99% PRESERVATION AND 1% DENSIFICATION: A CASE FOR URBAN DENSITY ALONG THE WILSHIRE CORRIDOR AS A STRATEGY TO PRESERVE THE URBAN CHARACTER OF THE CITY, IMPROVE THE QUALITY OF LIFE, AND PROTECT THE ENVIRONMENT FOR LA’S CURRENT AND INCOMING 1.5 MILLION PEOPLE BY 2050
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99% PRESERVATION, 1% DENSIFICATION

A CASE FOR 2050
SUSTAINABILITY THROUGH A DENSER, MORE CONNECTED LOS ANGELES

WILSHIRE NOW
ANALYZING THE CORRIDOR

WILSHIRE 2050
DENSIFYING THE CORRIDOR

APPENDIX
REFERENCE
THE NOW INSTITUTE
SUPRASTUDIO | UCLA : Architecture and Urban Design

THE NOW INSTITUTE is a yearlong urban planning and research center hosted at UCLA’s Architecture and Urban Design (A.UD) Department, with a focus on the investigation and application of urban strategies to complex problems in modern advanced metropolises and informal settlements.

Led by Pritzker Prize-winning architect and UCLA Distinguished Professor Thom Mayne and Director Eui-Sung Yi, the Now Institute is a product of over 10 years of research initiatives in collaboration with A.UD’s SUPRASTUDIO and establishes a new territory that integrates academic and professional pursuits that span cities across the United States and the world, including Los Angeles, New Orleans, Madrid, Beijing, Port-au-Prince, and Cap-Haïtien. The Now Institute focuses on the investigation and application of urban strategies, working with cities affected by challenges of resilience, culture, sustainability and mobility. The results of these initiatives have included publications such as L.A. Now Volumes 1-4, Madrid Now, and the 720-page Haiti Now visual almanac; realized projects such as the Float House for the Make It Right Foundation; and provided consulting for cities and government entities, with the Culture Now Project, the Cap-Haïtien studies and proposals, and, currently, the UCLA Grand Challenge Sustainable LA initiative. Additionally, the Institute provides a platform for collaborating with diverse leaders and agencies, such as the RAND Corporation and the Mayor’s Institute on City Design.

The Now Institute has, over more than a decade, published four volumes of L.A. Now, a project which arose from a need to examine the imminent issues facing Los Angeles and address them through a combined series of research and speculative urban design proposals. The project took a wide lens to Los Angeles, including an analysis of existing demographics and culture, population growth, energy and emissions, infrastructure and transportation. Volume 1 functioned as an urban field guide, a neutral and nonpartisan data set from which citizens and planners could draw interpretations and assessments. Volume 3 took a more active role producing urban planning design solutions for downtown LA, winning Architecture Magazine’s prestigious P/A (Progressive Architecture) Award in 2005. The work produced here on behalf of the UCLA Grand Challenge builds on the L.A. Now series and is a natural extension of the studies produced therein.
In 2014, when the Now Institute joined the UCLA Grand Challenge’s Spatial and Discipline Integration Team, it became clear that our capabilities as both generalists and specialists would be called upon to begin to get our arms around this very ambitious undertaking.

As generalists we accepted the challenge of the sustainability goals and assumed that it was possible to reach both 100% renewable energy and 100% locally sourced water, each pursuant to a larger mission of enhanced ecosystem and human health. Because of the boldness and inherent complexity of the goals presented by the Grand Challenge, integration was by no means a simple or self-evident task. As we mined, defined, and sourced each UCLA faculty’s scholarship, we also began to establish a larger foundational macro-narrative that shifted our thinking about these goals away from particularities and more toward scale and context. This was essential as a communication and positional tool to elicit further comments and discussion with our colleagues at MIT, Harvard, and other academic and policy institutions.

We also looked outward beyond UCLA and Los Angeles to gain a broader context. Researching global strategies and policies, it became clear that we had to align our agenda and mission with an emerging shift in sustainable thinking towards broader regional policy strategies. We had to understand the problems from a holistic complexity-frame, seeking the parameters and attractors of an intelligent urban ecosystem. In short, we had to scale up. The discussion and research focused on conjoining policy, technology, and lifestyle agents to achieve realistic sustainable solutions, utilizing existing engineering and social scholarship on urban infrastructure and community resilience.

This initial stance toward the research led us back to our role as specialists in architecture, urban design and urban planning. It was clear that through intelligent urban planning, a significant portion of the goals for energy, water, and ecosystem health could be reached. The ability to shape the lifestyle of LA’s growing population while maintaining optimally efficient mobility choices, access to parks, and symbiotic planning of residences and institutions to make efficient urban communities seemed possible if not absolutely necessary.

With Los Angeles County poised to increase in population by 1.5 million people by 2050, we sought to focus on potential solutions that would concentrate the coming growth in key areas already well served by infrastructure. Several potential areas were studied. Ultimately we chose to focus on the intelligent densification of the Wilshire Corridor where it was clearly possible to absorb fully 10% of the county’s population with just 1% of the county’s land. This strategy was intended to protect 99% of the County from the impacts of urbanization. This corridor, enriched by a projected addition of the Purple Line, became the connective tissue between coastal Santa Monica and downtown Los Angeles. The Wilshire Corridor thus offers a tantalizing demonstration project for the application of ideas that are testable and achievable with respect to the goals of the Grand Challenge.
The Los Angeles region, in its short but prolific life span, has burgeoned from a tiny Western outpost, a speck on the map, into a megalopolis with the third largest metropolitan economy in the world and an economic output equal to Australia. Los Angeles, in its sheer magnitude — LA County’s population alone is larger than 42 US state populations — is always the biggest and the most. It resists definition in its superlative paradoxes: the densest urban region in the U.S. and a poster child for urban sprawl; a leader in renewable energy while maintaining its position as the smoggiest region in the U.S.; the nation’s poverty capital with +/- 250,000 millionaires; one of the most highly protected urban areas in the U.S. with some of the highest rates of habitat destruction in the West.

As Los Angeles looks ahead to its next thirty-five years, it must contend with these identity paradoxes. It must accept that status quo is not stasis — X does not equal X. In 2050, LA County anticipates an influx of 1.5 million people, equivalent to adding the entire population of Phoenix to LA. Extrapolating from today’s usage patterns, L.A. would have a million more cars on the road, require an additional 75 billion gallons of water a year, lose over $700 billion to the costs of pollution, and consume another 150,000 acres of natural land. Status quo means massive impact.

With its mythic and golden history, its enviable weather, its celebrity culture, and its current reality as the immigration capital of the U.S., Los Angeles continues to offer the promise of reinvention and endless possibility. But — parallel to this reinvention narrative — there is also a countervailing sentiment embedded in LA’s self definition that resists redefinition. In just over a century’s maturation, its personality has begun to set; identity has come to mean the reflexive identical rather than the emergent evolutionary. But LA, if we can imagine it as an urban life form, does not reach stasis at maturation and is entirely capable of a continual identity redefinition. Like all life forms, it defies the metaphysics of presence, autonomy, identity, and all associated a priori deductions. It is subject to time and the accompanying internal and external factors of change, but it is also amenable and impactable by careful stewardship.

The synthesis of our research led to the proposals presented here. Three distinct growth scenarios are explored, each is individually valid and any or all could be further developed with accompanying sustainability plans. Strictly as a demonstration project, we have selected a scenario which arrives at relative stasis — one that protects 99% of LA County’s built and natural environments from development. This proposal will accommodate the entire additional 1.5 million population on just 1% of the county’s land along the Wilshire Corridor, an area uniquely appropriate to densification.

LA has a spirit and a personality. Its caretakers, its stakeholders, cannot prevent change but also need not adopt a laissez faire attitude toward it. The question is whether those with influence, vision and power will allow L.A. to be rigidly acted upon or whether they will offer L.A. the leadership to allow it to proactively adapt, in a healthy and robust way, to its next phase of life.
LOS ANGELES COUNTY IS GROWING

Already the largest county in the nation by a factor of two, by 2050 Los Angeles County’s population will have grown 15% to 11.5 million people. There are many ways to grow and Los Angeles has immense capacity — Los Angeles County’s total land area could contain the entire U.S. population at a density less than that of Manhattan’s Upper East Side.

While perhaps no one would advocate for such an extreme scenario, it is useful to use such metrics to understand the various growth scenarios available to LA and consider the options with an open mind.

Thus far, Los Angeles has tended toward outward expansion rather than upward. As Los Angeles continues to grow, there is an opportunity to evaluate whether that model continues to be the best growth model for the 21st century.

There are certainly advantages to the sprawl model — in many ways Los Angeles manages to hold in tension the most vital aspects of the American Dream. It’s one of the world’s few places that offers the opportunities of the megacity and the single-family lifestyle of the suburbs.

On the other hand, it would be remiss to disregard the impact that continued sprawl has on the environment, the economy, and eventually the lifestyle itself, which doesn’t necessarily scale well as increased commute times, congestion, emissions, and their associated costs take their toll.

Here we present three growth scenarios. Los Angeles is more than familiar with sprawl and is already entering a limited sprawl mode, so we take up the last scenario, densification, for an in-depth study of a growth scenario less familiar to LA, but perhaps well-suited to its character and long-term sustainability goals.
This abstract sprawl scenario projects population growth at density rates equal to those of the status quo (15% population increase results in a 15% urbanized area increase). The quickened pace of job growth in Inland areas as well as continuously rising costs in coastal areas has thus far made sprawl the economic de facto growth pattern.

**SPRAWL**
- 6,300 people per square miles
- 150,000 acres lost to development

This limited sprawl scenario projects population growth according to +1.5 million Southern California Association of Governments forecasts. This shows development mostly in already urbanized areas, meaning higher densities, distributed fairly evenly throughout the existing area, with some encroachment onto natural space.

**LIMITED SPRAWL**
- 6,700 people per square miles
- 60,000 acres lost to development

This densification scenario projects a high density surrounded by unchanged areas. Less than 1% of the urban area is densified in order to leave 99% as-is. High-density areas are designated according to a Transit-Oriented Development (TOD) agenda.

**DENSIFICATION**
- 7,100 people per square miles
- 0 acres lost to development
1.5 MILLION MORE PEOPLE ON 1% OF LAND

High-density, transit-oriented development can accommodate 1.5 million people on just 1% of County land. The Wilshire Corridor, 0.6% of the County area, can absorb an additional 1 million more people, with the remaining population settling on a combine 0.4% of land around other transit-oriented centers across LA.

With the establishment of County-wide goals in energy, water, and ecosystem health and preservation, densification offers an integrated strategy toward achieving all these goals. This approach can double its impact by reducing transportation-related emissions, which account for 33% of Countywide CO2 emissions. High-density, transit-oriented development (TOD) makes it easy for people to adopt a more sustainable lifestyle, reducing energy and water consumption via smaller multi-family units and less need for outdoor irrigation (the largest demand on residential water). Ecosystem health is enhanced since vertical development allows more greenspace for parks and limits further encroachment on the sensitive ecosystem at the urban border. Moreover, a critical mass of transit riders brings the per-passenger-mile energy-expenditure and emissions of public transit below that of private vehicles. Densification strategies should take place where they will be an asset and not a detractor to the economy, culture, and local neighborhood character. Connecting the downtown to the coast, and already one of the more dense corridors in LA County with a substantial amount of jobs, schools, parks, and other urban assets, the Wilshire Corridor is an ideal location for densification.
DENSIFYING ONLY 1% TO ADD 15% INCREASED POPULATION
DENSIFYING ONLY 1% TO SUSTAIN 99% OF LA LIFESTYLE
15.8 MILE CORRIDOR
FROM
THE OCEAN TO
DOWNTOWN
A CORRIDOR WITH
3 CITIES
17 NEIGHBORHOODS
A CORRIDOR WITH
OVER 10,000 JOBS
PER MILE

EMPLOYMENT HUB
A CORRIDOR WITH
80 FT AVERAGE
BUILDING HEIGHT

LA AVERAGE: 18 FT
A CORRIDOR WITH
100% ACCESS TO
PUBLIC TRANSPORTATION

7 TRANSIT AGENCIES
64 BUS ROUTES

Metro Transit routes including Purple Line Santa Monica connection
SIX OF MANY STRATEGIES

**STRATEGY 1:**
- Densification on Wilshire Boulevard without considering transit served areas.

**STRATEGY 3:**
- Equal distribution to each transit stop around Wilshire Boulevard.

**STRATEGY 6:**
- Transit Oriented District Study 1
- Unique distribution considering each stops’ programmatic specifications
- More population on residential oriented neighborhoods
- Specifically preserved areas inside neighborhoods

**STRATEGY 7:**
- Transit Oriented District Study 2
- Downtown/Westlake freeway densification
- LACMA extended open space
- Santa Monica shoreline densification

**STRATEGY 9:**
- More densification on Downtown, Century City and Santa Monica stops
- Completely preserving Beverly Hills neighborhood
- Equal distribution to rest of the transit stops

**STRATEGY 12:**
- Extreme densification on Downtown and Century City stops

Percentages represent the distribution ratio of extra population per each densification border. Numbers represent extra population.
FOCUSING ON FIVE AREAS

SANTA MONICA
- 9%
- 120,000 population
- DIVERSED DEMOGRAPHICS
- BEACH DESTINATION

CENTURY CITY
- 16%
- 135,000 population
- HIGH INCOME
- OLDER WORKING CLASS
- CONNECTION

FAIRFAX / LACMA
- 2%
- 14,000 population
- CULTURAL DESTINATION

KOREATOWN WINDSOR
- 14%
- 270,000 population
- AFFORDABLE HOUSING
- WORK/LIVE

DOWNTOWN WESTLAKE
- 24%
- 220,000 population
- MILLENNIAL POPULATION
- BEACH DESTINATION CONNECTOR

BUSINESS DISTRICT
- 12%
- 110,000 population
- 120,000 population
- 210,000 population
- 210,000 population

TOTAL POPULATION: 1.5M

Percentages represent the distribution ratio of extra population per each densification border.
Santa Monica is the beach city of Los Angeles, a possible terminus for the upcoming Purple Line Extension and the place where land meets the sea. The city has a 50 ft-high edge condition that combines three layers of nature: ocean, beach and park.
Santa Monica shines with its healthy, pedestrian- and bike-friendly character and well-distributed land use. In order to enhance and extend this city fabric and accommodate extra population, a system which uses the Palisades - Civic Center - Wilshire axes is proposed. Connections between Main Street - Civic Center - the Pier - Palisades Park creates the main diagram that integrates with two Purple line stops and the adjacent Expo line. The urban system morphs from existing multi-family dwellings to dense towers on the edge, meeting the pre-defined 2050 population. An agriculture tower is integrated at the second-to-last stop to provide for the needs of this increased density. The site is connected through a series of plazas and parks at frequent intervals to augment the quality of space.
The focus of the design is the Palisades Park - Wilshire - Civic axes of the existing city. In addition to existing connections, the design offers new plazas and a street network through mat-building typologies. This new network aggregates along the 3rd/Main, Palisades, and Wilshire pathways.

Protecting the existing gross floor area program distribution, the design uses mostly residential typologies throughout two buffer zones. Type-5 multi-family dwellings, and the ribbon and linear typologies carry most of the residential burden. High-rise towers become new mixed-use typologies connected to the existing Palisades Park and beach. Mat-buildings which connect existing Type-5 structures to the system create a commercial buffer between existing and new residential buildings.
Groomed to become the second downtown to Wilshire Corridor after DTLA, the Century City area is adjacent to the two largest private open spaces on the boulevard.
This proposal for a live-work city will provide a balance of residential and non-residential developments, creating an abundance of jobs for the area while accommodating 135K people - the highest increase in population along the corridor (existing 11K). This increase in commercial space with more living units creates more energy demand than a typical residential area. This increase also calls for an expansion of the buildable land beyond the current limitations of Century City area. The design, however, aims to maintain the surrounding single-family residential zone as part of the identity of Los Angeles, and also maintains the two large open spaces as assets. Instead of interrupting the parks, they are surrounded by structures along the periphery to better integrate the users into the open space, and for overall enhanced park accessibility.
Multiple building typologies are used to serve the different land-uses and population increases with contextual sensitivity. While the mixed-use towers play a big role in absorbing the population within a smaller footprint, a transitional typology of medium density housing is introduced between the existing single-family zones and the large open spaces, providing privacy for the residents. Ribbon buildings act as connective tissue tying the two parks together and grounding the periphery towers. Existing high-density towers and iconic buildings are kept as part of Century City’s identity, such as the Century Plaza Towers, Century City Mall, and the Century Fox Studios.

As the Purple Line parts from along Wilshire Blvd to grasp the center of Century City, the Avenue of the Stars stretches northwards past Santa Monica Blvd to Wilshire Blvd, providing direct access between Wilshire and the Purple Line station. A sky-tram spanning the stretch of the commercial hub is introduced for efficient non-car travel between north and south. The significant increase in population density in Century City allows for the surrounding areas to maintain their current state and character.
Centrally located along the proposed Purple Line, this stop is planned to be located at the busy intersection of LACMA. Within walking distance to a series of museums, K-12 schools, and a wide mix of housing typologies, the site is ripe with possibilities as a connective node.
Focusing on the relationship between the K-12 community and the cultural programming, this intertwining network allows for forced overlaps so that the passers-by experience all different kinds of building typologies and environments.

To reach the goals of the Grand Challenges, the people of Los Angeles need to adapt their lifestyles in terms of energy and water consumption. The best way to change a large population is to start with the new generation - they are typically more open-minded and aware of their surroundings. Weaving this site with educational facilities is a part of this mission.

Our parks will also function as water-collection and management complexes, while the metro stop can operate as a large-scale water recycling tower. The buildings themselves will showcase cutting-edge sustainable strategies, making the whole site a “museum” of new methods, encouraging the new generation to live life differently.
Visibly identifiable by shape and skin, the various architectural typologies which define the programs of K-12 education, cultural hubs, housing, and commercial space are uniquely expressed by their connection (or disconnection) to the ground plane. The expanded cultural program is buried under the “green blanket”. Hidden beneath the surface, this layer reaches across the site with only small perforations, allowing it to act as a grounding point for all the other program to interact.

The expanded K-12 school network is stitching the main park of the existing cultural hub (LACMA) to the residential areas south. Small residential towers reach out with a secondary, elevated green layer that creates an opportunity for all three typologies to converge.
Koreatown has one of the highest population densities in Los Angeles County, with an average of 50,000 people/sq mile. The transition to the Downtown employment hub, the area is dominated by commercial offices and dense multi-family housing.
One of the biggest issues in Koreatown is the lack of open space (only 5 sq ft per person) which contributes to the low rents in the neighborhood. On the other hand, the area has some of the lowest rates in energy/water usage and is well served by public transportation. Based on the Transit Oriented District study, Koreatown could support nearly 270K people, which means that it will become the densest neighborhood of the whole Wilshire system with an average density of 100,000 people/sq mile. Envisioning a new model of urban growth, our aim is to increase the area’s livability through an integrated system that will incorporate infrastructural systems within its urban grid. This hybrid model is generated by continuous mat-building typology, with high-density developments on the edge of Wilshire. This “super-block” is composed by uniting several existing buildings.

These new blocks will contain all the current land uses for the city and will incorporate infrastructural services such as cogeneration plants, recycling, and waste management facilities - becoming a self-sustaining city within the city.
The mat-building is a hybrid typology that is composed of program elements and open spaces, creating a system that merges both components. The program includes residential, commercial, offices, schools, community facilities and infrastructure. The open space components can be located on different levels, creating different identities according to the adjacent functions. Traditional green parks on the ground floor, private gardens within dwelling units, and urban agriculture and recreation space spread across an interconnected roof garden.
The introduction of these natural systems will play a crucial role in the whole system, increasing livability and enhancing the economy of the region - creating a healthier environment and a happier community.
A bookend of Wilshire Corridor, Downtown LA and Westlake are divided by the SR-110 (State Route 110), and framed by the I-10 (Santa Monica Freeway and US-101. Together they not only compose one of the most important commercial areas within multi-nodal Los Angeles, but also play host to the civic and sports centers of the region. This study area is the epicenter of the County’s public transportation network.
Despite having such a great potential of attracting activities, the residential population of Downtown and its surrounding neighborhoods is extremely low, especially compared to other city cores. Considering the population increase (nearly double the current amount), the strategy for Westlake and Downtown is to rebalance the job-housing equation. The new 0.22 million residents in 2050 increase the demand for job opportunities near their place of residence. To promote this complementary mix of uses, the residential buildings along Wilshire dedicate a percentage of their total floor area to commercial use – 25% of towers and 45% of ribbons. Moreover, new commercial high-rises strengthen this region as a job-cluster. A live-work environment provided with affordable homes, this new residential development targets the young working population.

The water and energy consumption rise can be mitigated by new technologies, awareness and smart-city implementation. Due to the change in the area’s prevalent building typologies, energy consumption will rise - from 41 MWh per capita to 61 MWh per capita. In the case of water, the consumption will drop from 103 GPCD (gallons per capita per day) in 2015 to 72 GPCD in 2050.
Creating a linear park covering the sunken 110 Freeway creates a condition that not only attracts but retains residents in the area. The integration of the major three hubs in Downtown (civic-cultural, business and sports) and the development of a high-density residential neighborhood with corresponding public services and amenities will transform the region. Utilizing the highway “strip” as an area for a linear park allows the transformation of what is now a barrier between Downtown and the rest of Wilshire Blvd to become a connective tissue that stitches together social, economic and cultural spheres into one cohesive system.
The rapid urbanization of today’s metropolitan centers requires a rethinking of traditional concepts of density. Our renewed awareness of humanity’s impact on the environment and the increasingly temporal nature of urban dwelling across the world necessitates a new model for living. Today’s global cities compete for intellectual capital and must endeavor to provide relevant services and cultural experiences for a highly diverse and informed populace. The growing “Millennial” generation and other creative entrepreneurs demand continual access to these places of interaction and commerce, viewing their shared experiences and relationships as integral to their changing cultural agency. In contrast to its traditionally sprawling character, Los Angeles now has the opportunity to reinvent itself as a world leader in smart, efficient, and flexible urban living.

Analysis of existing microunit projects and other forms of collective living and working led to the development of a flexible system of compact furniture and living modules that can be arranged in a variety of configurations. A simple steel frame structures a series of interconnected modular furniture components, which together provides a flexible system for today’s changing lifestyles. Exterior spaces provide a connection to nature and heighten the collective experience of the occupants. While corridors traditionally provide only access to individual living spaces, here this common space is re-imagined as a flexible co-working zone for today’s young digital workers. Developed into a variety of scales and configurations, this flexible modular system provides the framework for a series of towers, courtyards, and dense dwelling units that can be deployed along Wilshire Boulevard to accommodate the growing population of Los Angeles County in the coming decades.
The rapid urbanization of today's metropolitan centers, especially in Los Angeles County, presents opportunities and challenges. The growth of the "Millennial" generation and other creative entrepreneurs requires a rethinking of traditional concepts of density. Our Project Statement provides the framework for a series of towers, courtyards, and common functional housing modules. Exterior spaces provide a connection to nature and heighten the collective experience of the occupants. While corridors traditionally provide only access to individual living spaces, here this common space is re-imagined as a flexible co-working zone.

This flexible modular system for today's changing lifestyles accommodates a variety of scales and configurations. A simple furniture system for today's young digital workers can be arranged in a variety of configurations. Micro studio furniture components, which together provides a flexible system for today's changing lifestyles. Exterior spaces provide a connection to nature and heighten the collective experience of the occupants. While corridors traditionally provide only access to individual living spaces, here this common space is re-imagined as a flexible co-working zone.

Relationships as integral to their changing cultural agency. In contrast to its traditionally sprawling character, Los Angeles now has the opportunity to reinvent itself as a world leader in smart, efficient, and flexible urban living. Cities compete for intellectual capital and must endeavor to provide relevant services and cultural experiences for a highly diverse and informed populace. The growing demand continual access to these places of interaction requires a rethinking of traditional concepts of density. Our Project Statement provides the framework for a series of towers, courtyards, and common functional housing modules.
MANHATTAN
NEW YORK CITY

1.3M PEOPLE
21.2 SQUARE MILES
62,000 PEOPLE/SQMILE

13 MILES OF STUDY AREA
1.3M PEOPLE
13 SQUARE MILES

BROADWAY

62K

people/sqmile
6.8 MILE STUDY AREA
0.6M PEOPLE
6.8 SQUARE MILES

91K
people/sqmile

AV DIAGONAL

BARCELONA
SPAIN
1.6M PEOPLE
38.3 SQUARE MILES
42,000 PEOPLE/SQMILE

SPAIN
BARCELONA
1.6M PEOPLE
38.3 SQUARE MILES
42,000 PEOPLE/SQMILE
SHENZHEN DEVELOPMENT

ONE HOUR COMMUTING RADIUS OF THE PEARL RIVER DELTA

HALF-HOUR COMMUTING RADIUS OF HONG KONG

ZHONGSHAN

QIANHAI

SHEN ZHEN

HONG KONG

ZHUKAI

QIANHAI OF SHENZHEN CASE STUDY

RESIDENTIAL MIX USE
BUSINESS MIX USE
CIVIC BUILDING
LOGISTICS INDUSTRY

ROAD HIERARCHY PLAN
FREEWAY
HIGH SPEED ROAD
MIAN ROAD
MY MICRO NY

LA DINGBAT
LA SINGLE
LA PLAYA VISTA

BUILDINGS
PUBLIC SPACE
32%
RETAIL 2%
RESIDENTIAL 66%

521 UNITS 225 UNITS 1009 UNITS
302 FEET 302 FEET 302 FEET
625 FEET 625 FEET 625 FEET

NEW YORK
BARCELONA
HONGKONG
MULTI-FAMILY

BUILDINGS
PUBLIC SPACE
32%
RETAIL 2%
RESIDENTIAL 66%

2442 UNITS 1622 UNITS 2234 UNITS
55 UNITS, 4 TOWERS, 10 FLOORS, 1 COMMUNITY
92 MODULES, 2 WEEKS TO ERECT

PUBLIC SPACE AND RETAIL SPACE
12 FEET
31 FEET
11 FEET

±300 SQUARE FEET

55 UNITS, 4 TOWERS, 10 FLOORS, 1 COMMUNITY
92 MODULES, 2 WEEKS TO ERECT

PUBLIC SPACE AND RETAIL SPACE

PUBLIC SPACE RETAIL RESIDENTIAL
35% 5% 66%
35% 5% 66%
35% 5% 66%
The LA typological norm favors low-rise, small-lot single-family residential units. Single-family residential (SFR) averages 21 units per acre in Los Angeles County, which is classified as high-density single-family residential. Multi-family residential (MFR) is more than three times as land-efficient, averaging 70 units per acre in Los Angeles County.

- **<1-30 DU/Acre**
  - Large to medium lot single-family detached homes can be >10,000 sq ft and less than one unit per acre. Small to medium lot single-family detached homes are typically 10-20 units per acre.

- **30-40 DU/Acre**
  - Dingbats are boxy, typically 50 feet (15 m) wide by 100 feet (30 m) with 2 or 3 stories and usually 6 to 8 apartments per building, with overhangs sheltering street-front parking.

- **40-50 DU/Acre**
  - Type-5 refers to a wood-frame construction that is 3-4 stories tall. These apartment buildings range from approximately 50-150 units.
COUNTY GROWTH STRATEGIES

There are several ways to achieve densities within the allotted urban area: each corresponding to a change in building typology. One way would be to split all large single-family lots into many small single-family lots, though this would result in significant disruption to the neighborhood character across L.A.

Sprawl: If the current urban boundary is breached to develop more land, it is possible to accommodate 1.5 million extra people and continue the single-family residential lifestyle.

Limited Sprawl: The limited sprawl scenario has a hybrid mix of single-family homes and Type-5 multi-family homes.

Densification: Though Santa Monica and Venice are low consumers of energy and water, their land consumption is higher than what can be accommodated within a 1% densified area.

Energy and water consumption stem from socio-economic-cultural factors and are diverse across the County, with similar habits clustered in neighborhoods. These scenarios for energy and water consumption project a future 2050 in which Angelenos maintain the lifestyle habits of current L.A neighborhoods.

The distribution of people in the sprawl scenario, for example, has 40% of the new population adopting the high-consumption lifestyle of Beverly Hills, 40% adopting a moderate-consumption lifestyle of Sherman Oaks, and 20% adopting the low-consumption lifestyle of Santa Monica. The densification scenario has all of the new 1M population adopting the low-consumption lifestyles of Santa Monica and Venice.
BUILDING HEIGHTS

20FT
50FT
100FT
150FT
500FT
1000+FT

LAND USE

SINGLE FAMILY
MULTI FAMILY
COMMERCIAL
CULTURE
OPEN SPACE
OTHER

CULTURE 1.09 SQ MI

OPEN SPACE 1.56 SQ MI

APPENDIX
This densification plan examines extending the Purple Line beyond its current terminus, Western Avenue, all the way to the coast, stopping at 4th street in Santa Monica with eleven more stops spaced at walking distances along the corridor.

The map shows the arterial roads of central and west L.A. Bus routes currently run Wilshire and are among the most efficient in the County. This map demonstrates the proposal, a logical extension of plans that are already under consideration at LA Metro to extend the Purple Line to Westwood. The extension, with its proximity to the similarly downtown-to-coastal Expo Line will begin to form a linear metro network.
OPEN SPACES

Open space accounts for 5% of the Wilshire corridor, but only 25% of that is public.

78% of the population along the Wilshire corridor lives within walking distance (1/2 mile) of a public open space, which is better than the County average of 49%. There is an average 25 sq ft of public open space per person. Three of the four largest open spaces on the Wilshire Corridor are currently private. A strategy for 100% access to open space could include converting private open space into public open space in addition to adding rooftop gardens and augmenting existing parks.
EDUCATIONAL FACILITIES

Wilshire Boulevard is an educational corridor, with some of LA County’s largest universities, UCLA and USC as well as Santa Monica Community College, totaling more than 120,000 college students.

Universities naturally lend themselves to high density. The area directly west of UCLA is already one of the densest neighborhoods on the corridor. High-density development also cultivates the kind of hyper-networked communities that build on the spirit of creativity and entrepreneurship fostered on university campuses.
The Wilshire corridor functions as a broad economic and cultural conduit, with a land use mix more typical of urban density in larger cities.

The single-family to multi-family ratio is approximately 4:3 on the Wilshire corridor compared to 5:1 on average in Los Angeles County. There are also four central business districts (CBDs): Koreatown, Westwood, Downtown, and Century City. Density around these areas supports these multinodal commercial, retail, and employment opportunities already existing along the corridor.
Century City and Downtown LA generally allow for higher buildings than, for example, Beverly Hills. The corridor is dominated by FAR-3 which allows for low-midrise multi-family residences. The current maximum FAR allowances could accommodate 0.5 million people, 100,000 more than today. FAR is currently not maximized because of other regulatory issues in place and the historic availability of inexpensive land which made capital expenditures for vertical expansion less financially viable than horizontal development, a condition which has changed in Los Angeles as land costs rise.
BEVERLY GROVE

FAIRFAX
WESTLAKE

5.00% Open Space
9.40% Commercial
28.20% Single Family
10.12% Open Space
31.63% Roads and others

Santa Monica
5.36% Office
7.39% Institutional
57.46% Single Family
17.01% Open Space
2.74% Institutional
7.71% Institutional
20.47% Multi Family

open space area per person

Wilshire Blvd

Beverly Hills
0.39% Open Space
3.30% Commercial
20.33% Multi Family

Brentwood
0.54% Open Space
8.74% Commercial
1.22% Open Space

Pico Rob.
17.15% Multi Family
0.59% Office
15.12% Commercial

Westwood
0.8% Mix use
14.30% Commercial
3.19% Institutional

Windsor sq
15.97% Multi Family
3.19% Institutional

POTENTIAL WALKABLE PARK CLUSTER

PARK SCALE

DOWNTOWN

open space area per person

Veterans
14.53% Single Family
3.92% Multi Family

Fairfax
6.98% Institutional
1.41% Office

Sawtelle
9.30% Multi Family
32.65% Single Family

Hancock Park
3.63% Open Space
28.24% Commercial

Downtown

Century City
0.32% Mix use

West LA
15.78% Commercial

Veterans
6.92% Multi Family
17.66% Institutional
WILSHIRE 2050

PREERVED CHARACTERISTICS

The previous land use designation is organized by use by parcel, by gross floor area (GFA), accounting for the totality of uses within each floor of every building.

Each neighborhood has different characteristics and building programs; some are employment hubs, others residential areas, others retail districts. Many neighborhoods are concerned that densifying means losing the neighborhood’s “character.” This important factor can be attended to by setting forth zoning parameters which preserve the current distribution of uses.
Density is correlated to building typologies, which in turn are products of culture, economic viability, urban land value and other factors. The densification study has taken case-studies of global typologies to understand how many people could be accommodated, eventually combining all of them in the parametric study to test pure gross floor areas (GFAs) throughout Wilshire. The Barcelona multi-family courtyard-centric style mirrors the LA Type-5 typology while featuring a moderate 8-story height, making it a good cultural fit for the Wilshire skyline.

Hong Kong is often the stereotype of high-density building and offers the most extreme model of densification. With 160 sq ft per person, it offers about a third of the Type-5 per person square footage. The Rotterdam mixed use model is unique amongst these typologies in that it is non-residential; it offers a model for commercial, retail, and offices. The large floor area ratio (FAR) is already allowed in LA’s downtown area. Testing different typologies allows for a quantified visualization understanding of the problem, and sets the parameters from which a reasonable development plan can be drawn.
To test the viability and population-potential of LA’s familiar density-typology, this thought-experiment converts all residential zones to LA Type-5 structures. The model results in a total population of 1 million along the entire corridor, or more than double the current population of 400,000.
This thought-experiment converts all residential zones to the Hong Kong model. It is possible to have the building height of the Hong Kong model while increasing per person square footage to a higher amount, more in line with the LA norm. However, to test the limits of density, this model tests the pure typology, preserving Hong Kong’s 160 sq ft per person, which results in a Wilshire corridor that can accommodate 6 million people.

TOTAL POPULATION: 6M
This parametric test demonstrates how much population can be distributed to certain areas based on individual density requirements. By comparing the relative FAR of each typological mix, we can create a series of hybrid strategies to address any possible condition encountered along Wilshire.
TRANSIT ORIENTED DISTRICT STUDY

2015

<table>
<thead>
<tr>
<th>POPULATION 0.5M</th>
<th>x 3</th>
<th>=</th>
<th>POPULATION 1.5M</th>
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<tbody>
<tr>
<td>GFA DISTRIBUTION</td>
<td>x 3</td>
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<td>GFA DISTRIBUTION</td>
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<tr>
<td>RESIDENTIAL DENSITY</td>
<td>560</td>
<td>↓</td>
<td>RESIDENTIAL DENSITY</td>
</tr>
</tbody>
</table>

Enhance public transportation
Reduce car dependency
Accessibility to various uses in a walkable distance
Density by inverting the proportion between population and occupied space per capita
This study produces a first attempt to distribute the population across neighborhoods while maintaining their GFA distribution. This is one way to test population distribution in a diagrammatic way - every residential area is assumed to have a per person square footage of 400 sq ft.

Neighborhoods that show the largest change between current and 2050 population are places that have the biggest difference in square footage. For example the large increase in Beverly Hills (~17K to 120K) and Santa Monica (~28K to 135K) happens because those areas have a high amount of residential space but it is currently not being used at high densities.
In addition to preservation, further consideration into individual neighborhood possibilities result in specific urban “acupunctures” that increases connectivity and create higher-attraction nodes. In Santa Monica, development is moved away from the terminus of the Metro line to preserve Main Street but also to push toward more coastal development. An addition of a large park near LACMA creates both a cultural and an ecological destination. The freeway between Downtown and Westlake is turned into a raised park.

### 2015 Population Distribution

<table>
<thead>
<tr>
<th>Neighboring Open Space</th>
<th>Population</th>
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<tbody>
<tr>
<td></td>
<td>28,500</td>
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<tr>
<td></td>
<td>25,700</td>
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<tr>
<td></td>
<td>10,800</td>
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<td>17,150</td>
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<tr>
<td></td>
<td>18,700</td>
</tr>
<tr>
<td></td>
<td>17,600</td>
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<tr>
<td></td>
<td>11,400</td>
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<td></td>
<td>55,000</td>
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</table>

### 2050 TOD Population Distribution

<table>
<thead>
<tr>
<th>Neighboring Open Space</th>
<th>Population</th>
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<tbody>
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<td>120,000</td>
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<tr>
<td></td>
<td>210,000</td>
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<td></td>
<td>110,000</td>
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<td>140,000</td>
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<tr>
<td></td>
<td>200,000</td>
</tr>
<tr>
<td></td>
<td>120,000</td>
</tr>
</tbody>
</table>
This analysis explores the maximum potential population under the 2015 zoning regulations and looks to imagine a “max-FAR” situation for 2050 that accommodates the idiosyncrasies of the individual neighborhoods.
The 2050 open space goals maintain the amount of square feet per person but increase access to 100% by assuming private open spaces becomes public open space, through an innovative introduction of rooftop parks in Koreatown, and elevated greenspace above the freeway downtown. Many park studies measure park access quality by the amount of park-space per person. For example, LA County considers low park access to be less than 3.3 acres per 1000 people (144 sqft/person). However, this is a limited measurement of park access and misallocates attention to quantity rather than quality. Park access is as much about social and psychological space as physical space.
Building efficiencies are magnified in multi-family units: the economics work out better for both renters and owners. This study looks to understand how to bring down average per-capita consumption across the Wilshire corridor by providing the right typological mixture for each neighborhood.
This analysis looks at total per capita (not just residential) water consumption based on available information. These metrics will permit a further investigation of the characteristics of each neighborhood that inform its water habits.
The following references are organized by their respective sections and page numbers (shown along the left-hand margin).

**REFERENCE CITATIONS**

**INTRODUCTION**


18

Growth maps produces using SCAG urban footprint projections and Department of Regional Planning General Plan 2035 Transit Oriented District zones.


**WILSHIRE 2050**


**APPENDIX**


**DATA**


**WILSHIRE 2020**


**APPENDIX**


**DATA**


**WILSHIRE 2050**


**WILSHIRE 2020**


**WILSHIRE 2050**


REFERENCE CITATIONS

122 MAP
Alternative transit projections are shown.

122, 123 MAP

124, 125 DATA

128 DATA

132, 133 DATA

134, 135 DATA

138, 139 DATA
"Countywide zoning parcels are joined with max Floor Area Ratio and height regulations taken from Department of Regional Planning website. Parcels area extruded by their allowed height.

140 - 157 DATA

160 - 167 DATA

170 - 173 DATA

178 - 181 DATA
"Energy, Water, Open Space: each buildings' volume is calculated using building footprint data. Total volume is divided by 10 to calculate approximate gross floor area. Buildings are joined with zoning informations using GIS softwares. Energy and water consumption per square feet by building use data is taken from following sources. Consumption per square feet data multiplied by each buildings gross floor area. Sustainable LA strategies are applied to the final number.

IMAGE CREDITS


102 Doyle, Ryan A. (2016, June). The Now Institute Rumble, UCLA


3 aXbr2


