the costs and benefits of green development with respective case studies on university-based buildings and affordable housing

At the University of California, San Diego, many recent renovations have impacted the campus' community environment. In 2003, UCSD students approved the student initiated University Centers Expansion and Renovation Fee Referendum as a source of designated funding to support the Price Center Expansion (PCE). Angelica Aquino argues that the renovations to the Price Center have improved the community environment at UCSD. Through the use of student surveys, Aquino found that while a majority of the students surveyed are satisfied with the new design changes to the Price Center, many also responded that PCE has not increased their sense of belonging to the larger UCSD community. Aquino's interviews with institutional agents suggest that UCSD's community environment is improving based on the new design changes at the PCE, although it is also believed that UCSD has more work to do to further improve its campus community. As part of her study, Aquino also assembled suggested strategies for improving the campus environment from both students and institutional agents. She argues that these suggestions should be taken into consideration for future improvements to the campus environment. Aquino's research on the Price Center contributes to improving the UCSD community environment by taking into consideration the responses from different campus stakeholders. Additionally, other universities, developers, planners, and urban designers can apply Aquino's findings to their own design projects. Eric Chen further investigated the study on urban design on human behavior by exploring the relationship between green architecture and consumerism.

Eric Chen's study examined consumerist infrastructure to analyze whether or not "going green" plays a major role in drawing in consumers to shop. He considered the added appeal of green retail design in consumer shopping patterns and satisfaction. The research strategy focused on a case study of University Town Center (UTC) in La Jolla which is currently implementing green renovations. Due to UTC's unfinished status, the recently LEED certified Uptown Monterey shopping center was also observed and used as an example of how UTC's new green design might affect consumers. Chen hypothesized that shopping centers complete green renovations to attract more attention and desirability, thereby creating an added appeal for consumers to shop. Through interviews with proponents of green retailing and shoppers in Uptown Monterey, Chen's hypothesis appears to have merit and suggests that when complete, UTC's renovation may result in increased sales volume and consumer traffic. The findings reveal some interwoven areas of analysis including a comparison of LEED improvements in retail

centers and the relationship between green architecture and consumer behavior and culture. Chen argues that going green does not only suffice on an ecological standpoint, but more importantly, it intertwines both economic and social forces exemplifying the expanding interplay of sustainability in everyday activities. Kyle Ancheta further explored the economic dimensions of green architecture by conducting a cost-benefit analysis of sustainable design practices.

Kyle Ancheta's piece explored the economic advantages and disadvantages of green architecture. His study demystifies green design's current surge in popularity by conducting a cost benefit analysis of two case studies from the campus of the University of California, San Diego. With the goal of determining whether or not green architecture is truly economically advantageous, Ancheta analyzed the two UCSD Supercomputer Centers. His analysis paired a conventionally built structure with one that incorporates sustainable elements. Through the use of peer-reviewed articles and other literature on building approaches, information was compiled in order to come to a conclusion regarding green design's pricing projections. Interviews with knowledgeable faculty regarding the Supercomputer Center's billing projections helped further with this analysis. The findings demonstrate that although significant costs are incurred during the construction process, the savings reaped from the longevity of green design and its resource consumption efficiently recoup the substantial initial investment. At an average of fifteen years past completion, green buildings save much more than conventional buildings. Sustainable buildings enable businesses to run smoother without as much maintenance and add to the priceless benefit of conserving the Earth's resources. Kim Le further investigated the benefits of green architecture by applying it to affordable housing.

Many cities have experienced the greening of buildings; however, few have experienced the greening of affordable housing. As of March 2007, the City of Poway, California completed the construction of Solara, the first affordable housing development in the country fully powered by solar energy. Not only did Poway's green affordable development earn national recognition, but its green design also set a new precedent for future affordable homes. Kim Le's research analyzed this new form of development and compared it to a similar but conventionally designed affordable housing development in Poway, Hillside Village. Her study was designed to ascertain the costs and benefits associated with each development in order to differentiate the merits of conventional and green design. Le argues that despite its many challenges, green affordable housing should be promoted due to its environmental benefits and cost saving advantages. Le's findings are threefold. Le found that green affordable housing design decreased the living expenses for its residents and contributes to making housing even more affordable. Secondly, she found that green design increases energy and water efficiency which helps the environment and conserves resources. Lastly, Le found that green affordable developments lower the operation and maintenance costs for owners making it less costly to maintain in the long run. By

understanding the costs and benefits of green affordable housing, development groups, architects, and planners can achieve economic, environmental, and health benefits.

These four studies yielded two significant findings. First, as Aquino and Chen demonstrated, the quality of the built environment plays a critical role in user satisfaction. Physical design methods and the strategic selection of materials, especially if they are sustainable, have the capacity to create highly used spaces. Second, Le and Ancheta's research complements Aquino and Chen's findings by demonstrating that the increased incorporation of sustainable materials not only contributes to well-used spaces, but when comparing the costs and benefits of green architecture, sustainable practices are much more economically and environmentally efficient over the long run.

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www.greenbuilding.com

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Multimedia Archive

Eric Chen - <http://www.scivee.tv/node/10265>

Kim Le - <http://www.scivee.tv/node/10219>

Kyle Ancheta - <http://www.scivee.tv/node/10236>

Angelica Aquino - <http://www.scivee.tv/node/10220>

2. Community & Economic Development





Research Team Title: Greening of Business: Socio-Economic and Regulatory Challenges

Grand Challenge: Greening of Industry and Public Policy

Key Terms: recycling ordinance, public policy, Chula Vista, City of San Diego, County of San Diego, San Jose, San Francisco, water conservation, drought management, public policy, recycling ordinance, public policy, businesses, California

Student Leader: Ashley To

Student Members:

Ashley To- *Recycling: Implementing Public Policy to Increase Landfill Life*

Brian Song- *Public Policy and Water Conservation*

Mentor: Patti Krebs

Research Team Narrative:

California is the third largest state in terms of area, and the most populous state according to a 2008 Census estimating over 35 million people. Vital to California are resources to sustain such an enormous population, and green public policies managing those resources are more important than ever. Water, in particular, is a central to sustaining human settlements. But California has been facing an eight-year period of drought and water conservation methods are now starting to become federal and statewide initiatives. As climate change threatens our water supply, state, regional and local jurisdictions face the enormous task of having to continuously provide a finite supply of water in a world where people's demand is seemingly infinite. Equally as challenging as water supply is the task of managing waste from human settlements. Landfills in the state are beginning to reach capacities, and alternatives are urgently needed.

Brian Song's research focused on the relationship between the water demands of the industrial sector and the water supply agencies. Businesses and industries are viable areas of opportunity for water conservation, and with the proper implementation strategies such as water-efficient landscaping; they could help to tremendously mitigate the current shortage of water. Song used case studies of local agencies that have made reductions in their water consumption, as well as water conservation ordinances issued by the Cities of Del Mar, Escondido, and San Diego. Song's research findings emphasize not only the importance of conservation, but also of diversification of water supplies as a way to ensure that current and future supplies will continue to be met.

Early in 2008 it was reported that the Miramar landfill in San Diego was close to reaching its capacity. Estimates predict its closure by 2012, possible 2017 if small expansion is completed. Ashley To argued that solving this issue is imperative, and her research focused on recycling as an alternative solution to expansion of landfills and creation of new landfill sites. Her research identified the components of recycling ordinances in the County and City of San Diego, Chula Vista, San Francisco, and San Jose that are effective based on achieving the state required diversion rate. She argued that recycling should be enforced through public policy and recycling and solid waste management ordinances. With their research findings, Song and To contribute to understanding of the challenges of water and waste management.

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Links:

http://www.swrcb.ca.gov/water_issues/hot_topics/20x2020/docs/workshop1notice.pdf

Multimedia Archive

Ashley To - <http://www.scivee.tv/node/10288>

Brian Song – N/A



Research Team Title: Sustainable Development: Policy and Planning Challenges Aimed at Integrating Social Justice/Equity, Economic Efficiency and Environmental Stewardship

Grand Challenge: Equitable Redevelopment and Public Policy

Key Terms: gentrification, dislocation, economic redevelopment, community-based organizing, equitable redevelopment, economic improvement, stadium construction, metropolitan wealth, community participation, government outreach, neighborhood design, urban identity, industrial use, base sector industries, unbalanced job growth

Student Leader: Whitney Brooks

Student Members:

Daisy Gonzalez- *Ethnically Themed Revitalization and Community Organizing*

Nick San Filippo- *Eliminating the Wage Gap in San Diego County*

Whitney Brooks- *Economic Development Strategies of Major League Baseball Stadiums*

David Windhorst- *Governance by the People: The "Bungalow-Effect" on Redevelopment Policy in North Park*

Mentor: Corinne Wilson

Research Team Narrative:

Urban planning and theory is fundamentally a political process of redistribution. In the latter half of the 20th century, the aim was to end “blight” and harness land use to spur grand schemes of economic development. This process often led to the destruction of neighborhoods

and the displacement of residents. Arising out of this dislocation, theorists and activists coalesced to bring voice and balance to urban planning processes. Indeed, citizen participation in the planning process and in land use decisions has become institutionalized and developments must engage the community as part of the entitlement process. However, understanding the politics, process and peculiarities of land use and development is difficult. The ability to wield power in this process has much to do with who one is and where they come from. Low-income and minority communities are often at a disadvantage. This may arise from any combination of factors, from language barriers to lack of time or interest in the details. Communities may have a sense of what they want to see in their neighborhoods but not be empowered to engage in the decision making process. Community-based organizations can foster empowerment by providing technical assistance to their local constituents to help them navigate the political process.

Community-based planning theory and sustainable planning theory address the idea of empowerment of citizens. These theories look to “balance the three E’s” of economics, environment and equity. The students who participated in this grand challenge identified how planning that integrates community voices creates success. The projects utilized a wide array of investigation techniques including interviews, GIS mapping, government data, and participant observation. The papers provide case studies of the different levels at which redevelopment makes an impact, and they highlight the web of stakeholders who participate in the process.

Daisy Gonzalez integrated practice and theory in her research on community participation as a tool for mitigating the effects of gentrification. Gonzales worked as a City of San Diego Planning Department intern assisting with the Community Plan updates for Barrio Logan and San Ysidro. Her participation in the community meetings brought her an understanding of how community-based organizations are vital to empowering their local communities of color when faced with gentrification. Gonzalez found that many cities are highlighting the novelty value of their ethnic neighborhoods as tools for economic development, essentially turning these communities into tourist destinations. Without incorporating the voices of the citizens, displacement of residents and businesses is a frequent occurrence. Gonzalez argues that in Barrio Logan and San Ysidro, the communities have fought for affordable housing policies to preserve the local, small businesses that employ residents. Gonzalez concluded that with the assistance of the local community groups, Barrio Station and Casa Familiar, the residents of these neighborhoods are redefining ethnic revitalization in their own terms.

Dave Windhorst also explored the impact of redevelopment at the neighborhood level. He analyzed North Park’s history and the strategies employed over time to maintain its unique character in the face of redevelopment. Windhorst’s findings suggest that over time the city, business groups, and community residents have fostered strong communication and coordination which has allowed for a unity of purpose in preserving much of the original neighborhood plan. Two strong community organizations, North Park Main Street and the North Park Historical Society, played a critical role in this effort by assisting with the formation of a well-functioning

communication network between stakeholders. Windhorst looks at the vernacular bungalow architecture of North Park for his case study arguing that part of the strength of the community arises from its bungalow design. These houses were created to be affordable for middle-class families, and homeownership in the area is high through the long tenure of the residents and the enduring popularity of the homes. Homeowners are proud of their neighborhood and participate in the community to preserve the neighborhood's architectural integrity. To this end, for years the city and residents have partnered to draft policies to protect North Park and to define development in a manner that is harmonious with the existing urban fabric. Windhorst notes that planning challenges such as multi-family high-rise apartments strengthened the resolve of the community to work together. North Park is a successful example of residents and decision makers collaborating to pursue a high standard of outreach incorporating the voices of the community in development. Windhorst's case study demonstrates that the three E's of sustainability appear to be working well in North Park.

In contrast to Gonzalez and Windhorst's case studies of specific neighborhoods, Whitney Brooks examined the challenges of major sports stadium development including implementation and achieving the desired goal of economic revitalization. The literature often states that stadiums are a poor public investment, creating little immediate economic prosperity in the surrounding areas. Yet, over half of all professional baseball and football teams have built new stadiums since 1990, and combined they received \$10 billion in state and local government subsidies. Brooks evaluated the stadium development process in three cities, San Diego, Cincinnati and Minneapolis, to explore the hypothesis that much more goes into a successful stadium bid than just the team's threats to relocate. She found that her three cases illustrate that while strong corporate and political support help get stadiums built, as in the case of Cincinnati, the San Diego experience indicates that community involvement is also a necessary element for turning the stadium development into an economic engine.

As a complement to Whitney Brook's research, Nick San Filippo looked at the relationship between city policies and economic development. He evaluated the City of San Diego Economic Prosperity Element and its impact on economic growth in the region. Comparing economic statistics for San Diego County and Orange County, San Filippo found that the policies pursued by the City of San Diego have begun to affect wage inequality. Over the past ten years the standards of living in San Diego did not keep pace with the rest of the nation. Economic development strategies at the regional, county and municipal levels have created one low-wage job for every eight high-wage jobs and three middle-wage jobs. This has created substantial wage inequality where the top 20% of San Diego County residents earn 49% of all County income and the bottom 40% earn only 13%. However, community groups in the City of San Diego intervened in March of 2007 to redefine the job creation strategies in the City of San Diego Comprehensive Plan's Economic Prosperity Element. Rather than prioritizing tourism, community groups were able to persuade the City Council to stress creation of jobs that provide

self-sufficiency wages. Similar to Gonzalez's findings, San Filippo found that community involvement can have a profound impact on public sector economic development policy. He is hopeful that in the future equitable economic and land use policies will work to promote economic growth, reduce wage inequality and raise the overall standard of living in San Diego.

The four student members of this research challenge engaged in rigorous and creative research to understand what balancing the "three E's" looks like on the ground. Community-based organizations facilitate the disparate voices that comprise the equity element of sustainable development. While these organizations are vital to the strength of an urban neighborhood, they are chronically under-resourced. Future avenues of research would serve well to understand the relationship and processes between community-based organizations and their constituents and how to support these groups. The academic literature notes that the rise of community-based organizations in the redevelopment process is largely a result of public sector retrenchment. If these organizations are truly providing a vital service to the public sector, as it appears they do, then they are deserving of further research.

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Links: N/A

Multimedia Archive

Daisy Gonzalez - <http://www.scivee.tv/node/10277>

Whitney Brooks - <http://www.scivee.tv/node/10226>

David Windhorst - <http://www.scivee.tv/node/10222>

Nick San Filippo – N/A

3. Environment





Research Team Title: Nature Reserves and the City: Socio-technical Challenges in the Stewardship of Urban-Ecological Systems

Grand Challenge: Sustainability of Urban-Nature Ecosystems

Key Terms: nature reserve, ecological degradation, urban ecology, conservation behavior, open space design, endangered species, ecosystem conservation, urban ecology, climate change, local government, environmental policy, mitigation

Student Leaders: Katie Heineman and Jesus Vazquez

Student Members:

Katie Heineman- *Urban Natural Reserve Management*

Jesus Vazquez- *An Analytical Debate on Water Management: Understanding the relationship between what we plan and the ideas we understand*

Kristen Langford- *A Comparative Study of Climate Change Policy in San Diego*

Ryland Macfadyen - *Erosive Behaviors of Mountain Bicyclists: a case study of Pleasanton Ridge Regional Park*

Natalie Stiffler- *UC San Diego's Natural Reserve System: Conservation management of Kendall-Frost Reserve*

Mentors: Isabelle Kay, Paul Dayton

Research Team Narrative:

Natural reserves in urban settings are important forms of open space that offer a viable environment for plant and animal species while providing humans with a break from their paved surroundings. The greatest challenge facing natural reserves is balancing human and ecological needs: the human need for recreation and enjoyment of natural areas and the needs of species within the ecosystem to proliferate and be sustained.

The UC Natural Reserve System protects and manages 36 reserves in California, offering approximately 135,000 acres of protected natural land available for university-level instruction, research, and public outreach. Linked with the University of California San Diego are four reserves, spanning coastal sage scrub, salt marsh, chaparral, and canyon ecosystems. The two closest in proximity to the UCSD campus are the Kendall-Frost Mission Bay Marsh Reserve, and the Scripps Coastal Reserve. Both host listed species such as the state and federally endangered light-footed clapper rail at Kendall-Frost, and the federally threatened California gnatcatcher at the Scripps Coastal Reserve, and as such, a healthy working relationship with the state and federal agencies are critical. An important element of these reserves is the teaching that occurs on site; balancing this important human use of the reserve and the protection of sensitive species and habitats is a challenge.

Sustainability of ecosystems in urban settings is threatened not only from human use but also recently from global climate change. How will the Kendall-Frost reserve fare in the coming century with climate-change driven sea level rise potentially inundating the marsh? While global climate change is an issue that crosses international borders, it is becoming increasingly clear that climate change can be addressed more immediately at the local level. In southern California, climate change affects the supply of water, a commodity that is already scarce, and over the last century its consumption has increased faster than its supply. Given water significance to urban development, the success of present and future efforts to address water distribution and use will hinge upon political and strategic approaches to the dwindling natural resource.

Natalie Stiffler's project was to develop a research strategy to examine how the University of California, San Diego, as an academic, research-oriented institution, has taken on the responsibility to manage the conservation of the Kendall-Frost Reserve, looking in particular on its relationships: the external relationship that the University has with the City of San Diego and the California Department of Fish and Game to conserve the reserve; the internal relationship the University has with promoting research and education at the University and academic level; and the University's involvement with public outreach. Stiffler found a close-knit relationship between San Diego Natural Reserve System and the California Department of Fish and Game, as exemplified by data on wetland conservation, species population monitoring, and predator control, goals shared by both institutions. The UC Natural Reserve system has taken

on the responsibility in conserving this sensitive habitat and in doing so has formed internal relationships to better promote sustainability science. Ecological literacy is promoted through this spirit of sustainability and the University has managed their relationships internally to construct the reserve as a vehicle to research and pedagogy. The relationships that the University creates with researchers, scientists and students are maintained year after year. The final component of the University's plan in achieving conservation management is public outreach. The evidence of old and current outreach events such as Mangrove removal work parties and Love Your Wetlands Day suggest that there is a history of community involvement at the reserve. Such events attract the community to the reserve and provide a motive to be concerned about the conservation of the Kendall-Frost reserve.

Research conducted by Katie Heineman on Scripps Coastal Reserve and Torrey Pines State Reserve exposes the intricacies of managing natural reserves. Both reserves struggle to acquire enough funding and staff to keep up with increasing visitor populations. Without a constant presence of rangers or docents, reserves like Scripps Coastal Reserve face the threat of vandalism and land misuse. Design elements such as fencing and signage can be effective, but too much can take away from the natural feel to the place or overwhelm visitors. Heineman argues that by far the most effective method of encouraging stewardship by the public is education within and outside the reserves. Community involvement and university support are vital for reserves to gain funding and inspire research opportunities. She notes the importance of professionally prepared Management Plans, expressing that they are essential to establish guidelines for protection of species and educational outreach to the public. She concludes that these reserves are challenged with limited funding and staff and must be particularly resourceful in order to maintain the land for future generations.

While global climate change is an issue that crosses international borders, it is becoming increasingly clear that climate change can be addressed more immediately at the local level. Cities are not in this fight alone and there is a lot they can learn from each other about strategies for climate change mitigation. The paper by Kristen Langford examines the similarities and differences between climate actions in San Diego and those of four other major Western cities working with ICLEI (Local Governments for Sustainability) and what role ICLEI has had in helping those cities develop policies and programs. Through comparison of climate plans and interviews with city officials, Langford finds that ICLEI is important for getting cities started with technical tools for performing greenhouse gas inventories and potential networking opportunities; however, the cities studied are now "more advanced students" of climate change mitigation. All of these cities now participate in a variety of agreements and coalitions. San Diego has made significant strides against global warming, but areas of improvement include a climate action plan with more enforceable policies and specific standards as well as a more comprehensive strategy for addressing the inter-jurisdictional nature of climate change action. San Diego can also learn from the methods that other cities employ to communicate their

policies to the public, especially through the format of publications and websites. This research contributes to the on-going dialogue about best practices for addressing an urgent environmental issue.

The crisis over water supply for southern California is escalating. Despite an existing system of importing water from Northern California and the Colorado River, dwindling resources (increasingly affected by pollution, environmental laws, agricultural, industrial, and population expansion) have intensified the importance of water in the region. Given water significance to urban development, the success of present and future efforts to address water distribution and use will hinge upon political and strategic approaches to the dwindling natural resource. Jesus Vazquez sought to answer several questions for his research project: 1) What is San Diego doing to meet its water needs and what role can its efforts play in the every growing need for water across the United States and the World? 2) Can San Diego's plans be applied to alleviate water limitations in other regions? Vazquez scrutinized San Diego's plans to meet its water needs, looking both at government documents and academic literature.

Scientific research on the environmental effects of mountain biking has been limited to the impacts on erosion compared to hikers and equestrians. Evidence supports a general overall effect on open space trails, but mountain bikes have not been proven to be worse than other user groups. One park dealing with the issue of mountain bikers is Pleasanton Ridge Regional Park in Pleasanton, CA part of the East Bay Regional Park District. Ryland Macfadyen's research considered the impact of mountain bikers in Pleasanton Ridge Regional Park. At Pleasanton Ridge the impact of mountain bikers is greatly felt. However, their impact on established trail systems is not the main issue. Problems faced at Pleasanton Ridge center around off-trail mountain bike use. This is then a behavioral issue as mountain bikers choose to create their own, user-build trail systems. Macfadyen noted that bikes are limited throughout EBRPD land. This leads bicyclists to partake in illegal trail building activities. Justification for limitation is limited. Board members tend to favor hikers and equestrians. Park staff points to environmental impacts such as erosion as well as user conflicts. This creates a vicious cycle, as research does not support the claim that bikes are worse than hikers yet hikers are given greater access. A sense of anarchy is felt among mountain bikers. When they become bored with the established trail systems yet don't receive improved access they instead create their own. EBRPD efforts to remove illegal trails have been unsuccessful. Mountain bikers, agency officials, and park staff suggest that relationships between environmental stewards and bicycle activists need to be strengthened. Education and collaborative development are possible solutions.

These five students demonstrated the many challenges and potential rewards with respect to stewardship of urban ecological systems. Their research will be useful for policy makers, planners, and the public at large.

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Links:

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<http://www.sandiego.gov/environmental-services/sustainable/index.shtml>

<http://www.cabq.gov/albuquerquegreen>

<http://www.icleiusa.org/action-center/getting-started/us-mayors-climate-protection-agreement>

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<http://www.seattle.gov/climate/>

Multimedia Archive

Natalie Stiffler- <http://www.scivee.tv/node/10217>

Katie Heineman - <http://www.scivee.tv/node/10246>

Jesus Vazquez – N/A/

Kristen Langford - <http://www.scivee.tv/node/10239>

Ryland Macfadyen - <http://www.scivee.tv/node/10238>

4. Housing





Research Team Title: Affordable Housing: Socio-Economic Impacts

Grand Challenge: Affordable Housing

Key Terms: gentrification, displacement, redevelopment, mortgage values, demographic change, inclusionary zoning, economic restructuring, property values, public housing, inclusionary housing, Chicago Housing Authority, defensible space, safety audits, community development corporations, nonprofit intermediaries, disinvestment, nonprofit funding

Student Leaders: Phuong Huynh

Student Members:

Phuong Huynh- *City Heights: The Gentrification and Displacement of Vulnerable Population*

Michelle Bennett- *The Effects of Affordable Housing on Redeveloping Areas*

Andrew Goodrich- *The Architecture of Affordable Housing: Does Design Matter?*

Warren Yee- *The Rise of Nongovernmental Involvement In Affordable Housing: A Case Study of City Heights*

Mentors: Nico Calavita and Ken Grimes

Research Team Narrative:

The United States has long had difficulty providing adequate housing to all Americans. A key issue has been affordability. The cost of shelter as a proportion of low-income families' income has often been so great that it has left them unable to afford their other basic needs. Since the development of affordable housing typically relies on deep-subsidies to preserve

affordability, the private sector often finds this type of development unappealing. The federal government also has a long history of ideological debates surrounding the extent to which it should support affordable housing. In the early 1980s, the Reagan administration withdrew significant federal support for affordable housing, and states and local jurisdictions were put in the position of having to attempt to fill in the gap. As a result, the nonprofit sector increased its involvement and now provides a majority of the country's affordable housing. The role of the private, public, and nonprofit sectors in affordable housing development is subject to constant debate, and the four papers in this Grand Challenge explore different dimensions of this issue.

Phuong Huynh explored the relationship between urban redevelopment and gentrification, using the City Heights neighborhood as a case study. Using data from a variety of sources, Huynh looked at the impact of redevelopment on housing values and argued that in City Heights the redevelopment has catalyzed gentrification which poses a high risk of displacement of vulnerable populations. Huynh's research also documented drastic demographic changes within the community after redevelopment leading to the suggestion that higher income owners are the majority of new homebuyers in City Heights. As a result, there has been a drop in homeownership opportunities for low and middle-income households. Huynh's study calls for a critical rethinking of community development and neighborhood revitalization in which urban planners and developers must find new ways to stimulate reinvestment without placing low-income families at risk for displacement. Furthermore, the research calls for policy changes to protect renters from possible gentrification and displacement. Finally, this research shows that while data and statistics exist to track changes within a community, there is little data on what happens to those households displaced by redevelopment efforts.

For her research, Michelle Bennett explored the relationship between the presence of affordable housing and business growth, job creation, and vacancy rates in North Park. Using public documents, GIS, and other sources, Bennett explored business owners' perceptions about two new affordable developments in the community: La Boheme and Renaissance. At public meetings as well as in interviews, business owners expressed concern about affordable housing and its impact on the local business climate. Through detailed GIS analysis of business growth in the community overlaid with the expansion of affordable housing development, Bennett found that there was no strong relationship between proximity to the units and the success of a business. She concluded that economic forces that create vacancy rates are more likely to induce blight than the arrival of affordable housing units.

While the provision of adequate, equitable housing is an issue that has long challenged planners and policymakers, relatively little attention has been devoted to the architecture of affordable housing complexes. Research conducted by Andrew Goodrich bridges this gap by critically examining whether the physical attributes of an affordable development impact the safety, health and general welfare of its tenants. Towards this end he compared three different affordable housing developments within Southern California – each of which embodied a

distinctive architectural style – and found that, indeed, physical design yields significant effects with regard to quality of life. From his findings he argued that affordable developments that incorporate principles of the New Urbanism facilitate a social climate that is markedly safer and healthier than those provided by alternative designs. Compared with garden apartments and townhomes, for example, his findings reveal that New Urbanism-inspired affordable developments boast significantly lower rates of violent and property crimes and feature a higher percentage of habitable dwelling units complete with functional kitchens and adequate plumbing. Finally, his findings are also rooted in a case study of the Valencia Gardens housing project in San Francisco, as its redesign from garden apartments to the New Urbanism has not only thwarted criminal activity, but it has also fostered a stronger sense of community among its residents. Goodrich concludes by stressing the need for additional action – particularly in the realm of public policy – to ensure that architecture is given sufficient weight in the planning of new affordable housing developments.

During the 1980s, federal budget cuts in affordable housing programs prompted local municipalities to seek alternative forms of funding for affordable housing development. Warren Lee argues that in the City Heights neighborhood in San Diego, the ability of NGOs to establish a diverse network of financial support has been vital towards the development and sustainability of affordable units devoted to low-income households. Lee found that the arrival of the national intermediary, the Local Initiatives Support Corporation, in 1991 provided the financial and technical support needed by NGOs in San Diego to increase their involvement in the affordable housing sector. The incorporation of nonprofit organizations into the affordable housing arena has provided additional support among the public and private entities involved with affordable housing in City Heights. The City Heights Community Development Corporation, Community Housing Works, and Price Charities are assuming multiple responsibilities to support the financial and social stability of neighborhoods faced with disinvestments. A holistic approach to affordable housing enables NGOs in City Heights to encompass capital raising strategies and affordable housing development without sacrificing the community programs that assist low-income households. Lee concluded that since NGOs in City Heights are willing to produce affordable units in housing markets with little economic return, their dedication to the housing sector demonstrates why their involvement is essential in the affordable housing sector.

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www.sdhc.net

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Multimedia Archive

Phuong Huynh – <http://www.scivee.tv/node/10253>

Michelle Bennett - <http://www.scivee.tv/node/10257>

Warren Yee - <http://www.scivee.tv/node/10214>

Andrew Goodrich - <http://www.scivee.tv/node/10228>



Research Team Title: Affordable Housing: Programmatic and Architectural Design Challenges

Grand Challenge: Affordable Housing

Key Terms: Transit-oriented developments, minorities, people of lower-economic status, New Urbanism, affordable housing, gentrification, light-rail transit, smart growth in the San Diego region, Barrio Logan, city planning, transportation planning, subprime lending, foreclosures, policy goals, accountability, rental assistance, housing program, affordable housing, homelessness, low-income housing, inclusionary housing, affordable housing, housing policy

Student Leader: Kanoa Kelley

Student Members:

Kanoa Kelley- *Historic District Designation: Power of Place and Government Restrictions on Community Diversity*

Andrew Perez- *Affordable Housing and Transit-Oriented Developments*

Jasmin Kim- *Section 8 Rental Assistance Program for Low-Income Families in San Diego*

Tyler Eliopoulos- *Minimized Regulation Upon Lending Institutions Promotes Subprime Lending and Foreclosures*

Mentors: Nico Calavita and Ken Grimes

Research Team Narrative:

The United State federal government formally entered the housing policy arena in the 1930s with a series of legislative acts designed to address financial systems and policies as well

as the provision of public housing. Ideological tension surrounding the federal government's involvement in affordable housing policy presented series obstacle to the enactment of this legislation, and the debates continue today. As documented in R. Allen Hays (1995) history of federal housing policy, the history of federal involvement is erratic and highly dependent on the prevailing ideology of the political party in control of the White House. This has led to varying degrees of involvement by the private and nonprofit sectors as well. The four student papers included in this research team explored many dimensions of affordable housing including design, policy, and financial considerations. They illustrate the richness and diversity of this area of inquiry.

Conservation or preservation of old architectural styles is important to many residents who are invested in the revitalization of their community. Research suggests that historic district designation can improve the economic vitality of an area. In San Diego, however, this benefit is strongly tied to an incentive to owning and restoring older homes. Through old outdated policies and new local government restrictions, this benefit is become further out of reach of people in lower income brackets. Through interviews with city planner's real estate experts and local historic resources board members, Kanoa Kelley argues that the Mills Act has become a tool to preserve homogenous wealthy communities. By studying the histories of the two similar communities of Greater Golden Hills and Kensington-Tallmadge, Kelley found that there is little evidence of change in the diversity of wealthy historic districts. Kelley argues that unless policy changes are enacted to lessen government restrictions on low income home owners, the economic benefits of historic districts will only be realized in wealthy established communities.

Andrew Perez examined some of the issues regarding the relative lack of affordable housing in transit-oriented developments (TOD). Recent research on affordable housing suggests that affordable housing has not been widely incorporated in TODs because of an attached stigma associated with affordable housing. Similarly, with many resource issues developing due to the current economic crisis there is a slowing of TOD construction in San Diego. Thus, the key issue of interest was identifying the two most prominent cost-benefit barriers for the implementation of affordable housing in TOD, which include: 1) a lack of adequate financial sources available to private developers for funding purposes and 2) the lack of a general and widespread encouragement on the state and local level. Although there are many other barriers that have had a cumulative effect on the current causes for a lack in affordable housing, Perez found that the two aforementioned factors are the most recurring problems found in both the existing literature and his own research. TOD tends to drive up the price of the land and is difficult to fund through normal construction means. Even though tax credits, grants, and other subsidies are available for private developers, the financial planning process is still time consuming for both TOD and affordable housing. Therefore, constructing both simultaneously only makes the process more arduous. Similarly, the lack of implementation strategies, on the part of the state and the city of San Diego, has not been strong enough to encourage TOD throughout.

San Diego faces a critical shortage in housing assistance for low-income families, especially given the recent the downturn in the economy. In her research Jasmin Kim investigated policy responses to this situation. Her research considered whether or not placing time-limit policies on the federal Section 8 housing voucher assistance program would yield positive outcomes by stretching the dollars further and providing assistance to more families. Kim focused her research on the Moving to Work Demonstration Program which is a temporary program administered by U.S. Department of Housing and Development that is designed to impose time-limit policies on Section 8 Programs for several public housing authorities across United States, including the City of San Diego. Upon examination of this demonstration program and interviews with staff members from the San Diego Housing Commission, National Low Income Housing Coalition, and the Affordable Housing Coalition of San Diego, Kim concluded that time-limit policies are not the best solution to expanding the Section 8 Voucher Program for the following reasons: 1) Rent prices in San Diego have risen dramatically over the decade making it more difficult for families on housing assistance to become self-sufficient; 2) time limit policies require additional administrative resources; and 3) research indicates that it takes at least ten years for most of the Section 8 tenants to become self sufficient. In addition to these reasons, many non-profit organizations that support low-income families oppose time-limit policies in San Diego. According to Richard Lawrence of the Affordable Housing Coalition of San Diego, “time limit policies tend to simply substitute one homeless family for another.”

Tyler Eliopoulos conducted research on mortgage lending practices. He compared lending practices from the last decade to the lending practices of the mid 1970s to provide that subprime lending is a detriment to the economy and that it dramatically increases the rate of foreclosed homes in America. Eliopoulos argues that the relatively new division of subprime lending and revival of no-interest loans has accelerated our economy into its current recession. He found that in 2007, 8.7% of all loans that were in the category “subprime” were declared foreclosed. Subprime loans created between 1998 and 2006 have led or will lead to a net loss of homeownership for almost one million families. Over the past decade there has been an average of .5% of homes foreclosed with a prime conventional loan, compared to about 5.5% of all subprime loans. It is estimated that 15.6% of all subprime loans originated since 1998 either have ended or will end in foreclosure and the loss of homeownership. The regulations that were placed upon these lenders were not strict enough in regard to the approval of subprime loans. Of the 52 million U.S. homeowners with a mortgage, 13.8 million owe more on their mortgage than their house is now worth. President Obama has proposed in his stimulus package to unveil \$75 billion of tax payer money to stem foreclosures. This plan aims to keep roughly 7 to 9 million people from foreclosing their homes. Eliopoulos argued that regulations for the lending institutions of the future must be placed on a higher level of accountability. Subprime lending does indeed have a negative effect on the housing market though subprime loans and predatory lending. He concludes by stating that lending institutions will have to tighten up their lending practices if they would like to avoid any type of housing bust of this caliber again.

These four papers illustrate the breadth of scholarly inquiring on affordable housing. Design issues, federal and local policies, and financial mechanisms all impact the delivery of affordable housing, and these four students offer unique insights on these issues.

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Links:

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www.transitvillages.org

www.newurbanism.org

<http://www.sdhc.net/>

<http://www.hud.gov/>

www.responsiblelending.org

Multimedia Archive

Jasmin Kim – N/A.

Kanoa Kelley – N/A.

Andrew Perez - <http://www.scivee.tv/node/10264>

Tyler Eliopoulos <http://www.scivee.tv/node/10255>

5. Infrastructure and Public Facilities





Research Team Title: San Diego River Park: A Case Study in Valuing Green Infrastructure

Grand Challenge: Green Infrastructure for Sustainable City-Regions

Key Terms: water quality, ecosystem, sustainability, economy, sewage, runoff, San Diego River, environmental policy, international shipping, harbor pollution

Student Leader: Andrew Kline

Student Members:

Andrew Kline- *San Diego River Park and Its Efforts to Improve the Water Quality of the San Diego River*

Victor Ravelo- *Implementing New Regulations for Large Ocean Vessels*

Mentor: Bob Hutsel

Research Team Narrative:

The uses of water in San Diego are vitally important to the local economy and include, among others, drinking, irrigation, recreation, transportation, industrial cooling, and cleaning. It also provides important benefits not related to the direct use of the water, including supporting sensitive habitats, performing environmental services, and enhancing the aesthetic quality of San Diego. Clean water is essential for every one of these direct uses and indirect benefits. Unfortunately, San Diego's water systems are not healthy: coastal areas experience frequent beach closures indicating high levels of polluted runoff from inland sources along the watershed. Coastal waters are in trouble, too. Despite its beauty, the San Diego Bay is heavily polluted due to industrial and shipping activities and polluted runoff from urban area. The two student members of this research team explored policy solutions to address some of these challenges.

In a city that lives its life by the ocean, San Diegans sometimes forgets the natural wonders that reside further inland. The San Diego River, one of Southern California's few rivers to remain untouched by concrete flood control, is one of those wonders. However, this river has failed to consistently receive the best treatment from its urban surroundings. A sewage spill in 2000 threw over thirty-four million gallons of raw sewage into the river. Reaction to this crisis led to the formation of the San Diego River Park Foundation. Andrew Kline worked with the San Diego River Park Foundation on a project focused on the Foundation's efforts to improve water quality through community outreach projects and infrastructural improvement projects. His research demonstrates that infrastructural improvement projects have a greater chance of yielding successful outcomes because they are more likely to trap all types of pollution, while community outreach projects target a smaller percentage of the pollution because they are heavily dependent on the abilities and tendencies of community volunteers. Kline adds that it will take a while before infrastructure improvement projects are implemented since a full assessment of the river is needed in order for the recommendations to be implemented correctly.

Despite their vastness, oceans are not immune to harmful influences from human populations. This is especially true in bays and harbors where impacts from trade and commerce are most pronounced. Cargo ships and oil tankers, while vital in meeting the needs of a growing human population, leave large ecological footprints and are a main source of pollution. Victor Ravelo compared shipping regulations and other environmental policies of several West Coast bays and harbors. He also addressed one issue that has received relatively minimal attention - the environmental impacts of ship building; Ravelo used one example from the San Diego Bay to show how shipbuilding can degrade water quality with elevated levels of lead, zinc, and crude oil. Ravelo argues that while the market economy depends on the import and export of goods, we should advocate to ship at a cleaner and more responsible level. He suggests an alternative to running power from diesel engines and promotes electric-powered cargo ships that could plug into electrical stations while in port. Ravelo stresses the importance of stricter regulations of large ocean vessels, which will help to save our oceans and bays.

The work of Kline and Ravelo highlights an important dimension of environmental stewardship that is often neglected in traditional urban planning discourse. As their research demonstrates, these are issues that have tremendous impact on our physical and natural resources and thus require the attention of policy makers.

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<http://www.portofsandiego.org/environment.html>

<http://www.polb.com/>

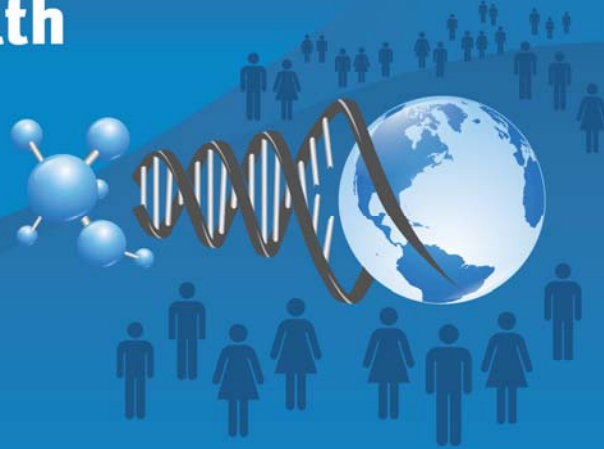
<http://www.swrcb.ca.gov/>

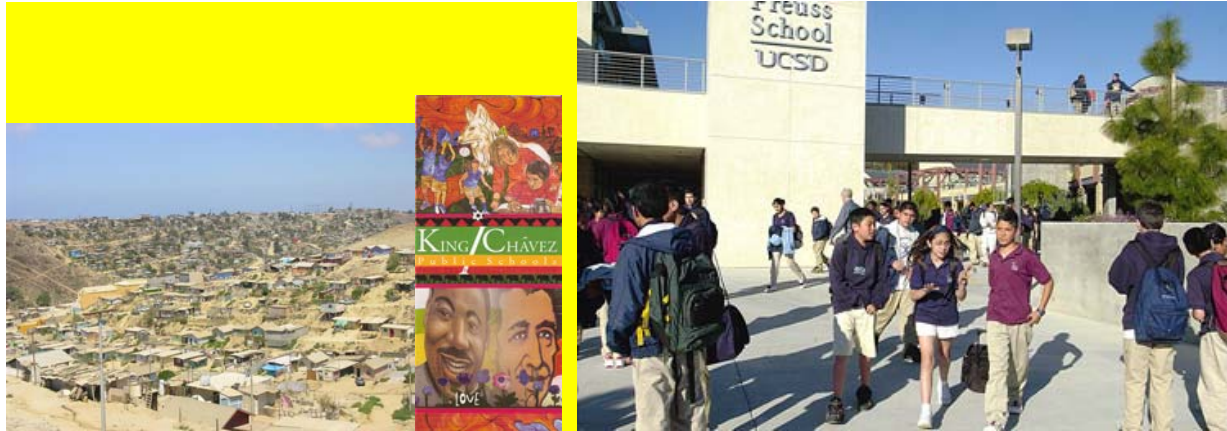
Multimedia Archive

Andrew Kline - <http://www.scivee.tv/node/10249>

Victor Ravelo - <http://www.scivee.tv/node/10297>

6. Public Health and Safety





Research Team Title: Innovation in Educational Policy and Planning: Case Studies

Grand Challenge: Education and Equity

Key Terms: charter school, student achievement, parent involvement, bilingual education, education and equity, diversity, minorities in higher education

Student Leaders: Jesus Ramirez and Rebecca Gershon

Student Members:

Jesus Ramirez- *Diversity in the University of California System, Working Hypotheses to the Variation in Underrepresented Minority Enrollment within the UC Campuses in the Last Ten Years*

Rebecca Gershon - *The Transformation from Public to Charter: King/Chavez Public Schools*

Katherine Li - *Deconstructing Bilingual Education: An Examination of the Impact of Proposition 227 on Program Effectiveness on Student Testing Performance in Selected Schools in California*

Mentor: Rafael Hernandez

Research Team Narrative:

Education in American public schools, particularly for low-income, first generation and under-privileged youth, is in need of reform if it is to meet the growing needs of the changing student population in the public schools, grades K-16, in both California and the nation. The growing educational disparity between privileged and under-privileged students on measures of scholastic success is forcing educators, parents, and universities to examine current policies and practices with the aim of addressing critical educational issues, including the achievement gap, educational attainment of English Language learners, and the relatively low numbers of under-

represented students in higher education. The persistence of educational disparities coupled with the continued growth of a culturally and linguistically diverse student population in our state make it imperative that current educational policies and practices, including Proposition 227 and charter schools and university outreach programs, are closely examined and evaluated for effectiveness. The three studies completed by students in this grand challenge are designed to critically examine efforts in these areas.

The first study, by Rebecca Gershon, presents an examination of the charter schools within the San Diego Unified School District. More specifically, this research is a case study of one particular network of charter schools; the King/Chavez public schools. This charter school network has been immensely successful in improving its students' academic standards in a neighborhood of San Diego that is predominantly low-income and Hispanic. Although this network of charter schools is comprised of seven (7) separate schools, the focus of Gershon's research is on the first King/Chavez Academy of Excellence which was initially created in 2000, and the King/Chavez Primary School which was a charter conversion from the public King Elementary School in 2004. To capture the success of these schools, Gershon analyzed the STAR test scores and Academic Performance Index (API) of the King/Chavez schools, and then examined indicators of parent involvement and academic opportunities at the school to gain a deeper understanding of the factors contributing to the schools' success.

The second study, by Katherine Li, discusses the impact of the passage of Proposition 227 on English Language Learners (ELL). In 1998, California voters outlawed bilingual education throughout the state with the passage of Proposition 227. In 2000, the Oceanside Unified School District (OUSD), after adhering strongly to the English-Only policies and reporting increases in test scores among its ELL students, emerged as a poster child for Proposition 227. Li notes, however, that the results from OUSD are inconclusive because the time period studied is too short to determine any significant longitudinal impacts. Li's work is a follow up of previous reports that examine whether bilingual education has a positive or negative impact on ELL students' testing performance. To test her hypothesis, Li analyzed test scores from the OUSD and National School District (NSD), along with test scores from Ditmar Elementary and Kimball Elementary—schools with the largest percentage of ELL students in the given districts. The data examined covers an eight-year period following the implementation of Proposition 227. Li found a significant difference between test school improvement for students at NSD and OUSD. The students at NSD realized greater improvements in their test scores, and Li hypothesized that this was due in part to the fact that many of the students at NSD are enrolled in bilingual programs, unlike OUSD where bilingual education has been nearly stopped. Li argues that bilingual education is a matter of equity and crucial for the long term learning process of ELL students.

In the third study, Jesus Ramirez examines current efforts by the University of California (UC) system to prepare, attract, and enroll underrepresented students. Under-represented

students are defined as American Indians, African Americans and Chicanos/Latinos. In 2007, underrepresented students comprised twenty-two percent of the entire UC student population. Since the elimination of affirmative action, underrepresented minority enrollment figures have slowly increased but there is still significant variation between the UC campuses. In 2007, only five of ten UC campuses had reached the same level of underrepresented minority enrollment figures that existed prior to the elimination of affirmative action. Ramirez presents three working hypotheses to explain the variation in underrepresented minority enrollment within the UC system: 1) university elitism; 2) cultural reputation of the university, and; 3) the role of the socioeconomic context and location of the university. As an initial step for other scholars to address this issue in greater detail, Ramirez employed a methodological approach that utilized archival documents, empirical data, and Geographical Information System mapping. Ramirez's research indicates that the elite campuses in the UC system are less diverse and that more minority students attend UC campuses that already have a relatively larger minority student enrollment and/or are isolated and rural such as the Riverside and Santa Cruz campuses. Because minority enrollment in the UC system remains disproportionate to California's minority population, Ramirez hopes to encourage further research on underrepresented minority student enrollment in higher education.

It is evident from the results of the studies in this grand challenge that there is a need to continue research efforts aimed at clarifying effective strategies to improve the educational experiences for low-income, first generation and under-privileged youth in the American public school system, grades K-16. While the research conducted by the group has yielded valuable information for policy makers, educators, school administrators, parents, university students and scholars, further research is needed, particularly on the growth of the charter school movement in San Diego, the impact of existing policies related to the schooling of English Language Learners in California, and access and retention of under-represented students in post-secondary education. All three areas of study presented in this summary are potentially controversial "hot topics" and subject to the significant impact of politics and funding priorities based on the current budgetary crisis in the state of California. This volatility adds to the intrigue of these topics as potential areas of interest for future research teams.

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Links:

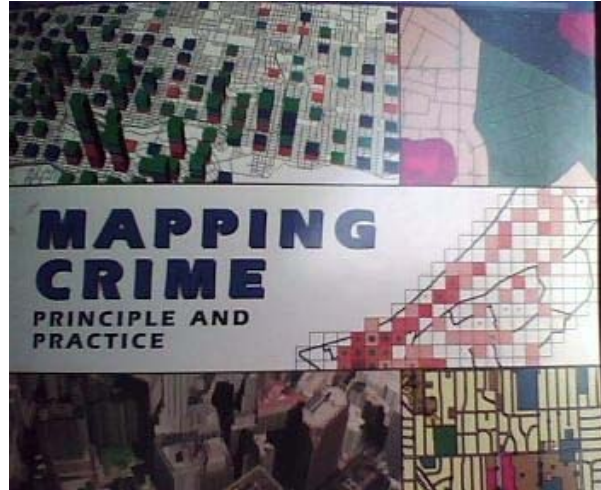
N/A

Multimedia Archive:

Jesus Ramirez - <http://www.scivee.tv/node/10274>

Rebecca Gershon - <http://www.scivee.tv/node/10240>

Katherine Li – N/A



Research Team Title: Crime and the City: New Approaches in Theory and Practice

Grand Challenge: Crime and the City

Key Terms: public art, new genre public art, crime, public space, crime prevention through environmental design (CPTED), defensible space, broken windows theory, cultural democracy, community involvement, education, awareness, collaboration, relationship violence, intervention, prevention, advocacy, empowerment, affordable housing, crime, fear of crime, government housing, architectural characteristics, emergency management, regional fire protection agency, regional planning, Proposition A

Student Leader: Kevin Highland

Student Members:

Kevin Highland- *Crime Prevention Through Public Art: An analysis of San Diego's Art and its Effect on Crime*

Alejandro Martinez- *Technologies Contribution to Crime Prevention: An investigation on the contribution and liabilities of crime analysis in San Diego*

Cecilia Gonzalez- *Crime and its Association to Affordable Housing: A Study of Barrio Logan's Neighborhood Crimes*

Meron Mesfine- *Sexual Assault and Domestic Violence Resources in San Diego*

Mentor: Julie Wartell

Research Team Narrative:

“Crime and the City” encompasses a range of issues, theories, and methodological approaches. In a discipline such as Urban Studies and Planning, crime may be examined at several levels. Some examples include the nexus between planning and design (Crime Prevention Through Environmental Design), place-based inquiries (such as risky facilities, parks, public housing, schools, etc.), and the study of neighborhood-level issues (social justice). While these three categories cover many issues, other aspects in the study of crime in urban areas have also been explored.

The field of environmental criminology – the study of the relationship between crime, the built environment and opportunity – encompasses relevant theories for this grand challenge. This includes crime pattern theory, routine activity approach, rational choice theory, and situational crime prevention.¹ Other related crime theories and approaches include broken windows, problem-oriented policing, crime prevention through environmental design, and defensible space.

Students in the Crime and the City grand challenge studied numerous dimensions of this broad area of inquiry including public art and residential architectural design as crime prevention tools, crime analysis as a means for effective law enforcement, and holistic approaches to investigating domestic violence victimization. The students used crime data and stakeholder interviews and observations to support existing theories as well as to look beyond the research. Their projects taught them about interacting with criminal justice personnel as well as those affected by crime in urban spaces. The following section includes brief summaries of each student’s research.

Kevin Highland’s project analyzed public art as a tool for Crime Prevention through Environmental Design (CPTED). After looking at a variety of works across San Diego, Highland’s most significant finding was that public art works deter crime when used to cover up spaces prone to graffiti and vandalism, effectively reducing the number of instances on such spaces. This finding was particularly evident upon analysis of the Chicano Park Murals in the San Diego’s Barrio Logan neighborhood and painted utility boxes in the San Diego neighborhoods of North Park and Mission Hills – works that can be considered as CPTED, where public art has been utilized to address a crime problem. While graffiti and vandalism are often found in urban environments, the use of murals as a form of CPTED can effectively reduce

¹ For more information on this topic see *Environmental Criminology and Crime Analysis* (2008). Wortley, R. and L. Mazerolle, Editors. Willan Publishing, United Kingdom; and *Crime and Place* (1995). Eck, J. and D. Weisburd, Editors. Criminal Justice Press/Willow Tree Press, Monsey, NY.

the number of occurrences and increase the motivation for a quick clean up of graffiti. This is especially useful when considering the Broken Windows theory which states that disorder leads to disorderly behavior and more crime (Kelling and Coles 1996). Another important finding was the role that community identity and pride play in the deterrence of crime to and around public art works. Chicano Park, frequently referred to as the center of the modern Chicano Civil Rights Movement, is not completely free from graffiti or vandalism. However, when hit with graffiti, the Barrio Logan community mobilized around the restoration of the murals – its community symbols – to repair them quickly. Public art has the opportunity to generate pride through engaging the public in its inception. The San Diego Commission for Arts and Culture currently uses community-engaging methods as standard practices in the design process of new public art works.

Alejandro Martinez studied the effectiveness of crime analysis in law enforcement. San Diego is at the front line of implementing crime analysis and mapping in an attempt to understand, reduce, and prevent crime. Out of the ten San Diego law enforcement agencies in existence, there is great variation in the amount of crime analysis that takes place. Since the amount of crime analysis performed by departments is difficult to measure, Martinez used the number of crime analysts as a measurement tool. The statistics that were compared used the number of analysts and the change in crime rate over five years. To further validate the statistics the data were normalized thereby taking into account the differences in population between the jurisdictions. No strong correlation was found between the number of analysts and amount of crime. The data did verify some expected patterns of the hypothesis but also contradicted it. Greater findings were observed through naturalistic observations. Through ride along and sit-ins with crime analysts, Martinez identified central problems that may be hindering crime analysis in law enforcement. He found that as their status as public entities, law enforcement agencies lack a crucial component that the economic model requires for efficiency -- competition. This explains part of the inefficiency that can be observed in law enforcement agencies. Martinez also found that successful crime analysis units have a strong communication line with the rest of the law enforcement agency. Crime analysts can be more effective if they develop partnerships with police officers so that their analyses will be utilized. Finally, Martinez concluded that a crime analysis unit can be more effective if it secures the support from its department's managers.

Meron Mesfine evaluated the methods of domestic violence (DV) intervention utilized by two of San Diego's major non-profit agencies, Center for Community Solutions (CCS) and Women's Resource Center (WRC), to determine the most significant elements of DV intervention. CCS, which is based in the North Central and Central regions of San Diego County, takes a holistic approach to DV intervention through a broad range of services including victim advocacy, legal services, emergency and transitional housing, and professional counseling services. The regions served by CCS have experienced the greatest decrease in domestic violence rates over the past seven years (SANDAG). The North County Region of San Diego County,

served by the WRC, however, has fluctuated over the last seven years, with increases in DV rates in the last three years even though WRC takes a similar, community approach for intervention. Mesfine argues that WRC has not been as successful as CCS in keeping DV rates low for a few reasons. She hypothesized that one reason may be the fact that WRC only serves the North County region of San Diego, giving it less governmental funding. Second, WRC is located in Oceanside which is a city with a large military population due to its proximity to Camp Pendleton, and this may yield more domestic violence incidents because of strains of combat and deployment (Amer 2008). While WRC does have some weaknesses, it does offer unique services such as a thrift store. Mesfine concluded that by observing the strengths and weaknesses of both agencies' services, it is easier to identify important factors for a successful model of DV intervention.

Cecilia Gonzalez researched the effects of architectural design on crime and fear of crime in affordable multi-family apartments in two of San Diego's neighborhoods. In Barrio Logan's Mercado Apartments and Gateway's Family Apartments, her findings showed that architectural design and physical space affected fear of crime more than crime itself. Gonzalez found that the main contributors to feelings of fear of crime are the architectural safety characteristics of buildings, housing maintenance and development management, and the use of surrounding physical space. Architectural safety characteristics such as blocked pass ways (i.e. hallway doors and barred windows) can produce fear of crime, but conversely they can also make the housing units feel more secure and safe. The study found that the non-closed architectural design and dynamic colorful architecture of both apartments decreased and prevented fear of crime. However, the deterioration of the housing development may lead to fear of crime. Based on this study's resident survey results, minimal housing maintenance and deterioration of the housing development was found to cause an increase in fear of crime. Proper and efficient use of surrounding physical space was also a main contributor to mitigating fears of crime. Both affordable developments incorporated mixed used physical spaces. Gonzalez found that controlled spaces like surrounding community centers near the developments produced less fear of crime than vacant lots located in close proximity to the Mercado apartments. Gonzalez's findings should be used to identify architectural and site planning features that are influential in planning for a safer environment.

The students' research covers a wide range of areas relating to crime and urban planning. The primary thread across all of the research is the importance of place when evaluating, reducing and preventing crime. Place might be as specific as a wall, as expansive as a jurisdiction, or somewhere in between, such as a neighborhood or housing development. While existing, official records can be used for analysis, primary data collection is also vital when studying crime. While these research projects have contributed to the body of knowledge, they have also generated additional, related questions that warrant further study.

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Multimedia Archive

Kevin Highland - <http://www.scivee.tv/node/10237>

Alejandro Martinez - <http://www.scivee.tv/node/10260>

Meron Mesfine - <http://www.scivee.tv/node/10262>

Cecilia Gonzalez – N/A



Research Team Title: Emergency Preparedness and Community Well Being

Grand Challenge: Quality of Life, Public Health, and Welfare

Key Terms: emergency management, regional fire protection agency, regional planning, Proposition A, disasters, media coverage, information technology, emergency preparedness, public welfare

Student Leaders: Jacky Kim and Priscilla Jang

Student Members:

Priscilla Jang- *Natural Disasters and Emergency Management: Case Study of San Diego Wildfires*

Jacky Kim- *Withering FEMA: Problems with Disaster Policies and Management*

Mentor: Phillip VanSaun

Research Team Narrative:

Community quality of life planning is not complete without a well-developed plan for emergencies. Natural disasters test a community's emergency preparedness; an organized and efficient response in emergency situations can minimize the mayhem that generally ensues after a natural disaster. This year, Jacky Kim and Priscilla Jang examined emergency preparedness for two major natural disasters in the United States: Hurricane Katrina and the 2007 wildfires in San Diego.

Kim's research compared the two emergency situations in San Diego and New Orleans, focusing on two topics: 1) the mass media coverage during and after the two events, and 2) the importance of community readiness. One of the goals of Kim's comparative study was to reveal why the response and relief efforts of the 2007 wildfires of San Diego were considered

successful, and to determine if lessons learned from Hurricane Katrina contributed to that success. Kim also used this research to suggest ways to handle upcoming disasters by effectively utilizing mass media communication activities and available resources that local agencies provide in order to maintain disaster preparedness within the community. One of the main findings in the study was that manipulation of the media – such as the unethical use of yellow journalism or decontextualized imageries or citizen-participatory journalism – significantly alters the aftermath of a natural disaster and how it is perceived by the general public. Another main finding of this research is the importance of community outreach prior to a natural disaster. Programs such as Community Emergency Response Teams (CERT), Radio Amateur Civil Emergency Service (RACES), and Emergency Survival Program (ESP) make emergency planning accessible for civilians to be prepared at all times and allow certified citizens to actively participate as volunteer workers during an actual disaster. Manipulation of media, paired with the role of citizen participation in the community during a natural disaster is crucial in order to remain calm and alert during an emergency. The results of Kim’s study further discuss the need for more funding in local emergency management agencies throughout the nation to effectively contain and respond to natural disasters.

Currently, San Diego County is the most populous county in the state without a regional fire department. In response, ballot measure Proposition A was initiated to impose a parcel tax to fund a regional fire authority and provide financial support to fire protection agencies. Jang’s research analyzed the planning of a regional fire authority and assessed proposed county ordinance Proposition A. This case study informs the public of the political approach and efforts of organizing a regional governing body to provide for essential fire protection, emergency management, and other preventive efforts to reduce wildfire risks in San Diego County. One of the main findings this study concludes that an important issue underlying the planning for a regional fire authority is the obstacle of clearly organizing sufficient financial and economic funding to support a regional fire department. Jang’s research findings also point to the importance of analyzing examples of current fire departments applying a regional approach to its governing infrastructure such as the Los Angeles County Fire Department and Valley Regional Fire Authority. Improving the fire protection infrastructure and emergency management planning in the county of San Diego is crucial to the preparation of future potentially perilous wildfires and other related natural disasters affecting the San Diego region. The results of this study provide further information for increasing the level of preparedness for fire disasters, resulting in improved emergency management planning.

Disaster planning and mitigation benefit significantly from the work of urban planners. Their multidisciplinary background and interface with public, private, and community stakeholders position them to effectively facilitate communication and collaboration during all stages of disaster planning and response. Kim and Jang’s research highlights the importance of continued research on San Diego’s disaster planning infrastructure.

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- <http://www.signonsandiego.com/news/politics/20081106-9999-1m6firetax.html>
- www.sandiego.gov/mayor/pdf/fireafteraction.pdf
- www.msdh.state.ms.us/msdhsite/_static/resources/1676.pdf

Multimedia Archive

- Priscilla Jang - <http://www.scivee.tv/node/10229>
- Jacky Kim- <http://www.scivee.tv/node/10298>

7. Transportation Planning





Research Team Title: Sustainability in Transportation Planning

Grand Challenge: Transportation Equity

Key Terms: Transportation planning, sustainability, alternative transportation, public transportation, inter-city rail, bicycling, parking, pervious pavement, transit-oriented development, economic benefit, environmental costs, San Diego, Southern California

Student Leader: Matthew Egge

Student Members:

Matthew Egge- *Factors for Successful Transit-Oriented Development, A Study of What Motivates People to Live Near and Ride the San Diego Trolley*

Tim Lo – *Urgency for Inter-City Rail System in Southern California, A Study of the Economic Benefits of Inter-city Railway in Southern California*

Tyler Lau – *Bicycle Master Plans, a Tool for the Enhancement of Sustainable Alternative Transportation Options*

Christine Wang – *Green Parking is Smart Transportation Management, Reducing the Environmental Footprint of Mandated Free and Underpriced Parking*

Mentors: Kenneth Grimes and Connery Cepeda

Research Team Narrative:

Since the start of the millennium, there has been a growing awareness of the concepts of sustainability and sustainable transportation. Sustainability reflects the fundamental human desire to improve the world for future generations. While there are varying definitions of

sustainability, one explanation often applied to transportation is the long-term planning and strategic decision-making that strive to improve the “three E’s”: economy, environment, and social equity. Transportation planners, whether on a local, regional, state or national level, must be sensitive to these issues and utilize the available tools to rethink infrastructure, policy, and design. The four student research projects in the Transportation Planning concentration explore sustainability within different aspects of transportation planning in the San Diego region.

Southern California has always been a place planned for the automobile. Southern California's transportation planning largely focuses on the development of transportation infrastructure such as widening freeways or building more freeways to improve the regional transportation mobility as well as planning residential zones horizontally so that citizens have to drive a long distance before they can get to their workplace. However, the 21st century energy crisis combined with the increasing traffic congestion in Southern California due to automobile usage creates a sizeable economic cost for society thereby making it the most inconvenient mode of transportation. Additionally, the government's investment in existing systems will not resolve current mobility problems. Tim Man Him Lo’s research analyzes the costs and benefits of inter-city railway systems. Data analysis show that inter-city railways provide a higher economic benefit than highway expansion as inter-city railways reduce delays in traffic congestion, alleviate the cost of individual gas bills and reduce the cost of air pollution remediation. A rich methodological approach was utilized include survey research, an analysis of transit ridership figures, and an analysis of the reasons for public support of transportation legislation, such as Proposition 1A, even when they require significant financial outlays. Lo concludes that the construction of inter-city railways is a feasible approach for addressing future transportation challenges.

An interconnected, efficient, and expansive metropolitan rail system is a long-term goal for many urban areas and has become a fixed component of many metropolitan regional plans. The study conducted by Matthew Egge aims to uncover the leading factors contributing to the success of transit-oriented development. Specifically, Egge explores the factors that motivate residents to use the San Diego County Trolley. Transit-oriented development is generally characterized by mixed-use development and services in a half-mile radius around transit stations. As the nature and availability of resources to maintain and develop the urban environment changes, the way city planners and citizens think and live must adjust. Transit-oriented development is an increasingly important feature of the urban landscape, and gaining perspective as to why residents use or ignore transit is essential to proper planning. The success of transit-oriented development in San Diego lies in residents’ use of the trolley. Planners need to understand how people make modal choices and how they can be encouraged to use transit in order to make proper decisions and maximize time and resources. Planning agencies like San Diego Association of Governments have conducted studies regarding transit use and outlined key development features thought to encourage transit use. Through direct observation, in depth

analysis, and a series of surveys, Egge's research considers the incentives and deterrents citizens face when considering the use of the trolley. Egge concludes that in addition to traditional standards of development, other factors need to be considered including residents' behavioral tendencies and variables in local environments.

As more subsidized parking is being created to accommodate automobile dependency, these expansive paved areas lend themselves to contaminated storm water runoff and possibly the urban heat-island effect. By considering the relationship between science and policy decision-making, Christine Wang examines the cost-benefit decision making process of retrofitting impervious parking lot pavement to pervious pavement. Though pervious pavement has been named one of the best storm water management practices by the Environmental Protection Agency (EPA) and has countless environmental and land use benefits, many San Diego parking lots are still constructed using impervious pavers. Utilizing a case study analysis of two parking lots, one with impervious paving (San Diego County Operations Center) and the other with pervious paving (UCSD), Wang identified three factors that affect parking lot retrofitting decision-making: 1) installation and maintenance commitments, 2) funding sources, and 3) incentives and rewards. The research shows that each parking lot site must have its own custom-made pavement mix, based on topography, slope, and other constraints. Custom-made pavement inevitably leads to unique successes, as well as unique problems since this technology is still relatively new. Though UCSD has declared to aim to be the "greenest university in the nation," it still faces a moderately steep learning curve for actual application. UCSD still relies on traditional methods of storm water management and is reluctant to experiment with new materials and approaches. Compared to the SDCOC, whose pervious pavement project was funded by state grants, UCSD does not have the economic resources to experiment with new technologies. Furthermore, UCSD has acknowledged that the greening lifecycle costs take a long time to recover. Wang argues that despite the long-term economic costs of pervious pavement technologies, decision-making apparatuses need to be aware that their choices directly affect environmental equity.

Current research on bicycling suggests that it benefits the environment, the economy, and the personal health of bicyclists. Bicycle Master Planning is a useful tool for promoting bicycling through infrastructure development, safety mitigation, and resource allocation in both cities and university campuses. Tyler Lau's study examines three campuses in the University of California system and their reasons for drafting bicycle plans and the provisions included within those plans. UC San Diego, UC Berkeley and UC Davis' current bicycle plans were reviewed in order to identify policy recommendations for the new UC San Diego Bicycle Plan. Lau's research analyzed the relationship between university bicycle plans and access to funding, user satisfaction, integration with local planning agencies and positive effects toward the promotion of sustainability. Three different scenarios for bicycle plan creation and implementation were observed. These include: 1) the impact of not having an official plan, 2) creating but not

implementing a plan, and 3) creating and implementing a plan. Lau used a multi-layer methodological approach including participant observation, interviews with bicycle planners, and a review of scholarly literature data. Lau found strong evidence in support of the benefits of university bicycle plans, although he was careful to state that bicycle plans do not solve all problems. Survey results collected from bicycle commuter members of the UC San Diego Pedal Club highlight problems the campus faces regarding funding, infrastructure improvement, safety education, and the promotion of alternative transportation options to the automobile. Lau concluded by highlighting the value of updating UC San Diego's bicycle plan to promote alternative forms of sustainable transportation.

Transportation planning has the potential to improve the economy, environment, and social equity, through the development of infrastructure (inter-city rail), policy (bicycle master plans, transit-oriented development), and design (pervious pavement). Each of the student research projects in the Transportation Planning concentration demonstrate that dependency of the automobile in the San Diego region is not sustainable for us and our children, and it cannot continue. Agencies ranging from the California Department of Transportation (Caltrans) and the San Diego Association of Governments (SANDAG) to each of the local jurisdictions have a stake in developing transportation alternatives to solve this crisis.

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Multimedia Archive:

Matthew Egge - <http://www.scivee.tv/node/10234>

Tim Lo - <http://www.scivee.tv/node/10234>

Tyler Lau - <http://www.scivee.tv/node/10218>

Christine Wang - <http://www.scivee.tv/node/10294>

8. Tribal Policy and Planning



No students participated in this Grand Challenge this year.

9. Urban and Regional Planning

The image features a blue-toned map of a region, likely a coastal or riverine area, with a white title overlay. The map shows a coastline with several bays and a river system. The title '9. Urban and Regional Planning' is written in a bold, white, sans-serif font on a white background that is part of the map's overlay.



Research Team Title: The Regional Comprehensive Plan: Barriers and Bridges to Implementation

Grand Challenge: Regional Comprehensive Planning

Key Terms: Transit-oriented development, urban form, functional mobility, regional governance, fiscalization of transit, public transit, smart growth, land use policy, climate change.

Student Leader: Oswaldo Perez

Student Members:

Oswaldo Perez- *Evaluating the Policy and Practice in San Diego's Transportation Infrastructure*

Greg Behrens- *Mitigating Climate Change with Regional Transportation Planning*

Andy Ma- *Relationship Between Multidisciplinary Networking and Planning in the San Diego Region*

Mentor: Bob Leiter

Research Team Narrative:

The Regional Comprehensive Plan (RCP) serves as the long-term planning framework for the San Diego region. It provides a broad context in which local and regional decisions can be made that move the region toward a sustainable future - a future with more choices and opportunities for all residents of the region. The San Diego Association of Governments (SANDAG), the regional planning agency which is composed of its 18 cities and county government, adopted the RCP in 2004. SANDAG produced the RCP through a collaborative process that involved a wide range of stakeholders. As noted on the SANDAG web site, "The RCP better integrates our local land use and transportation decisions, and focuses attention on where and how we want to grow, providing a vital alternative to where we could end up if we

continue with business as usual. The RCP contains an incentive-based approach to encourage and channel growth into existing and future urban areas and smart growth communities."

The Urban Form chapter of the RCP calls for the development of a smart growth map. In June 2006, the SANDAG Board accepted the first "Smart Growth Concept Map" in the San Diego region. The Concept Map is a key ingredient to successfully implementing the RCP, as it identifies locations within the region that can support smart growth and transportation investments. This collaboratively-developed map is serving as the foundation for managing the region's growth and addressing projected housing needs. It also is being used to determine eligibility to participate in the region's long-term \$280 million Smart Growth Incentive Program, funded through *TransNet*, the region's half-cent transportation sales tax, and was used to help identify transportation and transit needs in the development of the 2030 RTP.

The Smart Growth Concept Map contains almost 200 existing, planned, or potential smart growth locations in seven categories of smart growth "place types" identified in the RCP. The place types include: the Metropolitan Center, Urban Centers, Town Centers, Community Centers, Rural Villages, Mixed Use Transit Corridors, and Special Use Centers. The RCP establishes land use and transportation targets for each of these place types. Depending upon whether the areas on the map meet the targets, they are identified either as "Existing/Planned" areas or "Potential" areas. About 40 percent of the areas on the map qualify as Existing/Planned smart growth areas, and the remaining 60 percent represent Potential smart growth areas. Every jurisdiction in the San Diego region identified at least one smart growth area on the map, demonstrating region wide support for the smart growth principles in the RCP. Upon accepting the Concept Map for planning purposes, the SANDAG Board recognized that the map is dynamic and will be updated periodically to reflect changes in local land use plans or regional transportation plans that may influence the designations of the smart growth locations.

A key goal of RCP implementation is to provide incentives and assistance to local member agencies to encourage smart growth development in the areas identified on the Smart Growth Concept Map. SANDAG has initiated work on a "Smart Growth Tool Box" which includes the following planning and financing tools: outreach program; visualization tools (including 2-D and 3-D smart growth simulations in local communities in the San Diego region); Smart Growth Design Guidelines; Smart Growth Trip Generation/Parking Study; San Diego Regional Bicycle Plan; research on connections between public health, land use, and transportation; sketch modeling tools, such as I-PLACE3S ; *TransNet* Smart Growth Incentive Program; TDA/*TransNet* Bicycle, Pedestrian, and Neighborhood Safety Grant Program; and Regional Housing and Smart Growth Financing Strategy.

The RCP also recognizes that continued rapid urban development in the San Diego / Tijuana region puts ever greater strains on our natural environment. In response, conventional methods of urban planning, development regulation and environmental review are being

supplemented by new approaches that focus on natural systems at a regional scale rather than jurisdictional boundaries or individual projects. These approaches are being applied in the areas of habitat conservation, storm water management, water supply, and climate change through the planning framework of SANDAG's Regional Comprehensive Plan.

In the area of regional public facilities, the RCP's Integrated Regional Infrastructure Strategy (IRIS) outlines an investment and financing strategy that will help the San Diego region meet its collective infrastructure needs. The IRIS focuses on eight important infrastructure areas including: transportation; water supply and delivery system; wastewater; storm water management; solid waste collection, recycling, and disposal; energy supply and delivery system; education; and parks and open space. The IRIS encourages regional infrastructure providers to develop and implement long-term comprehensive plans such as those currently developed for transportation and water supply.

The Performance Monitoring Chapter of the RCP describes using performance indicators as a tool to track our progress in implementing the Plan. Given that many of the strategies and actions recommended in the Plan will take years to develop and fund, it is important to maintain a consistent and valid set of indicators that can reflect the changes that occur over the long run. In October 2006, the SANDAG Board accepted the RCP Baseline Report for Performance Monitoring (Baseline Report), which established a benchmark for future monitoring. The Baseline Report discusses the significance of each of the 39 indicators and identifies targets for certain indicators. The Baseline Report also includes initial analysis of the data collected and a discussion of SANDAG's work efforts underway that may influence performance over time. Monitoring reports have been prepared and accepted by the SANDAG Board in 2007 and 2008.

While the RCP lays out an ambitious set of goals for the region, we need to better understand how well the San Diego region is addressing its future challenges through the RCP framework. What are the strengths and weaknesses in the voluntary regional approach advocated in the RCP? How can we continually improve our performance as a region in the face of these challenges? The students in this grand challenge explored different dimensions of the RCP.

The study by Oswaldo Perez, "considers how the consensus-based regional approach advocated in the RCP leads to implementation." This issue tackles one of the core dilemmas of San Diego regional planning- how to promote Smart Growth and transit oriented development (TOD) without having a regional land use authority. Perez investigates whether or not San Diego's current joint-TOD is a proportioned joint approach. Does the authority level of SANDAG best suit its Joint-TOD approach? In terms of SANDAG's strategy to encourage joint-TOD, to what degree are its components automobile-oriented versus bicycle-pedestrian oriented? Perez addresses the question of whether SANDAG's strategy leads to an emphasis on bicycle/pedestrian oriented transportation planning and if the operational outcomes perpetuate the automobile infrastructure as its facility for transit. Perez found that the non-authoritarian

approach and Smart Growth incentive-based transit planning serve well to incorporate bicycle/pedestrian oriented solutions in an automobile favored region. However, he also found that financial constraints impact in transit policy, limiting the opportunities for implementation.

Greg Behrens' research focuses on another critical issue being addressed through regional planning. In the past decade, climate change has risen to prominence as one of the major challenges facing society. Climate change is caused by the greenhouse effect, which is exacerbated by the release of excessive amounts of greenhouse gases (GHG) into the atmosphere. One major contributor to GHG emissions is the transportation sector, which accounts for nearly 30% of all GHG emissions nationwide. Under the status quo, this percentage is expected to increase. However, the reduction of GHG emissions through progressive transportation planning can occur by decreasing the overall amount of vehicle miles traveled and reducing congestion. In the San Diego region, SANDAG is responsible for regional decision making, including a large portion of regional transportation planning responsibilities. SANDAG has begun to address climate change issues at the regional scale by fostering collaboration between the scientific community and planning community. These efforts include evaluating current GHG emission levels in the region from transportation sources and establishing future scenarios based on potential regional planning activities. SANDAG has fostered inter-agency and inter-regional collaboration for transportation planning efforts in attempts to reduce congestion and establish programs that offer alternative travel methods to the automobile. Finally, SANDAG has led numerous alternative transportation initiatives including Bus Rapid Transit and the SPRINTER light rail which utilize advanced technologies that are environmentally friendly and attractive to regular automobile users. Behrens argues that in addition to these efforts, SANDAG must take an increased regional leadership role in creating an action plan outlining clear GHG emission goals and effective implementation methods for future transportation planning.

Finally, the study by Andy Ma addresses the challenges associated with the increased complexity of urban planning and the widening web of constituents. Planning for sustainability has become increasingly more important as well. Ma argues that as our urban space is filled with more conflicting and diverging activities and interest, planners need to utilize data more efficiently and communicate information more effectively with constituents. Planners need tools to convey their plans and ideas with stakeholders, decision makers, and the public through collaborative interactions. Technology and computer analytical tools are making great strides which allow planners to deal with problems of the planning process; however, obstacles exist between planning constituents and computerized planning tools. Ma contends that the sketch modeling software I-PLACE3S is an excellent planning tool that is designed to facilitate the collaborative planning process and has utility for SANDAG in its RCP planning process. I-PLACE3S provide information to its users regarding land use scenarios and is capable of receiving immediate feedback. However, little comparative analysis of it has been carried out

and Ma's research provides some suggestions for improving the model. Ma's findings suggest that I-PLACE3S functions a great deal better when used as part of a Planning Support System (PSS) toolbox. So, instead of having I-PLACE3S functioning as a fully integrated system that attempts to provide planning support on its own – as in the case of SANDAG; an effective PSS is one that works with other tools to communicate and share data sets to provide support for various part of the planning process. Ultimately, Ma's research points to the finding that it takes more than one good planning support tool to effectively help constituents visualize land use alternatives and to allow for constructive interaction in the planning process

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http://findarticles.com/p/articles/mi_qa3734/is_199906/ai_n8865580/pg_1?tag=artBody:coll

<http://sandag.org/index.asp?projectid=1&fuseaction=projects.detail>

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Multimedia Archive:

Andy Ma - <http://www.scivee.tv/node/10252>

Oswaldo Perez - <http://www.scivee.tv/node/10247>

Greg Behrens - <http://www.scivee.tv/node/10276>



Research Team Title: Foodshed Mapping

Grand Challenge: Community and Regional Food Planning

Key Terms: urban agriculture, food security, sustainability, land use, zoning, General Plan, soil quality, sustainable agriculture, public health, water conservation, foodshed, regionalization

Student Leader: Tamara Geiger

Student Members:

Tamara Geiger- *Developing a Framework to Incorporate Agriculture into City of San Diego Redevelopment Project Areas*

Mentors: Elle Igoe, Julie Osborn, Jonathan Reibold, and Mary Lydon

Research Team Narrative:

Over the last few years, food has emerged as a major issue in the mainstream press and planning circles. Since World War Two, a global system of food production and consumption has emerged that has focused on cheapness (low cost to consumers, high profit margins for corporations) and convenience (easy to store and cook for consumers, easy to grow and transport for corporations). It has increasingly been recognized that other values, especially health, taste and the environment, have been sacrificed in the pursuit of cheapness and convenience, a realization not only made by policy advocates but by the public at large, in many ways because of Eric Schlosser's *Fast Food Nation*, Morgan Spurlock's documentary, *Super Size Me*, and Michael Pollan's *The Omnivore's Dilemma*. This has led to a movement, both within planning and more generally, to promote more environmentally sensitive cultivation practices and healthier and better tasting food, preferably grown locally. This effort to create a more balanced

food system is now arguably *the* cutting edge of the planning profession especially as more traditional areas like land use planning have lost their urgency because the subprime crisis has led to a slowdown in construction.

Creating a sustainable foodshed for the San Diego region is a significant challenge. It will require assembling a massive infrastructure of growers and food buyers, of skilled cooks and of consumers who enjoy food made from whole foods. If, for instance, a school wanted to feed its students healthy food made from local ingredients, it would need (a) to convince local farmers capable of growing whole foods that it is dedicated enough to buy its products (for the farmer would be at great financial risk if the school changed its mind), (b) to train its cooks how to cook something other than highly processed foods, (c) construct kitchens that had the right equipment and (d) get the children to eat it .

In truth, while there is a growing realization of the importance of crafting a sustainable foodshed for San Diego, at this point we still have a poor sense of the resource flows involved in feeding San Diegans. We do not have a comprehensive overview of where the food consumed locally comes from nor where the crops grown locally (on imported water) are consumed. Tamara Geiger's research investigates some of these challenges.

Geiger's project determined the costs and benefits of committing city-owned land to agriculture in San Diego. The recently permitted New Roots Urban Farm located within the community of City Heights was evaluated as a case study. The analysis finds that community gardens have potential to be a sustainable public urban land use. By comparing the start-up and maintenance costs of a garden and traditional park space, the study finds that gardens are less expensive and incur fewer maintenance costs than traditional parks. The annual maintenance cost for a garden is estimated to be \$5,000 (the cost of the city water bill), while the cost for traditional park space of similar size is \$19,647. This difference in cost can be attributed to labor and resources for the garden being provided by the community, rather than paid city workers and tax dollars. Additionally, the start-up costs for the garden (currently valued at \$82,336.07) could be drastically decreased if the city removed red tape from the permitting process. As community gardens became a new topic of focus in the 2008 revision of the City of San Diego General Plan, it seems the City will support improvements in the land procurement process. Lastly, the study discusses the range of benefits provided by gardens that are not characteristic of traditional park space. These benefits include improving food security, fostering a sense of community cohesion, contributing to local economic diversity, and improving individual dietary diversity and health.

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Multimedia Archive:

Tamara Geiger - <http://www.scivee.tv/node/10230>



Research Team Title: The Science of Land Use Planning: Using Data to Craft and Evaluate Alternate Versions of Projects and Plans and to Monitor Implementation

Grand Challenge: Community Mapping and Comparative City Planning Analysis

Key Terms: sprawl, land use, urban design, rehabilitation, smart growth, mobility, transportation, pollution, lifestyle

Student Leader: Amanda Irvine

Student Members:

Amanda Irvine- *Reintroducing Community in a Land of Sprawl*

Oliver Fu- *Economic Costs and Benefits of Redevelopment in Downtown San Diego*

Mentors: Toni Dillon, Samir Hajjiri, and Jacques Chirazi

Research Team Narrative:

Data collection is critical to land use planning. Data is used to establish baselines to know what is already on the ground, to craft and evaluate alternate versions of projects and plans and to monitor implementation. The two research projects in this Grand Challenge prepared by Amanda Irvine and Oliver Fu create knowledge useful for the City of San Diego's Department of City Planning & Community Investment. They were designed to lead to a White Paper to assist planners with their decision making.

The places where we live, work, and interact are more than just physical spaces for daily activities - they have the ability to form the way we connect with people, form community bonds, and influence our quality of life. In this way, the built environment impacts our sense of

place, an important element of a city that has been heavily influenced by massive urban sprawl in the twentieth century. For her research Amanda Irvine conducted a comparative city analysis of how the regional governing bodies of Portland, OR and San Diego, CA have dealt with the issues of community, livability, and sense of place in their regional plans. Her analysis was structured to identify the main concepts guiding the plans, evaluate their efficacy, and identify the specific aspects of the plans that addressed the guiding concepts. Finding surprisingly different programs involved in both cities, Irvine analyzed the relative success of the varying tools utilized. Irvine found that the disparate plans had different strengths and weaknesses, and she argued that incorporating the lessons learned from both plans could yield optimal results for other jurisdictions involved with similar large scale planning. She found that while many regions are known for battling the economic and transportation-related issues involved in the influx of urban sprawl, community development is equally as important, and other regions have a lot to learn from San Diego and Portland's failures and successes in this regard.

Downtown San Diego is going through extensive redevelopment that is a counter reaction to the harsh history of the postwar inner city. While downtown San Diego's redevelopment is an economic success story in simple numbers, Oliver Fu argued that it is necessary to look further and evaluate it on the basis of affordable housing and economic equity. To this end, Fu's project examined the financing methods utilized in downtown San Diego's transformation and evaluated how well redevelopment has addressed affordable housing. It also draws a link to some of the issues that Barrio Logan has been facing in recent years, as it is a neighboring community that has been affected by downtown's redevelopment. By examining factors such as income, property value and housing prices, one can see how redevelopment has changed the economy of the inner city.

Fu explains that redevelopment in San Diego is mostly financed by tax increment funding, which relies on rising assessed property values. This type of funding has ensured efficiency and profit for redevelopment areas nationwide, but automatically favors upper income residential, industrial and commercial projects. Both downtown San Diego and Barrio Logan are becoming wealthier in general, with more growth of population in higher income categories. However, Barrio Logan is actually losing its low income population, suggesting that gentrification has taken place because of class displacement. Fu found that affordable housing can preserve a community's original living costs and character. In addition, it does not necessarily have to be significantly different from the majority of residential redevelopment in a structural or physical sense.

Fu concluded by noting that these changes have prompted opposing courses of action from various actors. While developers believe that their planned projects will benefit the city's economy, other public interest organizations fight to protect against increasing costs of living and preserve affordable housing. Both public and private sectors need to be involved in determining the essence of built environment and community as redevelopment takes its course.

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Multimedia Archive

Amanda Irvine - <http://www.scivee.tv/node/10266>

Oliver Fu – N/A

10. US–Mexico Border Planning





Research Team Title: Laureles Canyon, Tijuana: A Case Study Focused on Alternative Community-Based Solutions to Urban and Environmental Health Problems

Grand Challenge: Planning for Sustainable Human Settlements

Key Terms: sustainability, poverty, community mobilization, human capital, economic growth, limiting resources, urban design and urban planning, green principles, affordable housing, inadequate housing settlements, third world countries, Tijuana, sustainable housing, low-cost housing, protecting watersheds, improving trans-border region, bridging the border

Student Leader: Michael Opielowski

Student Members:

Michael Opielowski- *Planning Sustainable Housing and Policies in the Trans-Border Region*

Monica Coria- *Maquiladoras and Environmental Stewardship*

Alan Perusquia- *Green Affordable Housing in Tijuana*

Mentors: Hiram Sarabia and Oscar Romo

Research Team Narrative:

The U.S-Mexico border is a dynamic region 2,000 miles long and 125 miles wide that provides a very unique window onto the effects of globalization at the interface of two very different countries. One such example can be seen in the Tijuana-San Diego city-region, where the disparity in wealth is dramatic. San Diego and Tijuana are inextricably bound together in a sprawling transfrontier metropolis. Home to more than 4 million people (2.8 million in the larger San Diego metropolitan area and 1.3 million in Tijuana), the San Diego-Tijuana city-region is the most populated and busiest city-region of all 14 twin cities along the U.S. Mexican border.

Tijuana's annual growth rate is 4.9%; nearly double that of San Diego's. Together the two cities have a total gross regional product of \$125 billion (\$120B San Diego; \$5B Tijuana). The city-region's population is expected to swell to 8 million by 2030 (2). Although the city of San Diego has a population approximately the same size as the city of Tijuana, Tijuana's municipal budget is one-fourteenth of San Diego's—about \$100 million versus approximately \$1.4 billion (3). This has made it difficult to develop region-serving infrastructure in the San Diego-Tijuana area. Transboundary flows (north-to-south, as well as south-to-north) of water, air, people, capital, goods and wastes are part of daily-life in our region and are at the heart of what gives rise to many unique health and environmental concerns along the border.

In recent years, the suburban neighborhood of the Laureles Canyon (aka Laureles Canyon subwatershed) in Tijuana has become one of the busiest research sites along the U.S.-Mexico border and a living urban laboratory for innovative solutions. In spite of its small size-covering only a few square miles-the Laureles Canyon is a virtual microcosm of the city of Tijuana and the issues impacting the 1,750 square mile Tijuana River Watershed. Within this site one may find paved areas with basic infrastructure and homes built with conventional construction materials next to a mix of semi-developed areas and irregular settlements with no electricity or running water. The residents of this area span a wide range of socio-economic levels that may include legal residents of the U.S. that work in San Diego and live in Tijuana to recent immigrants earning some of the lowest wages in the maquiladora industry. Also, because the Laureles Canyon subwatershed drains into the Pacific Ocean, the contaminants that originate within this subwatershed not only impact its residents but also the downstream Tijuana River Estuary Nature Preserve and communities along the coast. According to a study carried out by Tijuana's Municipal Planning Institute (Instituto Municipal de Planeación or IMPLAN) and the Mexican Institute for Water Technology (Instituto Mexicano de Tecnología del Agua or IMTA) the problems of the Laureles Canyon sub-watershed include: a rapid increase in impermeable surface and unvegetated land cover, loss of habitats and native plant species, soil erosion and sedimentation of watercourses and canals, landslides, accumulation of trash and toxic wastes and sewage discharges. In addition, according to the same study a great deal of the problems found in the Laureles Canyon sub-watershed can be attributed to unplanned development and lack of infrastructure but also to the daily activities and practices of its residents. Presently, efforts are underway to influence the pattern of development and the daily practices of the residents of the Laureles Canyon, particularly in the newly settled upper reaches of the subwatershed (Colonia San Bernardo) where micro-watersheds in their natural state still remain.

The Laureles Canyon subwatershed is an ideal location to research U.S.-Mexico border issues dealing with irregular settlements or colonias, sustainable urban design and architecture, environmental health, crossborder flows, binational management of watersheds and natural resources, binational governance and community relations, binational education, influence of globalization at a regional scale, etc. Efforts currently underway in the Laureles Canyon show

great promise for helping us to understand the root of many border-wide problems and for the development of solutions that could serve as model for the larger Tijuana river watershed and border region. Michael Opielowski, Monica Coria, and Alan Perusquia were the three student members of this Grand Challenge. Collectively their research contributes to our understanding of some of the challenges and policy responses in this unique region.

The environment of the San Diego-Tijuana region is in a state of severe and serious decline. Michael Opielowski's research examined the process of unplanned and squatter urban development in the Tijuana municipality to fully understand the efforts in gathering the land, developing the land, and legalizing the developments in these communities. He also explored the relationship between these practices and environmental stewardship in Tijuana. He utilized a methodological approach that combined interviews, archival research, and observation. His findings reveal that the urban development process in Tijuana demonstrates little regard for environmental considerations. He found that urban development occurs in areas where it shouldn't be taken place, and the process of legalizing land in Tijuana is led by political pressures and capital. He concludes that this disregard for social and environmental impacts will be exacerbated if current practices continue. He argues that this haphazard planning should be addressed because he sees the potential in solutions that restore the balance of power and land in Tijuana to re-establish the region's quality of life.

Monica Coria's study closely examined environmental laws in the United States and Mexico and analyzed whether or not industries are doing their part to promote environmental stewardship along the border. Research indicates that both the US and Mexico have similar environmental laws and as a result industries in both nations are expected to follow strict environmental guidelines and keep the border region clean. However, Coria challenged these findings. She argues that although there are laws that protect the border region, the environment in that area continues to be neglected and polluted. Funding and technological issues have made it very difficult for the Mexican government to effectively implement environmental laws.

Through her research Coria found that there is a possibility that the environment in the border region will improve. Despite the fact that the Mexican government struggles to enforce environmental laws, it appears as though local industries are doing their best to implement environmental stewardship along the border region. In fact, the Tecate Brewery is an example of how a local industry is doing its part to help preserve the environment. The Tecate brewery does not only obey all environmental laws but it has gone the extra mile to help preserve the environment and promote green practices. The brewery has established strong recycling programs, has worked to use all natural resources efficiently, and has set money aside to educate the community about going green. The brewery has also made it clear that it is willing to work with any organization in order to clean the border region and help protect the environment.

Integrating sustainability principles and concepts into the building agendas of non-profit trans-national associations has become a great challenge. The importance of overcoming this challenge can be seen especially in the city region of Tijuana, Mexico a third world country. Even more, Tijuana has many squatter settlement that perpetuate the problem of urban poor housing a crisis that has increase dramatically over the years causing severe impacts to the environment and their inhabitants. Due to these drastic environmental impacts the demand for building inexpensive sustainable housing has grown exponentially. Alan Perusquia's research evaluated three non-profit cross border organizations (Habitat for Humanity, Engineers without Borders, and Project Mercy) and their efforts to integrated sustainability into their building agendas for the city of Tijuana. In particular, through the use of a "sustainable" matrix along with direct observations, interviews with key actors, and current research, Perusquia's study shows the distinctive approach for building sustainable: HFH focuses on minimizing its environmental impacts, EWB centers on improving the community's health, while "Project Mercy" concentrates on providing a decent shelter that lacks sustainable principles.

Perusquia's found that Habitat for Humanity's mission in Mexico is to contribute to the recognition of adequate housing as a fundamental human right by promoting housing solutions that drive community development. It strives to develop social and financially stable strategies without profit or discrimination, based on Christian principles, and in collaboration with people from all sectors in the national and international community. Presently, this cross border group consists of three main green principles: 1) energy efficiency, including wise use of construction materials; 2) sustainability; and 3) maintenance of good indoor air quality. Over all, their religious organizational culture plays a major role on the implementation of green principles into their projects. Next, "Project Mercy" approaches their building internationally by following religious beliefs and is guided by the idea of improving the living standards and quality of life for impoverished families that live in the squatter settlements of Tijuana (Clausen 2008). More specific, this agency has been involved in many home building campaigns like the seventh annual Baja Challenge in which 44 homes were constructed in a day in area called "Ojo de Agua" in Tijuana (Fitzsimons 2006). Although Project Mercy constructs a lot of houses they lack green principles; this is due to their organizational culture and beliefs that concentrate on providing shelter more than integrating green principles. In contrast, Engineers Without Borders does not follow any religious beliefs; they are guided by scientific and scholarly principles. This group uses their professional expertise to design infrastructure projects for communities in developing countries like that of San Bernardo in Tijuana, Mex. The major priority of this group is to integrate sustainable principles into their projects like water conservation and relocation, local materials, sense of ownership, renewable energy, build to last, and resident's collaboration. Their main target is to empower and inspire the community to maintain the project and ensure that it continues to succeed even after their teams have left the community.

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Michael Opielowski - <http://www.scivee.tv/node/10227>

Alan Perusquia - <http://www.scivee.tv/node/10268>

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1. Architecture and Urban Design



6. Public Health and Safety



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10. US-Mexico Border Planning

