REIMAGINING THE PUBLIC REALM

A Framework to Build Resilient Communities During & After the Pandemic

SMITHGROUP

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CONTENTS

A PIVOTAL MOMENT

This publication started as a simple blog post and quickly grew into a larger article. Day by day our world changed around me as this article was being written.

When I started writing, Covid-19 was in its early stages. Soon afterwards there was civil unrest due to mass protests against structural racism. Then the skies turned orange as wlldfires caused by climate change engulfed the West Coast of the United States. I kept writing, as events changed in real time around me. The article has had to morph and adjust to a rapidly changing landscape.

This publication is not intended to offer comprehensive solutions. I hope it sparks the imagination and stimulates ideas.

The views, thoughts, and opinions expressed in this publication are solely those of the author and contributing authors and not SmithGroup as a firm.

This is a pivotal moment. Our future will be shaped by our response to multiple global catastrophic occurrences – a coronavirus pandemic, outrage over structural racism, economic disruption coupled with increased income inequality, and severe environmental consequences of climate change. These series of disasters are amplifying each other and are forcing us to break with the past, adapt and be flexible. Because of the urgency of responding to multiple crises, we are forced to think about many issues simultaneously.

We have seen how downtown districts have grown quiet, higher education campuses have sought hybrid approaches and medical campuses have been under intense pressure dealing with huge intakes of patients. Local neighborhood precincts are struggling with retail stores shuttered and restaurants closed. We have also seen how the entire U.S. West Coast was destroyed by climate infernos, making climate change no longer an abstract notion but a powerful reality. We have also seen how the most vulnerable communities have been the hardest hit. Longstanding disparities in health, wealth, jobs, and neighborhoods have had a severe impact on black and brown communities, the elderly, and immigrants.

Facing these major challenges is not only our profound ethical responsibility but also a socio-economic imperative. There will be major economic, social, and environmental consequences if we do not act. Research by the World Economic Forum[1] (The Global Social Mobility Report 2020) found that income inequality is detrimental to economic growth particularly in advanced economies like the U.S. Health disparity drains healthcare systems and hinders the allocation of resources that should go towards preventative measures. And freedom is inextricably intertwined. Rev. Dr. Martin Luther King, Jr.'s famous words "no one is free until we are all free." is an idea profound in its simplicity.

The public realm is society's common ground. It is where our shared values are manifested and made visible to everyone. By rethinking the public realm at this critical time, we can seek opportunities for societal transformation to make our cities better both now and in the future. The immense value of the public realm for public health, civil liberties, combatting climate change and for human connection is evident. We have seen extraordinary innovation by citizens, and city leaders in coping with this crisis. We have seen the power of human adaption and the promise that we may be able to address some of our most pressing challenges. Amidst the tragedy, there are glimpses of the kind of cities that many have wanted for some time, less auto-focus, clean air, bike paths, a sense of community, and more walkability.

What was at the margins is now center stage. We need to create a new paradigm for urban life, placing communities at the center. Any strategies put in place in the months and years ahead, need to address systemic racism, inequality, and challenges of climate change. We must re-calibrate our thinking at this pivotal moment in support of an equitable and resilient future. The public realm can make daily life come alive, create a sense of belonging, sustain political voice, drive economic development, and contribute to environmental sustainability.

WHY THIS PUBLICATION

We have found ourselves talking a lot about public space during these extraordinary times. We discovered how valuable it has become, both in our personal lives and in our work. Public space has been likened to the glue in our integrated practice as it intersects across our higher education, workplace, science & technology, residential, healthcare, senior living, and mixed-use studios. To cross-fertilize insights across our diverse studios and disciplines, we created a collaborative virtual whiteboard to share ideas about public realm during the pandemic and beyond. Architects, urban planners, urban designers, and landscape architects participated virtually in a fun interactive way. The purpose of this publication is to share our thinking. It is not intended to provide a set of design guidelines or definitive solutions.

Our focus is on transformations of public space at different scales, including the neighborhood, campus and urban block interventions. The thread that weaves throughout is our belief that public space has a major role in building communities for global impact.

We hope to spark the imagination and provoke an abundance of possibilities for the common ground in our shared public spaces.

GOALS

A framework for a socially just, ecologically sustainable and healthy public realm.

To create aspirational goals, we framed our virtual collaboration within a framework of social justice & ecological boundaries. We made a diagram onto which participants posted virtual sticky notes representing our adaption of the playfully serious doughnut economic model. The inner ring represents a social foundation for basic human needs that everyone needs to have, such as food, shelter, education, and political voice. The outer ring represents an ecological ceiling to avoid harming the planet, such as combating climate change. We challenged our colleagues to work within the parameters of the diagram so that ideas would be socially equitable and environmentally sustainable.

The framework encouraged us to look to the horizon and consider how open space could be made better in the short and long term. It was the launch point that ignited some of the thinking on the pages that follow.

WORKPLACE

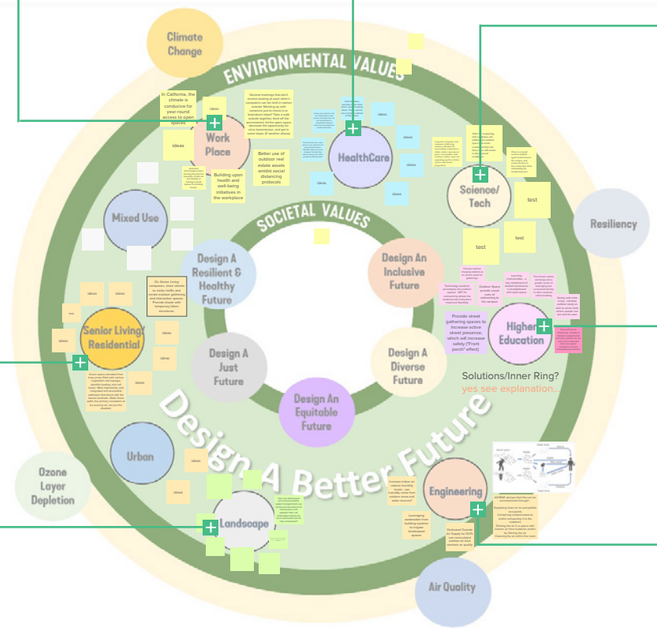
Advanced technologies allows blurring the physical boundary. Inside-out and outside-in strategy is a great feature for building design.

HEALTHCARE

Provide access to open space as an extension of programmed space. Outdoor space is much cheaper to build then interior space and offers greater health benefits.

SCIENCE & TECHNOLOGY

Tech campuses, while being closed, can allow their surrounding community to utilize outdoor open spaces. Community could rent these spaces for organizing activities (sports, educational trainings).



SENIOR LIVING

On Senior Living campuses, close streets to visitor traffic and create outdoor gathering and interaction spaces. Provide shade with temporary fabric structures.

LANDSCAPE

How can landscaped environments better support programmed use and lessen the amount of maintenance and upkeep? How can landscaped spaces be more functional and not only ornamental?

HIGHER EDUCATION

Provide charging stations as an anchor point for gatherings

Variety and scale are key—intimate outdoors study as well as active hubs where people can see and be seen.

ENGINEERING

By designing for human comfort and including flexibility and variety of spaces, we can increase the hours of the day that the outside space is conducive to use and enjoyment.

A SAMPLE OF SHARED IDEAS ON OUR COLLABORATIVE VIRTUAL WHITE BOARD

REIMAGINING THE PUBLIC REALM: THREE TYPOLOGIES

DEFINING THE PUBLIC REALM

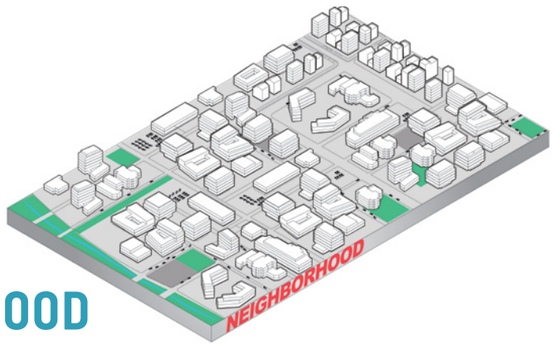
This publication explores how the public realm can make communities more resilient. Resilience is the ability to survive shocks, adapt and grow. The public realm is that part of the urban environment that is available to the community at large. The Cambridge dictionary defines "public" as "the places accessible or visible to ordinary people in general" and the word "realm" as "an area of interest or activity."

Included in the areas of interest or activity that make up the public realm are streets, squares, parks, open spaces and "third spaces" which are the anchors of community life and foster broad interaction. Third spaces like cafes, libraries, civic buildings, plazas, community centers, bookshops, exhibition spaces and museums, provide places to connect, relax and meet people in public. The spaces and places that make up the public realm are like a living room for society and provide a foundation for civic engagement, democracy, health and social connection.

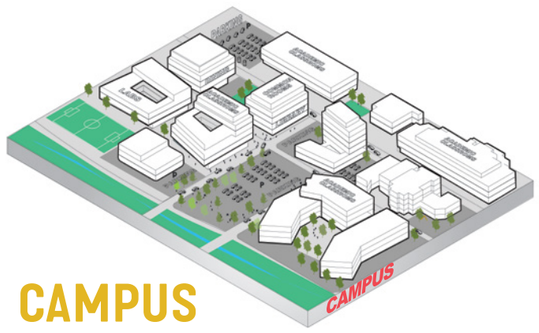
THREE TYPOLOGIES

We have grouped our explorations into three typologies: the neighborhood, the campus and the urban block. This is a small sampling of the vast array of space types in the city. These typologies demonstrate different scales of intervention, showing how the public realm in each case can adapt to crisis and be enhanced to build community resilience.

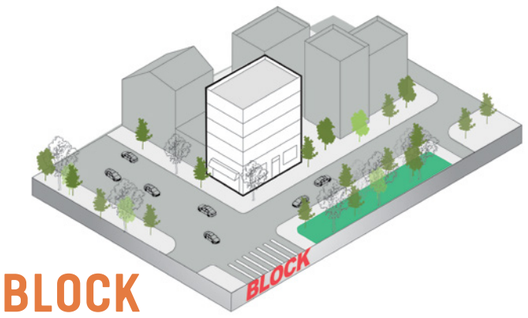
The public realm is society's living room made up of places and spaces accessible to everyone.



NEIGHBORHOOD



CAMPUS



BLOCK

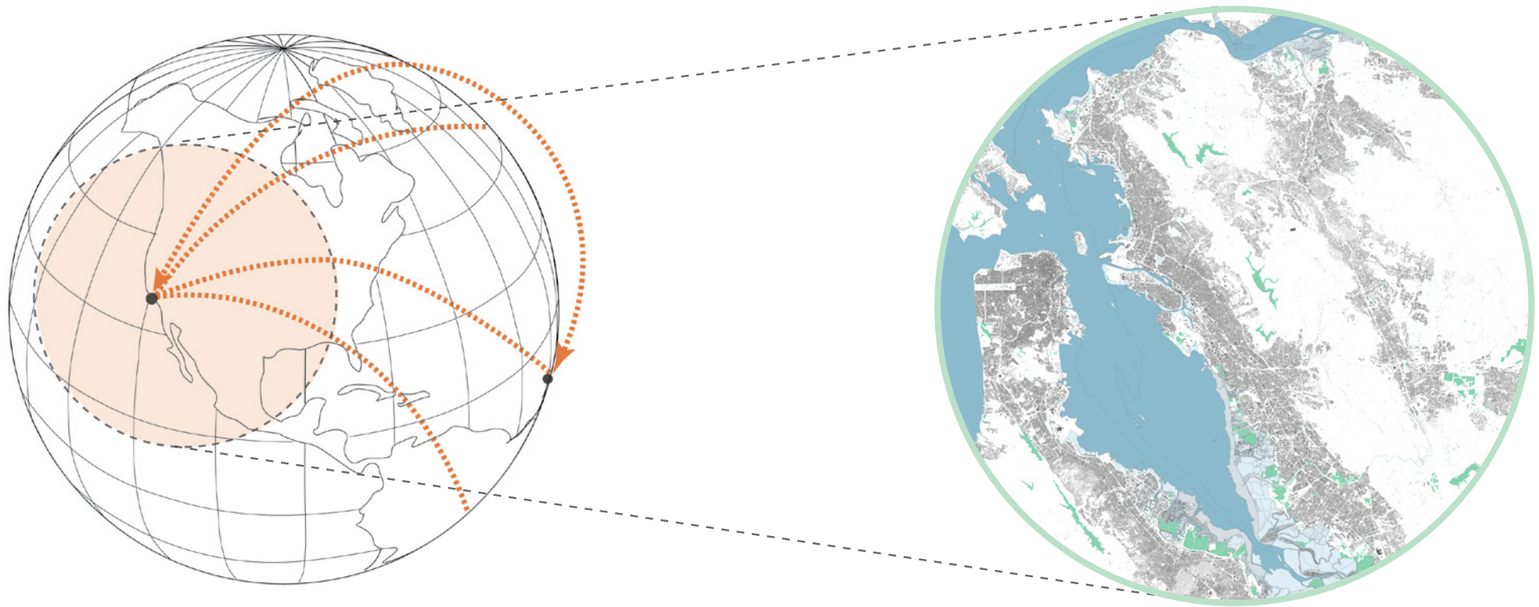
BUILDING COMMUNITY RESILIENCE FOR GLOBAL IMPACT

PUBLIC SPACE SUPPORTS COMMUNITY RESILIENCE

Our world has changed with rapid speed. All around the globe people are pondering the post-pandemic future. We have become acutely aware of how interconnected we all are. City densities will need to increase to accommodate an anticipated 2.5 billion additional urban dwellers globally[2] (United Nations, 2018) by 2050. Even if there is a dip in urban migration due to misguided perceptions that density increases the spread of viruses, open space will still need to serve many more people in the future.

We must think about how we can make cities more livable and resilient for all. This will help us to withstand and rebound from the current crisis and build capacity to withstand future shocks. The foundation of community resilience is that no one should fall short on basic needs such as food, housing, healthcare and political voice. We also need to collectively ensure we avoid straining our planet's life-supporting systems, such as climate and a protective ozone layer.

The public realm supports community resilience by improving mental and physical wellbeing, creating social cohesion, and providing common ground for amplifying political voice. It has abundant uses such as community gathering, recreation, urban farming and education. It can reduce social isolation and provide much needed additional space for those living in crowded conditions. It grows pride in local culture, history, and identity.



COMMUNITY: A CRUCIAL BUILDING BLOCK FOR A RESILIENT SOCIETY

The three building blocks of a good society are market, state, and community. Unfettered globalization has led to the increasing importance of markets and concentration of economic and political power in the centralized state while diminishing the importance of local authorities and communities.

With globalization, communities have increasingly had less voice in decisions that directly affect them. They are more susceptible to broader forces over which they have little or no control. A bottom-up approach where people in the community engage in decisions that directly impact them will make them more rooted and lead to upward social mobility.

> "A critical component of a well-functioning capitalist society is not just the markets, not just the state or the government—but the third pillar, which is the community."

RAGHURAM RAJAN
2018 Economist

SIX STRATEGIC PRINCIPLES FOR A RESILIENT PUBLIC REALM

Six principles to reimagine the public realm and build resilient communities have been developed. These are lenses to design at multiple scales from a simple neighborhood sidewalk to civic buildings, infrastructure and large, regional open space networks.

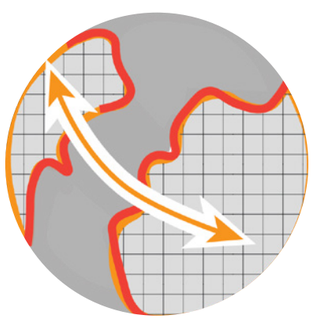
The six strategic principles outlined impact the public realm. For each scenario described on the pages that follow, the key strategic principles are shown as pictograms at the top of the page. This does not mean that other principles are not relevant. Our intent is to highlight the core intersectional strategic principles utilized in developing each scenario.

1 DESIGN FOR FLEXIBILITY

We have seen how cities need to be flexible to adapt swiftly. Streets have been closed, traffic reduced, and remote working put in place. We should not return to “normal”, or even a “new normal”. Instead, we should plan for a resilient and better future.

2 LOCALLY ROOTED

We need to put local communities center stage, focus on history and elevate the stories of those with lived experience. This can help connect communities equitably and create places with meaning.



3 JUST & EQUITABLE

Reverse past injustices to create neighborhoods for everyone. Neighborhoods that faced historic injustices such as “redlining” have usually suffered lower levels of investment, lack social and cultural amenities and often face environmental hazards. These neighborhoods need the most attention.

4 COMPACT NEIGHBORHOODS

To create local resilience, create dense neighborhoods with open space a short walk away. Provide access to affordable housing, nutrition, schools, and libraries with a focus on job creation.

5 COMBAT CLIMATE CHANGE

Incorporate green spaces and waterways to cool cities and combat future temperature increases. Rainwater harvesting can help flood mitigation, and drought-prone areas. Reducing vehicle miles traveled is also crucial to meet climate change goals.

6 HEALTHY & INTERCONNECTED

Open space is an essential service, necessary for public health, especially within dense neighborhoods. It can encourage exercise, improve wellbeing, reduce socioeconomic segregation and alleviate social isolation.

1 FLEXIBILITY: TRANSITIONAL USE & LONG-TERM TRANSFORMATION

The crisis has forced people to be flexible to change and has resulted in temporary retrofit measures. Transitional uses, sometimes known as tactical urbanism, like creating temporary bike lanes, have got people used to doing things differently. We have seen cost-effective and positive outcomes resulting from tactical urbanism driven from the ground up as well as "quick-build" solutions that do not take local participation into account. By observing the process and outcomes, we can learn about neighborhood success stories and failures.

One of the great benefits of tactical urbanism is the potential for deep resident participation. Often change comes from collaborative efforts and it helps communities galvanize around issues. It also sets realistic expectations and allows for rapid prototyping, testing, and refining. When funding sources are limited, there are high rewards when participating communities contribute sweat equity. Because solutions are low cost and temporary, it lets people agree to change they may not usually accept. Once the short-term change is made, it opens a pathway for long term transformation. This can be leveraged to do far much more than small fixes. We need to create an environment that encourages mixed-use hybrid developments and unconventional approaches by changing regulatory conditions such as restrictive zoning.

LESSONS FROM THE SAN FRANCISCO BAY AREA

In the San Francisco Bay Area (and everywhere around the world) transitional solutions have been implemented, temporary structures built, roads closed, sidewalks retrofitted, open space rejigged and buildings repurposed. These have tremendous positive benefits, but it is the long-term outcomes that are fundamental in the fight for inclusive and resilient planning.

1. Oakland city's "Slow Streets" program, E. Oikonomaki

A STREET CLOSURES

Oakland has led the "slow streets" program with 74 miles of roads identified for closure to create space to exercise and improve access for essential services. San Francisco, San Jose, and other cities have followed.

2. Homeless encampment at San Francisco's Civic Center, P. Garcia

B STREET CLOSURE FOR HOMELESS ENCAMPMENTS

San Francisco has joined other U.S. cities in authorizing homeless tent encampments in response to the pandemic. Over 80 tents have been spaced on a wide street near San Francisco City Hall as part of a "safe sleeping village". Meals, showers, water, and trash collection is provided.

3. City of San José expands program, city of San José official website

C PARKING LOT RETROFIT

Parking lots are being used to expand existing food programs, pantries, and provide ready meals and basic supplies to communities.

4. Circles in Mission Dolores Park encourage social distancing, E. Oikonomaki

D OPEN SPACE RETROFIT

Public parks have been retrofitted with chalk circles and barriers. In Mission Dolores Park in San Francisco for example, circles 10 feet in diameter were drawn in the grass to establish social distancing boundaries.

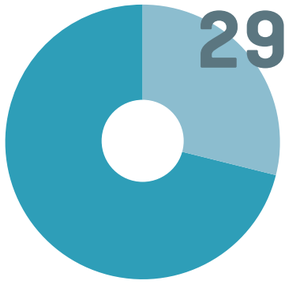
2 PUT LOCAL COMMUNITIES CENTER STAGE

We must put the health of local communities at the front and center. Stable households, good jobs, housing, quality education, generous public spaces, and culture are essential elements of prosperous societies. Resilient communities provide a support system and they also offer back-up during times of stress. When people lose jobs, they can turn to their communities. Young people can live with relatives or friends if they are not able to find a job, and neighbors can care for children. Building resiliency means repairing our communities. Each community has a unique problem that must be dealt with by those who know it best.

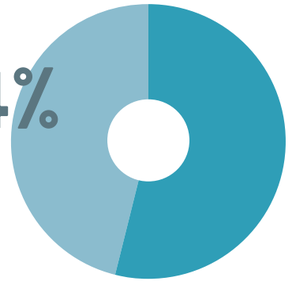
In "The Third Pillar: How Markets and the State Leave the Community Behind"[3] (Rajan, 2020), Rajan describes a framework for how three forces — the state, markets, and our communities — interact, why things break down, and how to find our way back to a more secure place. The "third pillar" is the community we live in. Rajan argues that the community is central in preparing people to participate in markets, giving them early childhood education, values, nutrition and health, to make them adequate market participants. The community also provides post-market support. It is a safety net. And perhaps most important of all, it is also the basis for democratic action.

THE PANDEMIC HAS EXPOSED STARK INEQUITIES

Our most vulnerable black and brown communities are those who have been the hardest hit by the dual crisis of the pandemic and structural racism. Acute disparities in health, wealth, jobs, salaries, housing, income, and poverty all contribute to greater susceptibility to the virus—both economically and physically. The stark inequities have become crystal clear. The wealth divide continues to grow. Since the 2008 recession, the economic recovery has benefited the upper incomes and increased disparity. There has been asset price inflation but not wage inflation.



29% AFRICAN AMERICANS LIVE IN MULTIFAMILY BUILDINGS WITH MORE THAN FIVE RESIDENTIAL UNITS, **WHICH IS DOUBLE THE RATE FOR WHITES.**



54% AFRICAN AMERICANS LIVE IN SINGLE-FAMILY HOUSES, **COMPARED TO 74% FOR WHITES**

In the US, 29% percent of African Americans live in multifamily buildings with more than five residential units, which is double the rate for whites. 54% of African Americans live in single-family houses, compared to 74% for whites. A disproportionate percentage of black people have jobs that classify them as "essential workers". While Blacks are only 12% of the workforce, they make up 26% in public transit, 17.5% in healthcare, 19.3% in healthcare and social services, 18.2% in trucking, warehouse & mail services, and 14.2% at convenience stores[4]. (Source: US Bureau of Labor Statistics)

To shape a new world, we need to address equity. Reparations are needed in the form of heavy investment in those communities that have suffered the most.

> "The combined $921 billion in wealth of the top 12 U.S. billionaires is the equivalent to the home equity wealth of the entire Black population of 17-million households."[5]
>
> The Institute for Policy Studies

Everyone should have access to most basic needs within a 20 minute walk.

3 REVERSE PAST INJUSTICES TO CREATE NEIGHBORHOODS FOR EVERYONE

> "The unbalanced impact of the pandemic on black and brown communities is firmly rooted in historic and ongoing social and economic injustices."
>
> [8]Economic Policy Institute

HISTORIC & ONGOING SPATIAL INJUSTICES

Many of the urban environments we know today represent the legacy of the oppression of black people[6] (Ginsburg & Ellis, 2017). Segregation in U.S. cities was imposed by racially divisive federal, state, and local policies for the past four hundred years. Slavery manifested itself in cities in the U.S, not only on rural plantations as is so often cited. Slave districts in some cities were on the margins because of a perceived threat to white people. The Jim Crow laws starting around 1877, after the abolishment of slavery mandated racial segregation of public places and spaces until 1965. These laws systematically excluded African Americans from public life. Later, during the Depression, many white families lost homes due to non-payments. The Public Works Administration constructed the first civilian public housing, primarily for white families in segregated white projects, which expanded racial segregation in U.S. cities.

REDLINING IS STILL HURTING NEIGHBORHOODS

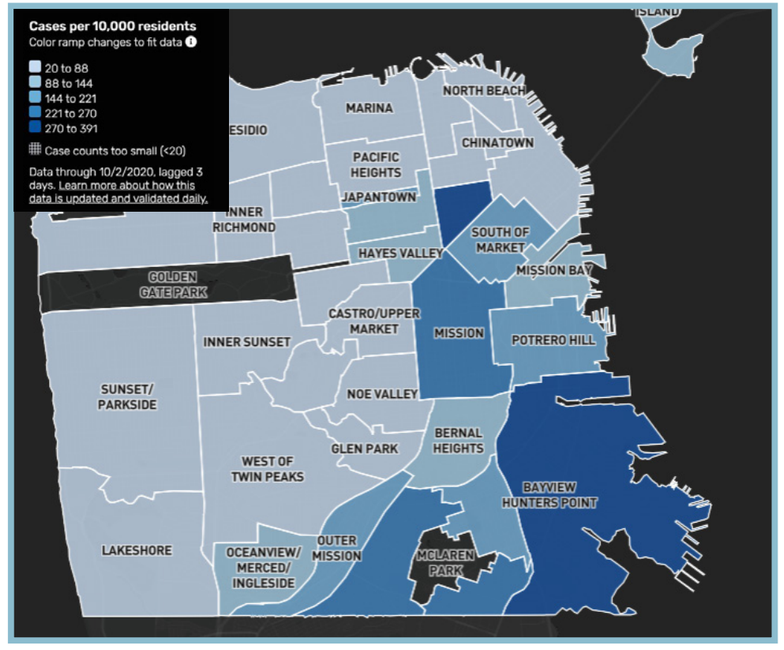
Racial discrimination in mortgage lending shaped the demographics and wealth of American communities today. Neighborhoods marked "hazardous" in red ink on maps drawn by the federal Home Owners' Loan Corporation. from 1935 to 1939 have lost out on the accumulation of wealth through home equity, lack of access to schools, and a lack of basic nutrition. Studies by the National Community Reinvestment Coalition[7], show that three out of four "redlined" neighborhoods, struggle economically (Mitchell & Franco, 2018). Many African Americans still live in less well-resourced neighborhoods, including less access to fresh food, less open space, fewer cultural and social amenities, low homeownership, and lack of good schools.

COVID-19 HIT HARDEST IN LOW INCOME AND FORMERLY REDLINED NEIGHBORHOODS

The pandemic has highlighted acute disparities. This is evident when one sees the overlap between zip codes that were most greatly impacted by the pandemic and race and income. There is also a correlation between areas where there was previously redlining and neighborhoods hardest hit as seen in the two maps on the right. In San Francisco, the highest number of covid-19 cases (April/May 2020 data) have been in the 94110 zip code, the Mission. Data shows that of the city's confirmed cases, 25% of patients are Hispanic or Latino although they make up 15% of San Francisco's population.

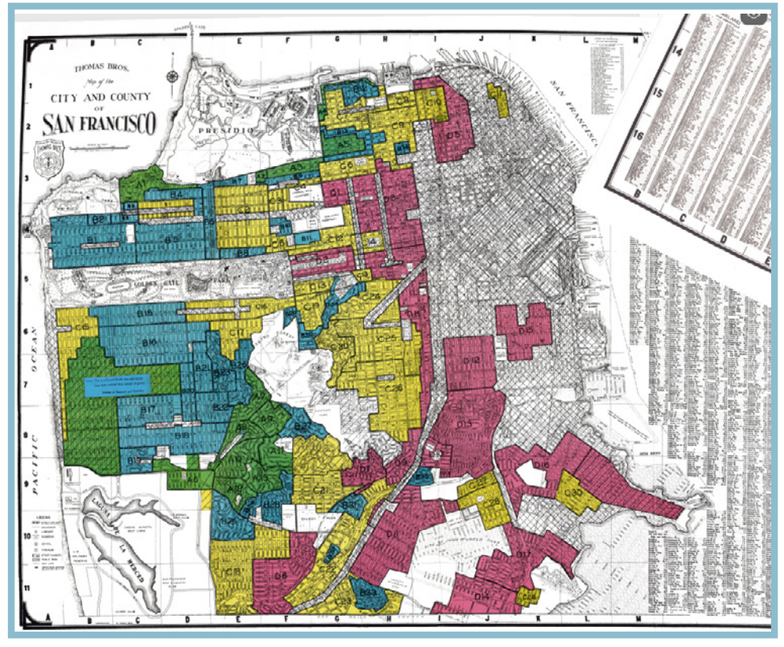
A HOLISTIC APPROACH TO ADDRESSING PAST INJUSTICES

Structural racism requires structural solutions to address history, culture, and institutions and policies that perpetuate racism. In the US, although the Civil Rights Act was passed in 1964, nothing was done to remedy racist segregation laws, and racial injustices have lingered and festered. Neighborhoods that have suffered the most require more attention. Homeownership is a driver in securing a more equitable future. The effects of the racial wealth divide are particularly destructive in homeownership, one of the driving forces of wealth accumulation in the United States. A holistic, evidence-based and socially conscious planning approach is needed to integrate segregated neighborhoods, prevent displacement through gentrification, empower local communities, deliver affordable, quality housing and inject social, cultural and educational resources into underserved communities.



5. Cumulative Covid-19 Cases map in San Francisco: Source: SF.Gov

Many areas that were previously redlined have been hardest hit by Covid-19.



6. Federal Government's Home Owners' Loan Corporation map, San Francisco 1935 -1940. Source: University of Richmond

4 BUILD DENSE AMENITY RICH NEIGHBORHOODS

A CITY OF COMMUNITIES

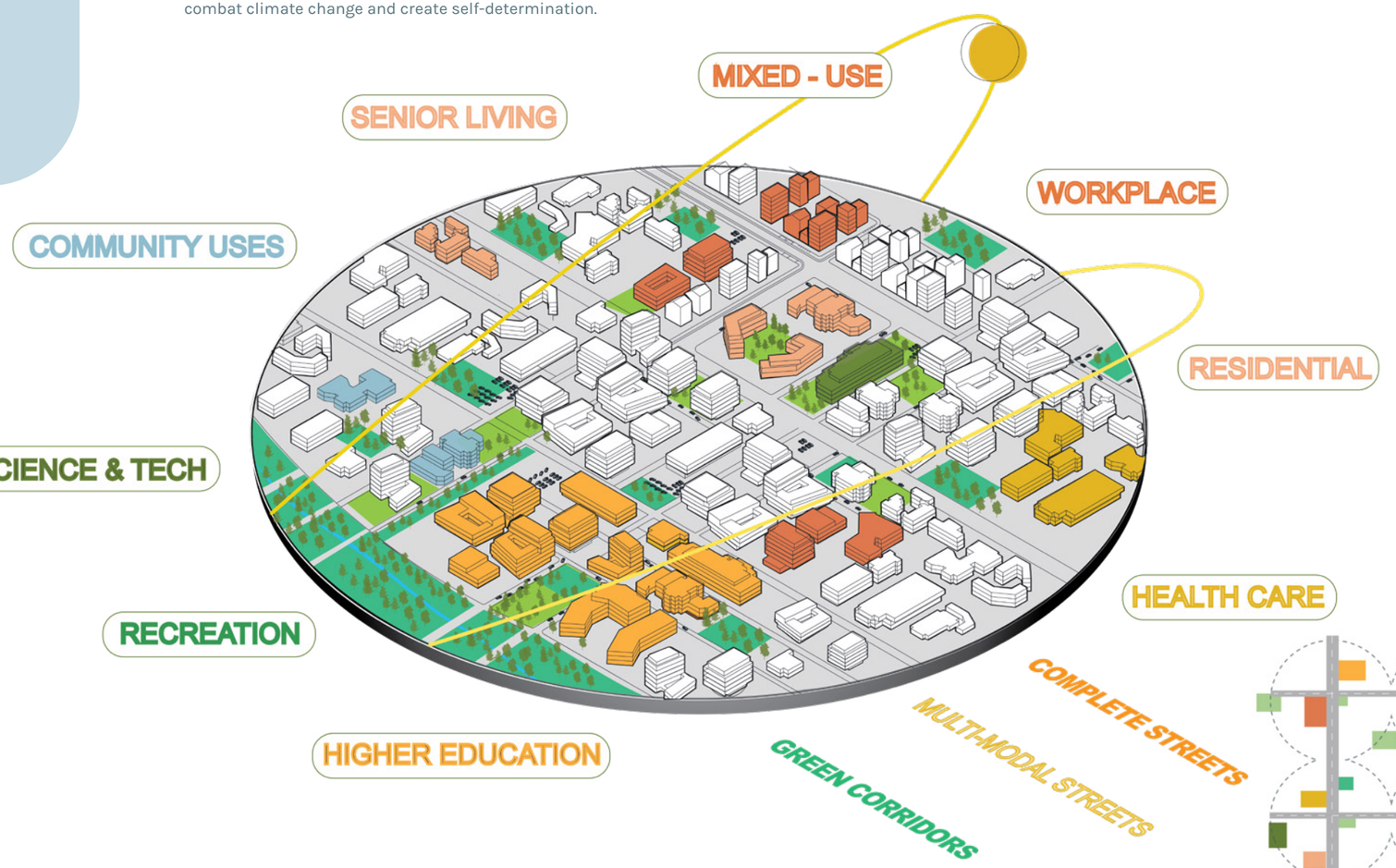
In cities in the United States, dense, localized, walkable amenity-rich neighborhoods with an abundance of open space -- self-contained cities within a city -- can combat climate change as well as create self-determination. Dense compact neighborhoods and vibrant public spaces create social cohesion and foster vibrant urban life. Denser cities are energy-efficient and have a much lower carbon footprint than low-density areas.

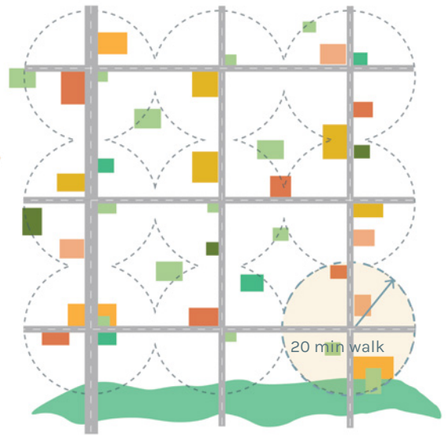
Creating "complete neighborhoods" is an age-old concept and has been developed by many urban planners through the ages. It often takes the form of a polycentric city shape. The concept draws upon the idea of a traditional village that has an institutional structure where support is non-transactional. A neighbor can care for one's child. The elderly can be cared for. Children who grow up in mixed-use, walkable neighborhoods are more likely to climb up the socio-economic ladder as they can reach opportunities easily. A "fifteen to twenty-minute city" whereby people have a short walk to reach social, cultural, recreation and work has become a post-pandemic recovery tool in some cities.

We would like to take the "complete neighborhood" concept further: First, restorative justice to local communities which have previously had less access to open space and amenities. Second, seaming neighborhoods together to repair past segregation and spatial injustice brought about by the remnants of redlining.

THE "COMPLETE NEIGHBORHOOD" CONCEPT

Complete neighborhoods within a city can support public health, combat climate change and create self-determination.

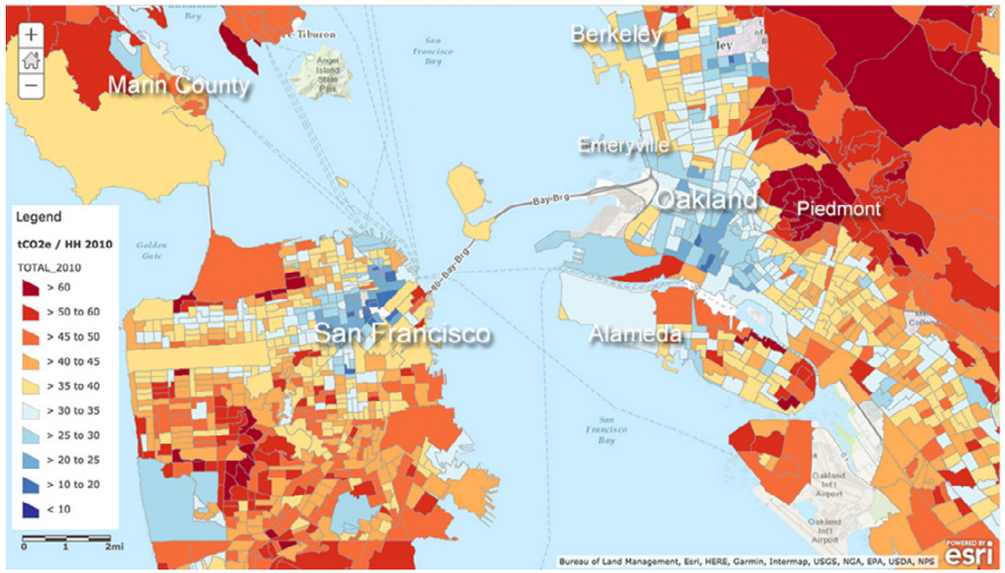




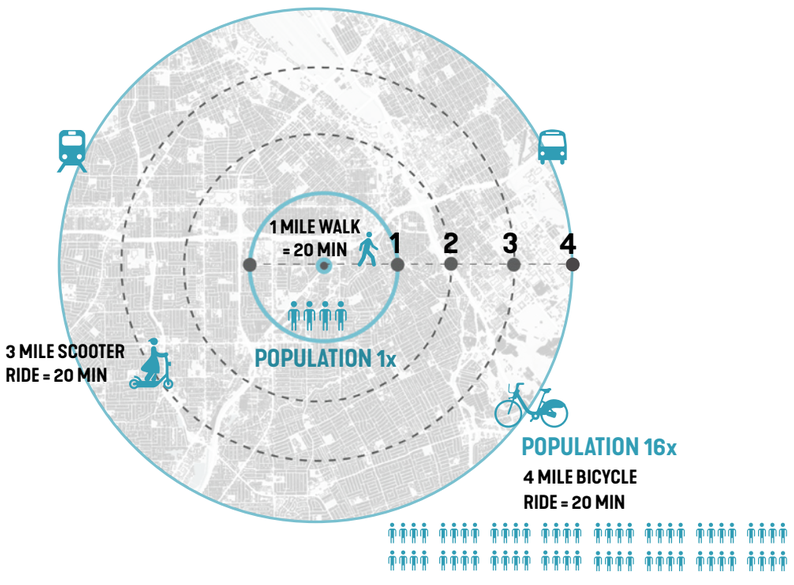
Complete neighborhoods should enable residents to access basic needs within a twenty minute walk.

5 PROTECT THE EARTH'S RESOURCES & COMBAT CLIMATE CHANGE

Dense cities are more energy efficient. As one sees in the map to the right of the San Francisco Bay Area, the city centers (blue areas) have a much lower carbon footprint than the outer areas. Suburban sprawl cancels the carbon-footprint savings of dense urban cores. If less dense areas become more popular post-pandemic, it could have a significant impact on climate change.



7. Bay Area carbon footprint, Renewable & Appropriate Energy Laboratory, Energy & Resources Group, University of California, Berkeley.



Micromobility can connect more people to transit and amenities.

Reducing vehicle miles traveled (VMT) is crucial to meet climate change goals. VMT has dropped considerably during the pandemic and multiple forms of mobility have had a renaissance[9] (Sarkin, 2020). Metropolitan and state leaders should use the VMT data to target the communities that may be most willing to test new, post-coronavirus interventions and develop innovative and creative incentives for alternative forms of mobility. Pilot projects can test ways to speed up the adoption of new, clean and efficient solutions.

For example, for California to reach the state's climate goals[10] (California's 2017 Climate Change Scoping Plan, 2017) the California Air Resources Board has established that even after transitioning to 100% zero emission vehicles and 75% renewable energy, California will still need 15% more per capita VMT reduction beyond what is projected by the current plan[11] (California's Sustainable Communities and Climate Protection Act, 2018).

Reallocating space previously used by cars, especially in neighborhoods without walkable access to open space would improve the public realm. Equitable, well-used public spaces foster strong social networks which build community resilience. It aids recovery from crisis and helps communities bounce back stronger.

Open space has other roles to play in combating climate change. Intense heat is nearly always aligned with the densest cities, exacerbated by the heat island effect. Parks and green spaces, green roofs, and waterways can cool cities and combat future temperature increases. Well-designed public space is also a great way to incorporate rainwater infiltration and harvest water for flood mitigation and in drought-prone areas.

6 PUBLIC SPACE IS ESSENTIAL FOR PUBLIC HEALTH

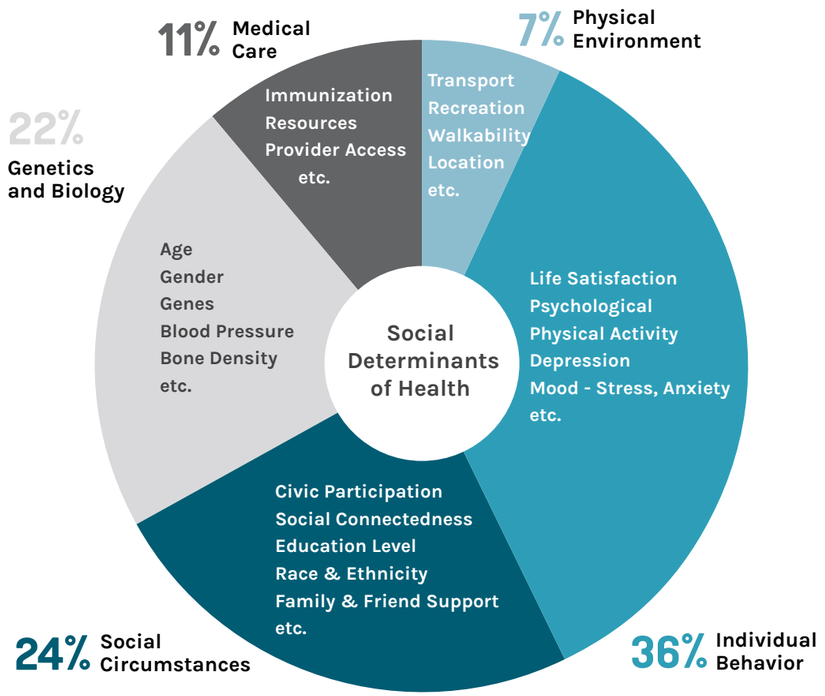
THE SOCIAL DETERMINANTS OF HEALTH

The social determinants of health (SDOH) is a framework established by the World Health Organization (WHO) to provide a holistic understanding of the drivers of community health and identify health disparities from a global perspective. The SDOH are conditions in the places where people are born, live, learn, work, play and age, that affect a wide range of health risks and outcomes. The quality of the public realm impacts three of the five SDOH - physical environment, individual behavior, and social circumstances.

Complete neighborhoods provide access to jobs, housing, transportation, food, education, economic opportunities, and open space, all factors having a major bearing on health. Stable communities with strong ties provide support such as childcare, good schools, transportation, and access to healthy food. In neighborhoods where disruption has occurred, such as urban renewal or redlining, there is often less social cohesion, a lack of amenities, food deserts and environmental hazards, all major determinants of health risk and outcomes.

OPEN SPACE IS AN ESSENTIAL SERVICE FOR PUBLIC HEALTH

Open space can improve health and wellbeing by reducing socioeconomic segregation, social isolation and encouraging exercise. Locating open space within a ten-minute walk is a goal of many city leaders. It encourages people to spend time outside and exercise. In some parts of the U.S however, many people cannot walk easily to an open space.

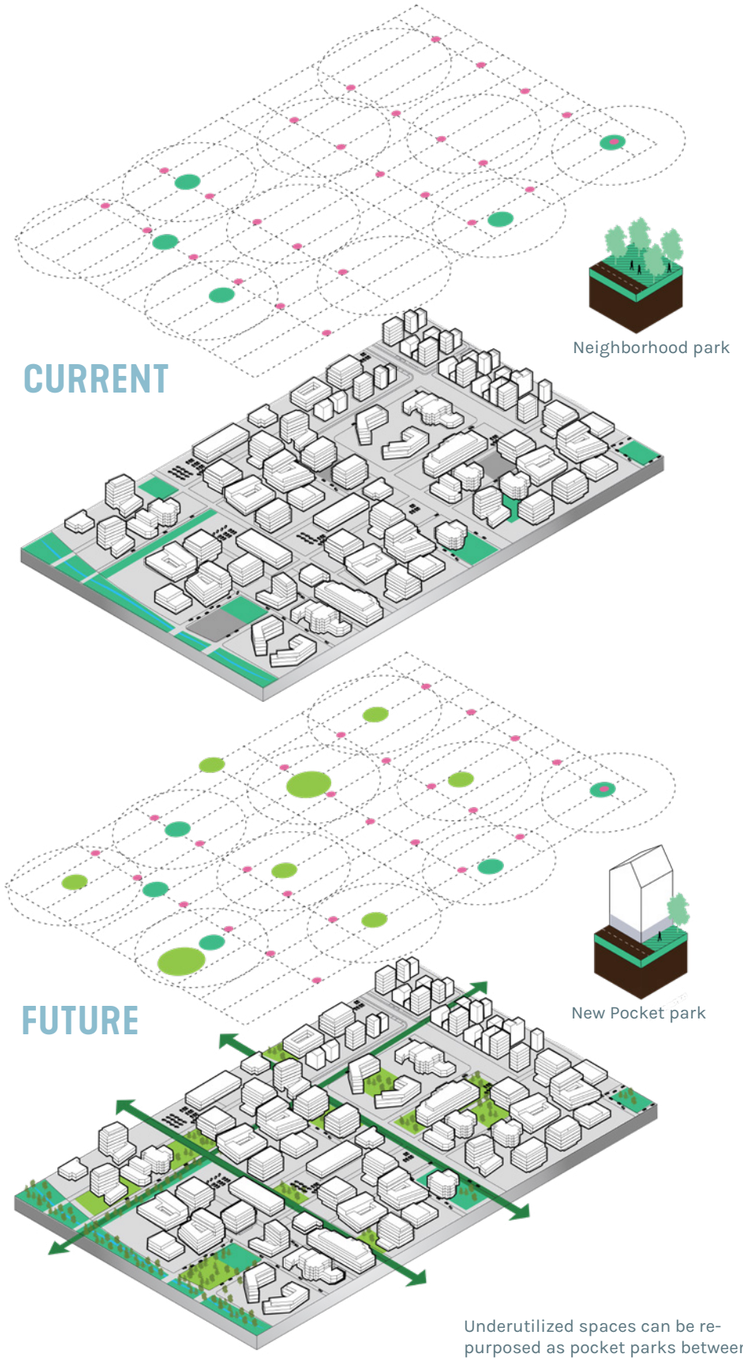


The Social Determinants of Health (SDOH) — World Health Organization
The public realm impacts as much as sixty seven percent of SDOH.

Over 100 million people across the United States, including 28 million children, do not have a park within a 10-minute walk of home.

[12] Parkscore Ranking Data, 2020

In Phoenix for example, only 22% of people have access to a park within a ten-minute walk. San Francisco was the first city in the United States to reach the 10-minute walk to park goal for all its citizens in 2017, but other parts of California are not doing so well. In Oakland 83% of the population has access to a park within a 10-minute walk, San Jose 76%, Fremont 54%, Fresno 51%, and LA 51% [13]. (source: The Center for City Park Excellence, Trust for Public Land) A system of small open spaces, pocket parks and plazas throughout a neighborhood will encourage walking, enhance social interaction, and improve wellbeing. These can be passive spaces for respite or active spaces for working out, running, working and more.



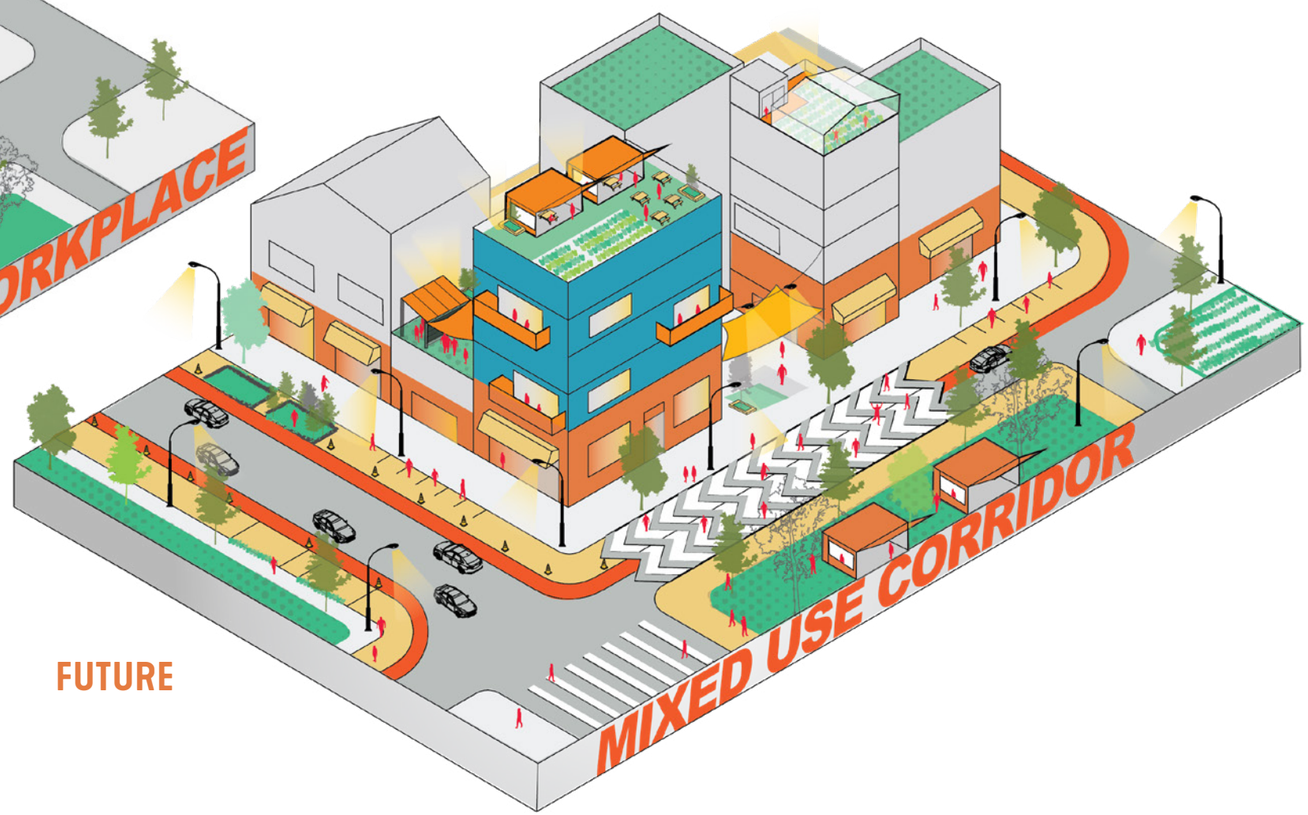
Underutilized spaces can be re-purposed as pocket parks between neighborhood parks to form a connected green network.

OPEN SPACE: MIXED-USE **CITY BLOCK**

FOSTER DENSE MIXED-USE NEIGHBORHOODS WITH AMPLE OPEN SPACE

Vibrant dense neighborhoods with mixed-uses near transit supports human connection. Cultural melting pots thrive on diversity and is where innovation, creativity, and prosperity blossoms.

Density is needed for us to deal with one of our biggest threats, climate change. Despite measures to reduce per capita vehicle miles travelled (VMT) before the pandemic, it has been very difficult to bend the VMT curve. Lockdown proved that it is indeed possible to do so. Reducing space given over to cars will help mitigate climate change and support higher density neighborhoods. Streets, sidewalks, and the right-of-way account for large swaths of urban areas. Land dedicated to streets in urban cores of cities in developed countries, generally accounts for 25 – 35% of land area[14] (UN- HABITAT, 2013). We must be mindful of how we use this valuable real estate. The ground plane can provide space for informal trade, gathering, working and socializing. Likewise, the rooftop plane can provide spaces with enjoyable breezes, views, and seclusion from the hustle and bustle below.



TURN STREETS INTO PLACES FOR PEOPLE

BIKE LANE

8. Midtown Loop Greenway, Michele Brautnick

SHARED STREET

9. East Mitchell Street Reconstruction, Petoskey

WIDENED SIDEWALK

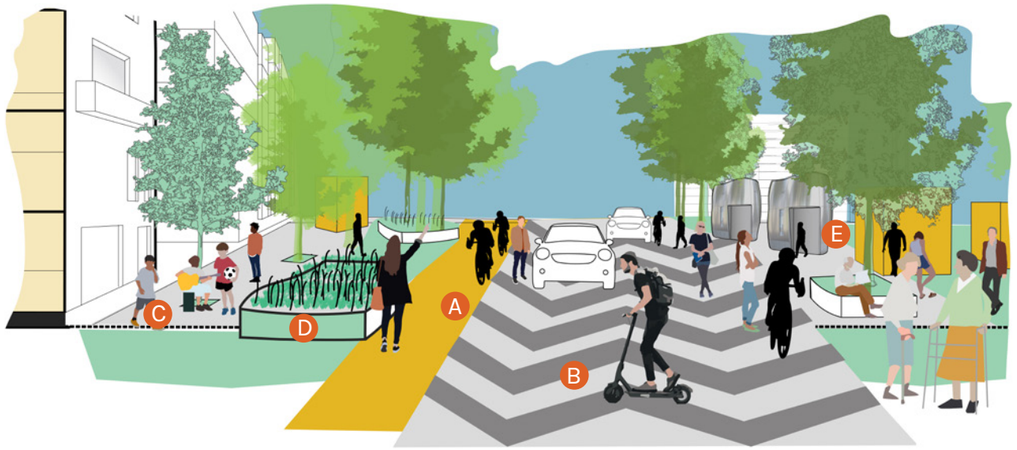
10. Midland's Downtown Streetscape Redevelopment, Justin Maconochie

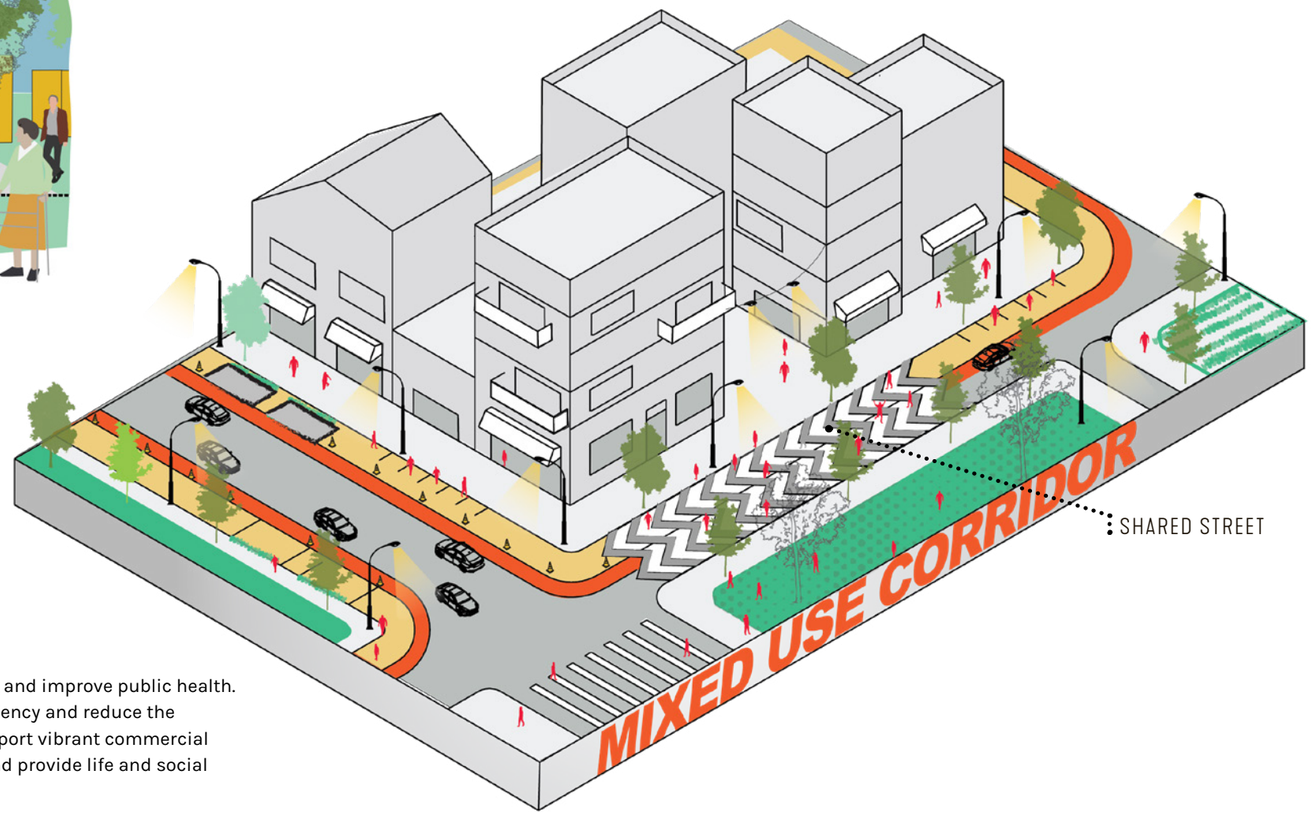
COMMUNITY GARDEN

11. Smithgroup's Art Center Community Garden, Michigan

SANITARY STATIONS

12. Smithgroup's spaceship-like toilet and kiosk, San Francisco

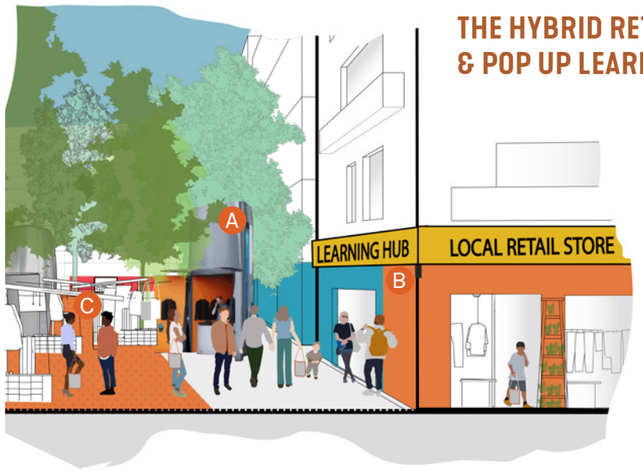




Streets stitch our neighborhoods and communities together. They enable mobility and forge connections. During the pandemic, streets have been renewed. They have provided common ground for protest, and Black Lives Matter signs painted on asphalt have called for action. Our streets have provided yet another different kind of freedom under lockdown. Drops in pollution from reduced cars on roads have made them more enjoyable for walking, biking, and interaction while social distancing.

At their best, streets are true urban places. They should empower freedom of movement with economically equitable mobility options. Surveillance and contact tracing should not be intrusive and marginalize vulnerable communities. By favoring the pedestrian over the car, streets can be places where people can see and be seen. They should be delightful, surprising and make us feel good. They should contribute to well-being and social cohesion. They can encourage walking and improve public health. They can channel stormwater for resiliency and reduce the urban heat island effect. They can support vibrant commercial destinations, stimulate economies, and provide life and social vitality.

REINVENT GROUND FLOOR RETAIL



THE HYBRID RETAIL STORE & POP UP LEARNING HUB

POP UP STORES

13. Pop-up shop in San Francisco, SmithGroup

POP-UP BUSINESS & MICRO SCHOOL

14. MSU Innovation Hub, Travis Frangie Photography

POP UP MEETING AREA

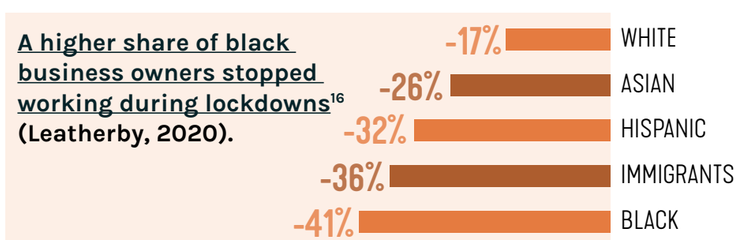
15. 12th Street Repositioning, Judy Davis / Hoachlander Davis

GIVE VACANT RETAIL STORES A BREATH OF NEW LIFE

Ground floor retail has suffered during the pandemic. Online shopping has increased, and many stores are closed and boarded up. Some projections suggest that as many as 75% of small stores may not survive the pandemic. Reduced pedestrian traffic will in turn have a multiplier effect, and coffee shops and cafes relying on passing foot traffic will close. The ground floor activities that give life to the public realm are in jeopardy.

SUPPORT SMALL BLACK & BROWN BUSINESS OWNERS

A higher share of black and brown owned business have closed during the pandemic. Many small businesses, especially stores and restaurants, do not have the resources, scale, and technical assistance to survive. Black business owners often do not have traditional banking partners and are not able to access grants and stimulus funding. For example, in NYC's city-wide small business loan program only 2 percent of its twenty million dollars was allocated to the Bronx, the borough with the largest black population [15] (Fairlie, 2020).



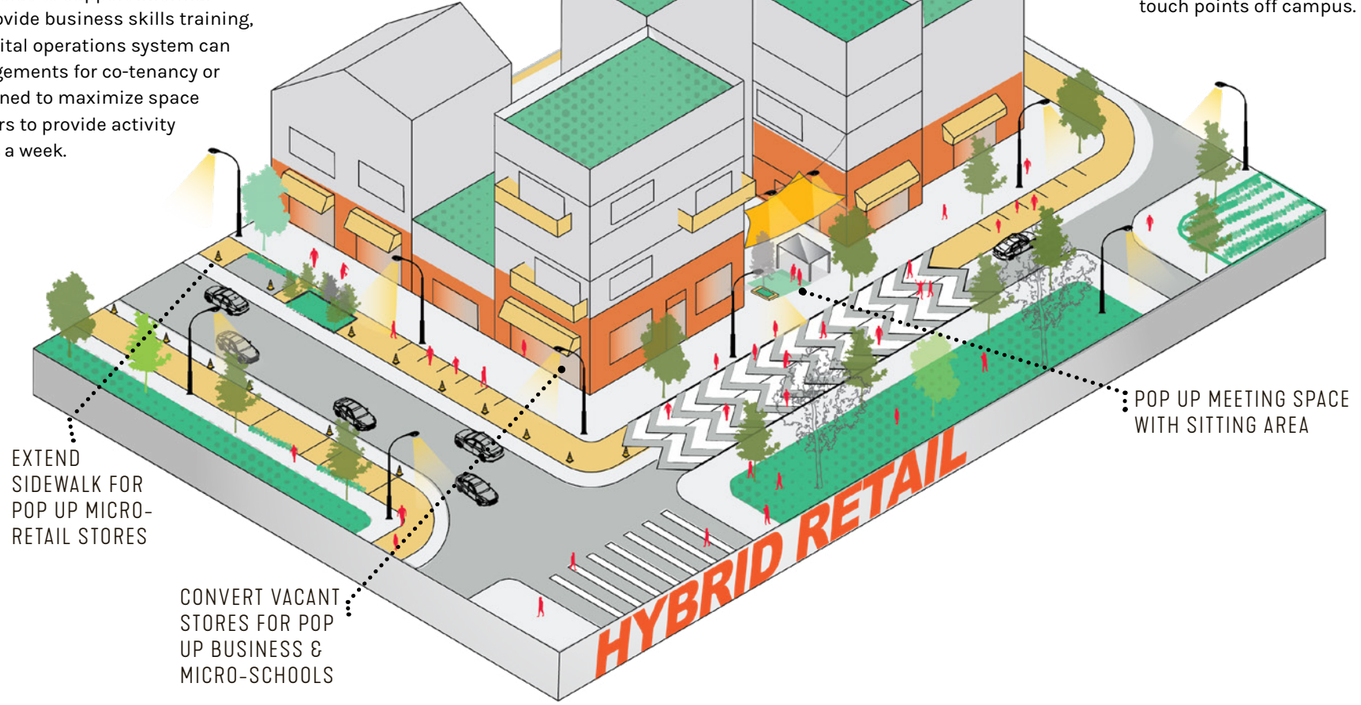
16. Analysis of current population. Survey by Robert Fairlie, University of California, Santa Cruz.

POP-UP SMALL BUSINESS, COMMUNITY CENTERS & WORKFORCE TRAINING

Vacant stores can make way for community centers, pop-up maker studios and classes for hands-on workforce development. Underutilized lease space can be especially supportive for black, brown and immigrant business owners. Leases can be split to provide affordable small seed space for small businesses to grow. Vendor stalls with retractable awnings can be stored inside vacant stores and moved outside to support informal traders. Incubator programs can provide business skills training, resources and connect people. A digital operations system can coordinate leases and set-up arrangements for co-tenancy or pop-ups. Schedules can be streamlined to maximize space usage during diverse operating hours to provide activity twenty-four hours a day, seven days a week.

POP UP MICRO-SCHOOLS

Empty stores can be converted to classrooms and micro-schools. Workforce training programs that typically take place on college campuses can move closer to where students live. Classes dependent on "hands-on" training that cannot happen online, such as welding and auto-mechanics, can be given a venue and open a gateway to jobs. Empty stores can also be used for students and teachers in "pandemic safe pods" to have in-person touch points off campus.



CAPTURE ROOF TERRACES FOR PEOPLE

TERRACES AND BALCONIES BRIDGE PUBLIC & PRIVATE LIFE

Balconies and terraces bridge the divide between public and private life. People feel less cooped up in their apartments and offices and feel safer while seeing the outdoors. We have seen how balconies serve a greater cultural purpose than just a building amenity. They provide a space for creating human connection.

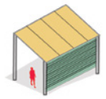
Terraces and balconies connect people to the street and the outdoors. As we saw in NYC, people sang from balconies across the city during the height of the pandemic. In Italy, the old tradition of lowering baskets filled with food for the homeless was instituted. We expect to see a resurgence in the value of balconies, terraces and outdoor spaces in the future. We think that the moments of connection experienced on balconies and terraces during the pandemic will lead us to appreciate them as social spaces in the post-pandemic future.

OPEN SPACE HAS INCREASED IN VALUE AS A LEASING AMENITY

Spaces to meet and gather are taking on a new role as a critical leasing amenity in mixed-use, residential, and office spaces. Even small spaces such as balconies, patios, alleys and terraces have become very valuable real estate.

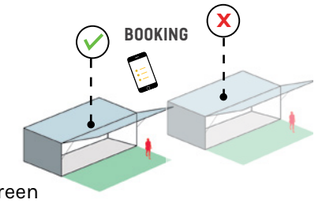
Local zoning laws often allow a certain amount of balcony space, that does not count towards the maximum allowable site density. This can steer development decisions towards providing small outdoor spaces. A comprehensive evaluation of outdoor space in building codes and zoning can facilitate and incentivize more open (and better) spaces in our cities.

8:30 AM
TERRACE FITNESS CENTER



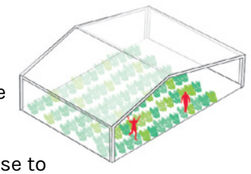
Nick starts the day with a yoga class on the terrace, which has been recently converted to an engaging social space.

9:30 AM
ROOFTOP WORKSTATION

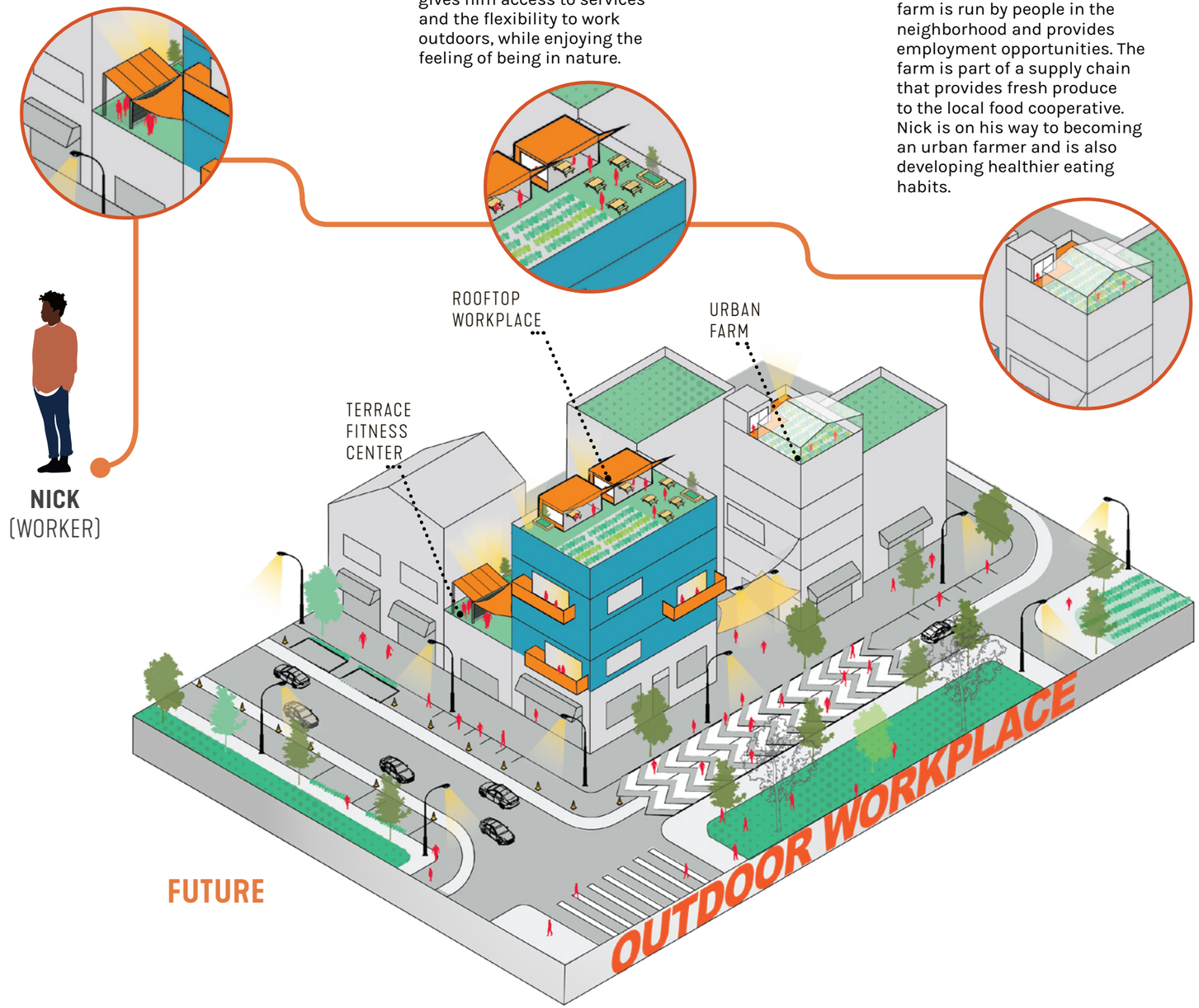


Nick heads to the green rooftop workstation that he has reserved the previous day. This Wi-Fi enabled space gives him access to services and the flexibility to work outdoors, while enjoying the feeling of being in nature.

5:00 PM
URBAN FARM



Nick meets friends at the rooftop farm, where they attend a public urban agriculture training course to gain knowledge about food production. The new urban farm is run by people in the neighborhood and provides employment opportunities. The farm is part of a supply chain that provides fresh produce to the local food cooperative. Nick is on his way to becoming an urban farmer and is also developing healthier eating habits.



TAKE WORK OUTSIDE FOR WELL-BEING & CREATIVITY

The outdoors has found its way into the design of office buildings with living green walls, views of foliage, and skylights filled with natural light. The calming impact of nature boosts creativity and relieves stress. Bringing the indoors outside, on the other hand, is far less common. It usually includes the use of terraces and outdoor courtyards for lunch breaks and small gatherings.

Bringing work truly outside -- where climate permits-- has many benefits but has never really caught on. Tech campuses and colleges sometimes have areas where people can access power and Wi-Fi but are usually not as comfortable as working inside. Shade, power, comfort, and privacy are often not ideal. The pandemic has created a new appreciation for the potentials of outdoor work, with people meeting virtually from balconies, backyard decks, porches, and parks. For those who have limited access to the internet, the local Starbucks is not an option during the pandemic. Some people have resorted to working from their cars in parking lots near libraries, stores, and colleges where signals have been kept on.

The pandemic has nudged perceptions of working outside to become more mainstream. That change in pattern can be built upon to sustain the use of the outdoors in imaginative ways post-pandemic. Outdoor meeting spaces and conference rooms can provide diverse, accessible, and versatile outdoor workplaces. Without the constraints of structured rooms, ceilings, walls, and mechanical systems one has exhilarating wide open sky and fresh air. With well-designed and ergonomic structural elements, the outdoors can become the host of a powerful array of new space typologies to meet, converse, and spark creativity.

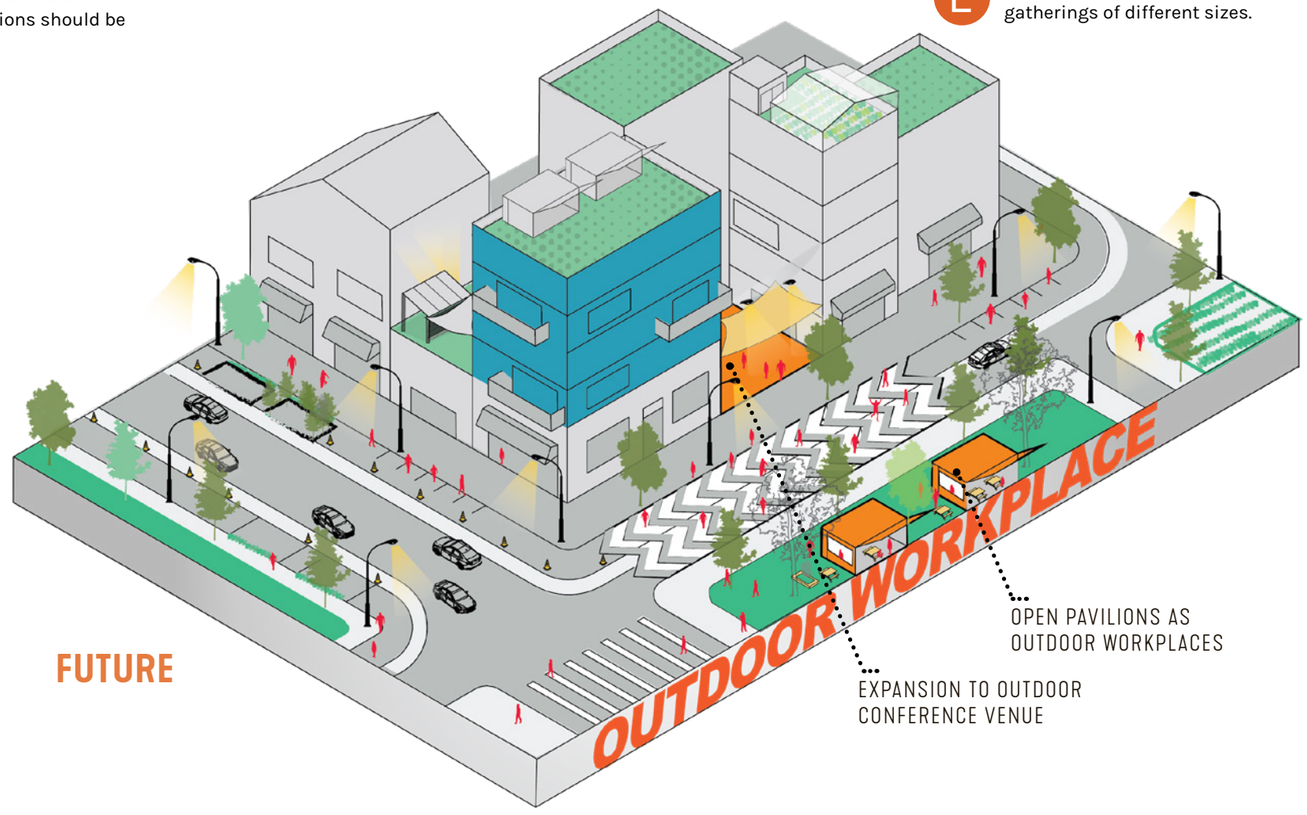
A Users should be able to reserve a workstation online in advance. Pavilions have "smart" shading devices and flexible tables and chairs.

B Workstations have adjustable blinds, movable white boards, sanitizing dispensers and trash disposals, all with a touch-less interface.

D Indoor meeting rooms can expand to the outdoors to create spacious conference venues.

C Ample power outlets and charging stations should be provided.

E Seating should be flexible to accommodate gatherings of different sizes.



BUILD INTERGENERATIONAL NEIGHBORHOODS

HEALTHY NEIGHBORHOODS FOR ALL AGES

Neighborhoods are more vibrant when there is a diversity of ages. Older people can take care of the young and feel valued. The young can learn from the wisdom of those who have led long lives. For people in senior living complexes, as well as those living alone, public outdoor space provides social interaction that mitigates isolation and loneliness. Green spaces and pedestrian areas encourage physical activity which leads to health benefits. In vibrant neighborhoods, older citizens can lead lives energized by seeing the day to day theater of life. Senior Living environments, where feasible, can offer community space for neighbors further afield. This could be used for farmer's markets, demonstration gardens, and other types of community open space.

Neighborhoods around senior housing can benefit from street calming and pedestrianization projects. These can be low-cost tactical measures as seen during the pandemic, or more formalized projects. In cases where senior living is in an urban neighborhood, vehicular traffic can be redirected away, preventing non-residents from traversing the area. This could create opportunities to create "superblocks" whereby streets are converted to internal public spaces for enjoyment by everyone.

"What a nice way to start the day!" Agnes thought, while heading to the relief garden. There, she met friends from the senior living community.

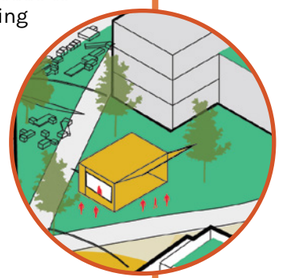
AGNES
(SENIOR)

1:00 PM
FARMER'S MARKET

It is time for her to buy fresh vegetables at the micro farmer's market in the courtyard of the senior living complex.

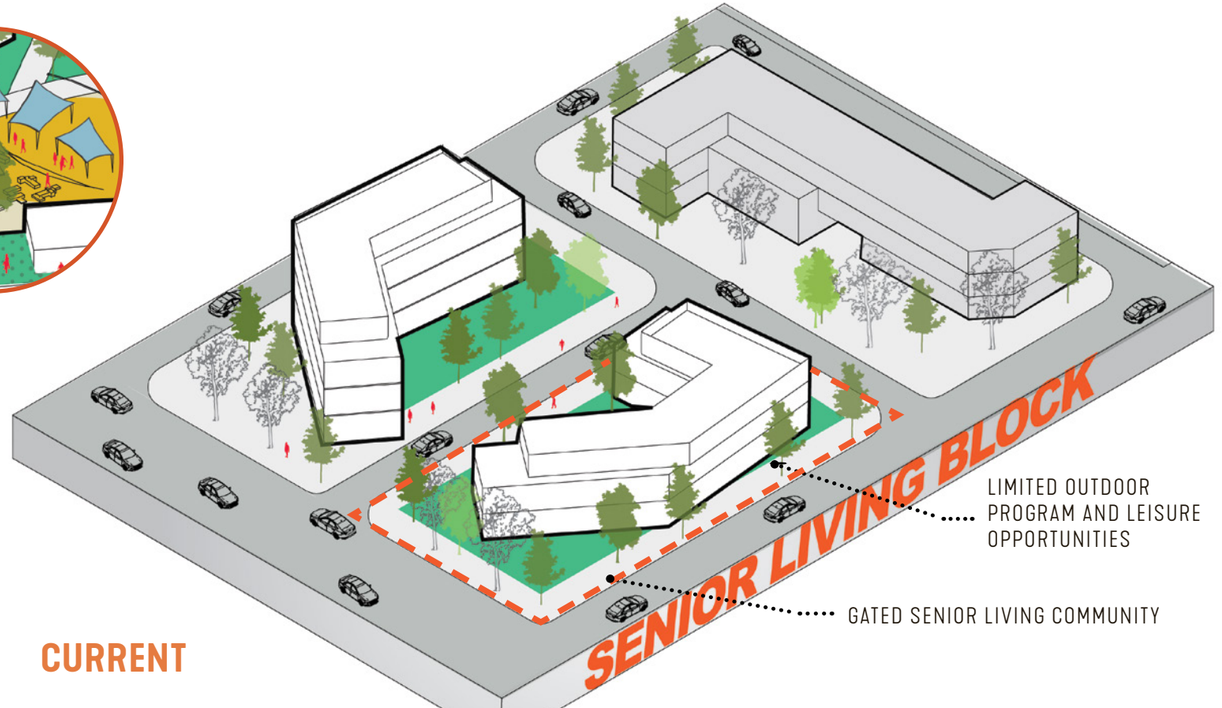
11:30 AM
OUTDOOR NURSING FACILITIES

It was time for Agnes's appointment. She heads to the independent living skilled nursing facilities near the senior living courtyard to meet her doctor.

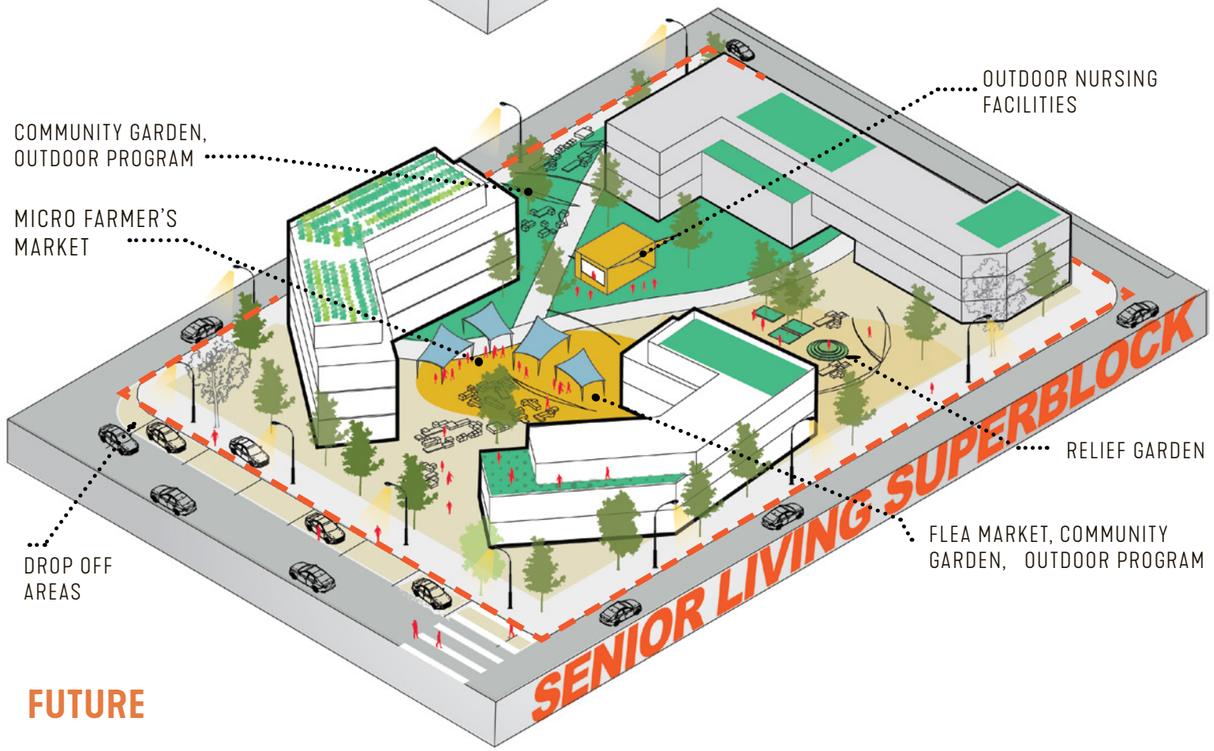


10:25 AM
RELIEF GARDEN

CURRENT



FUTURE



INTRODUCE AMENITIES INTO SENIOR LIVING SUPER BLOCKS & OPEN SPACES

PAVED TRAILS

17. Health Trinity White Lake Rehabilitation and Wellness Center, C/O Trinity

RELIEF GARDEN

18. Chamberlain Group Headquarters, Burk

MICRO FARMER'S MARKET

19. Farmers Market, Corktown

PICK UP & DROP OFF AREA

20. Midland's Downtown Streetscape Redevelopment, Maconochie

SPORTS/WORK OUT AREA

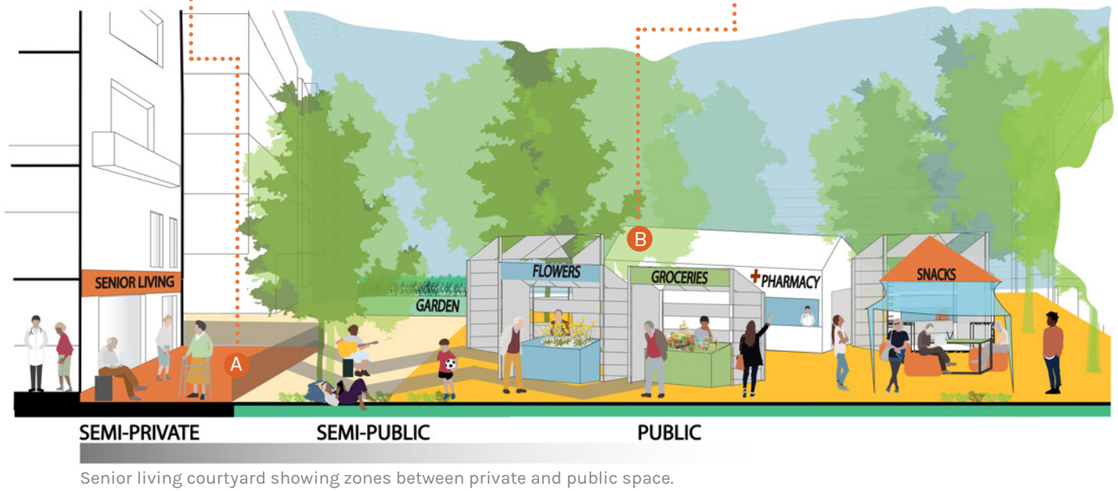
21. Elderly Special Care Residence, LLC

Older people represent the greatest risk of contracting Covid-19. Isolating oneself may feel safer but has physical and mental health risks. The outdoors can provide a lower risk of infection than gathering inside and encourages exercise and interaction. The threshold between private and public can provide a buffer to control spread and offers a hierarchy of indoor-outdoor spaces. More vulnerable residents may benefit from semi-private zones, from where they can watch daily life pass by to feel less socially isolated. Semi-public spaces can allow a slightly greater degree of interaction with neighbors, friends, and relatives for emotional connection. Public space can allow for greater interaction with the community at large and provide independence with space management protocols.

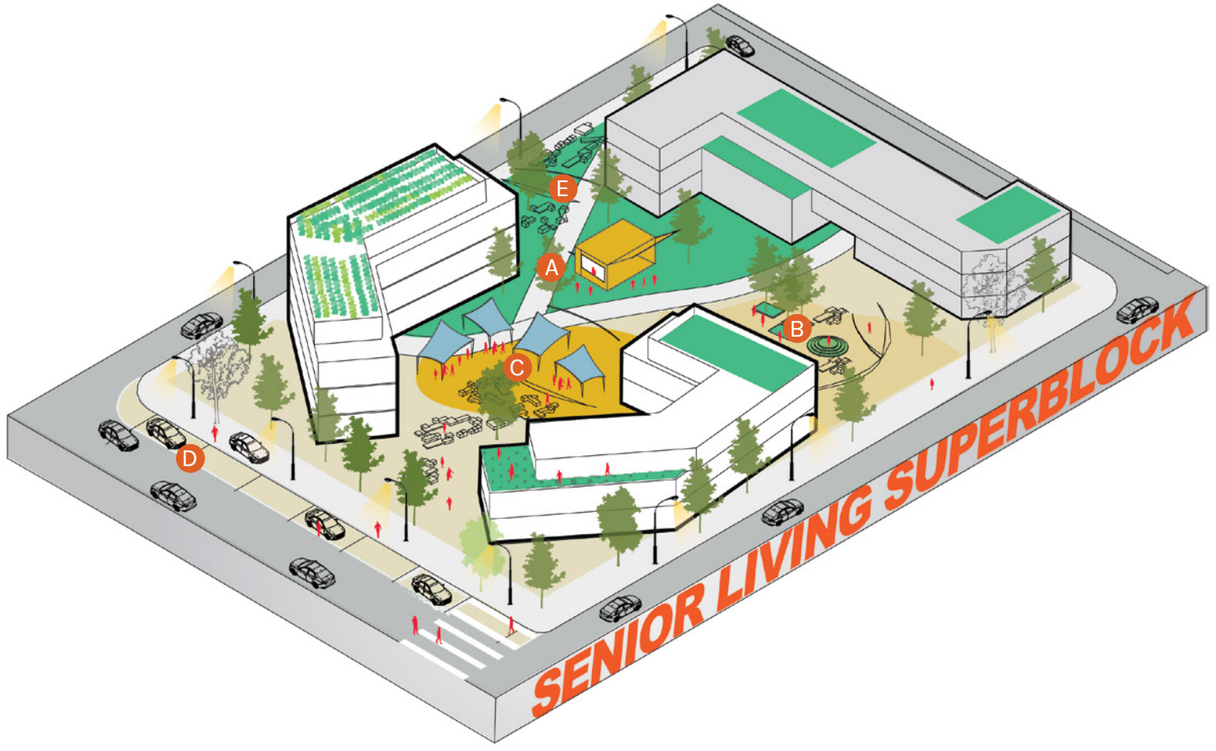
Introducing amenities within the superblock or residential boundary can allow elder residents to access basic needs close by. This can be facilitated by initiating partnerships with businesses such as micro-markets, grocery stores, pharmacies, and clinics. The functions that are sometimes located inside senior communities such as salons can also be relocated outside. Vendors, micro-markets, and community gardens can provide greater diversity of amenities. This will transform senior living communities to be inclusive and reduce the risk of exposure to infection in the short term. Beyond the pandemic, senior communities can thrive as lively, dignified and connected places.

A Seniors can watch daily life pass by to feel less isolated, while avoiding the risk of exposure to large group of people.

B Senior living communities can host micro-markets, pharmacies and micro-clinics in outdoor spaces, and make them accessible to the wider community.



Senior living courtyard showing zones between private and public space.



PUBLIC SPACE: CAMPUS SCALE

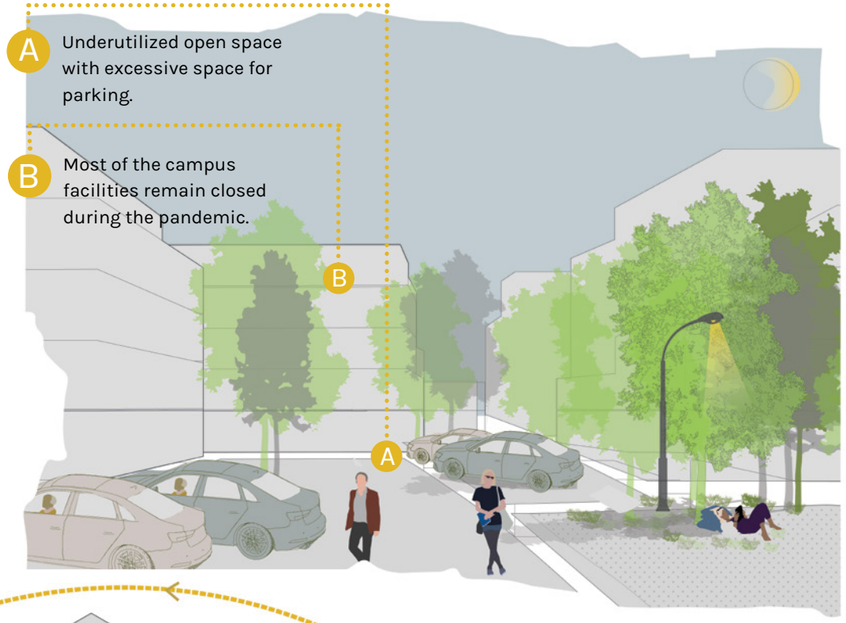
TAPPING UNDERUTILIZED SPACE ON CAMPUS

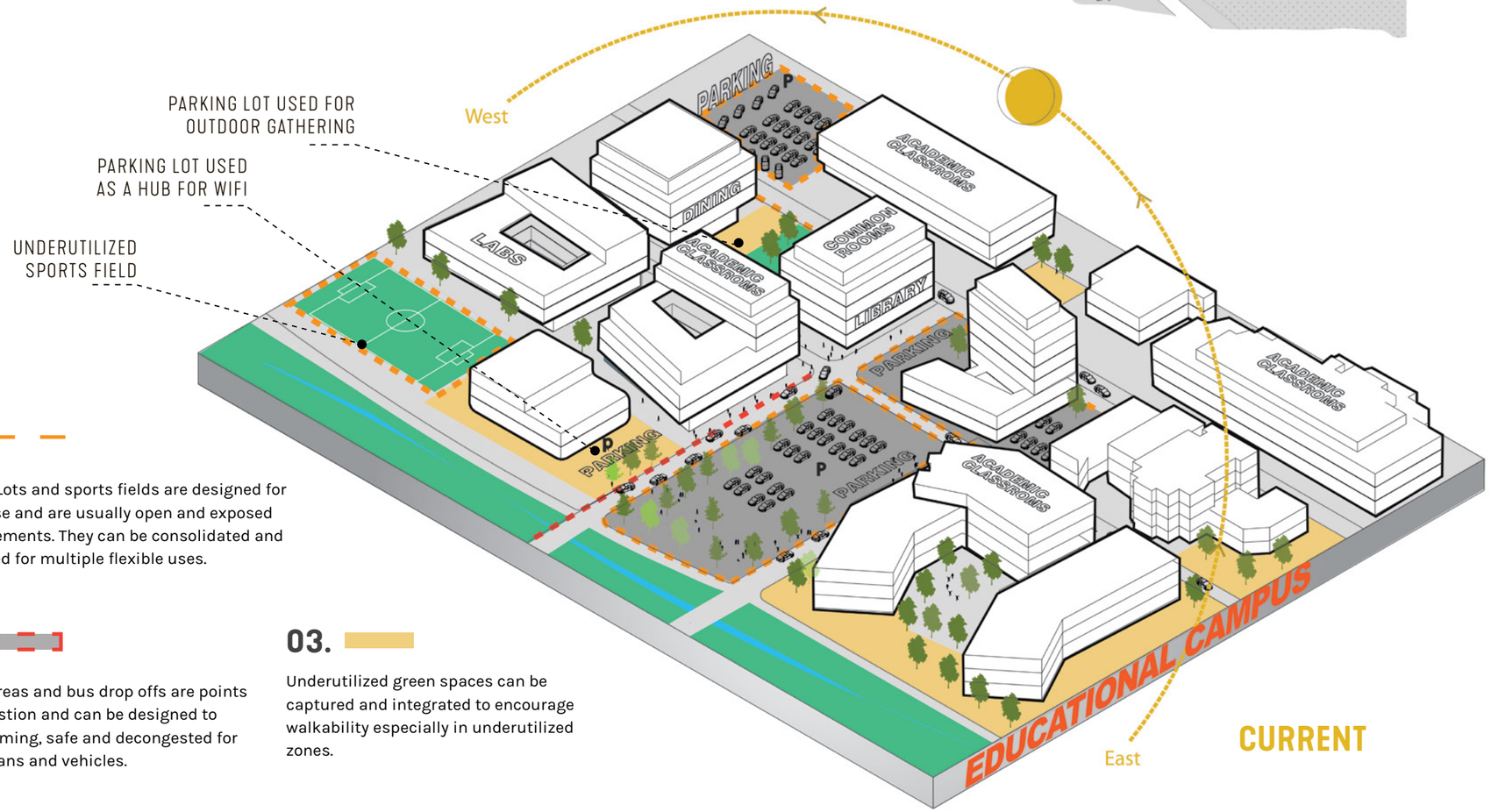
The use of open space on higher education campuses has not been sufficiently tapped into. During the pandemic, shifts in teaching schedules, hybrid models of online and in-person classes and maintenance will drive new usage patterns. Past experiences have shown that the use of outdoor space for Higher Education can be very effective.

During the early 20th century, as tuberculosis swept through cities in the US, spearheaded by doctors, open-air classrooms were implemented among children to mitigate transmission spearheaded by doctors [17] (Korr, 2016) . Students were kept warm in blankets known as Eskimo sitting bags with heated soapstone positioned at their feet. The approach was deemed successful, and accounts showed that children were not infected. Within two years there were sixty five open-air schools in the US. Other schools conducted classes on rooftops and even on an abandoned ferry. In the Bay Area, as a response to the pandemic, parents are organizing safe pods where families can cluster children together in small groups, for social interaction and face-to-face connection with teachers. This has applicability for higher education campuses.

Technology campuses typically incorporate open space into their overall campus design. However, the spaces do not always provide adequate thermal comfort, especially when working outside for extended periods. Most technology companies in the San Francisco Bay Area emptied their campuses before local shelter-in-place orders and are allowing flexible work from home policies into the far future. However, companies working with products where privacy is an issue, still need hardware engineers to be present on a physical campus.

Open space can be leveraged for short-term touch points or as a more formal workspace. The key is providing options, so people have choices to suit individual comfort levels and working styles. Also critical is designing for seasonal comfort, as outlined later in this publication.





01.

Parking Lots and sports fields are designed for single use and are usually open and exposed to the elements. They can be consolidated and retrofitted for multiple flexible uses.

02.

Arrival areas and bus drop offs are points of congestion and can be designed to be welcoming, safe and decongested for pedestrians and vehicles.

03.

Underutilized green spaces can be captured and integrated to encourage walkability especially in underutilized zones.

EMERGENT IDEAS: HIGHER EDUCATION CAMPUS

OUTDOOR ACTIVITIES

22. Mill Pond Park Redevelopment B/FM

ACTIVE GROUND FLOORS

23. DPR Construction Phoenix Regional Office, Mastorakos

OUTDOOR PROGRAM

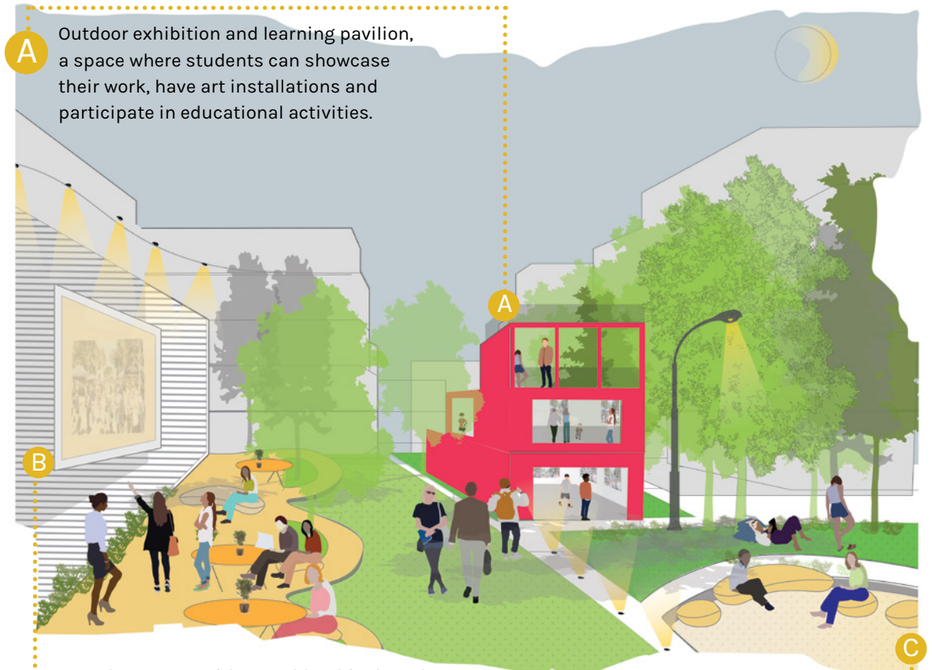
24. Chandler Village B/FM

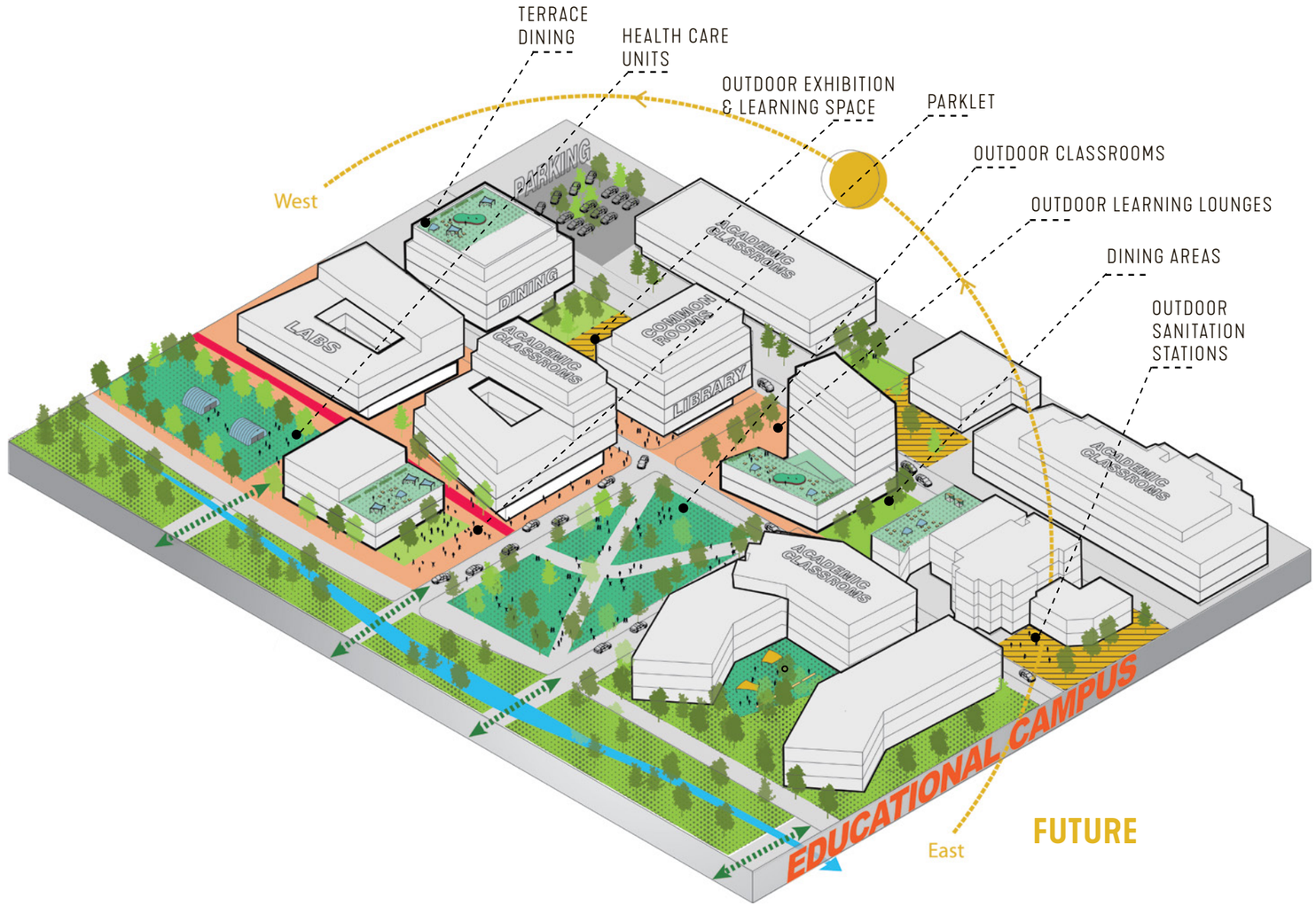
TEMPORARY STRUCTURES

25. Detroit Riverwalk

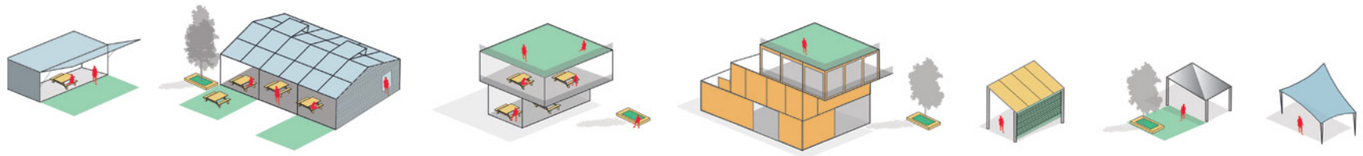
SMALL CATALYTIC PROJECTS CAN DRIVE LONG-TERM TRANSFORMATION

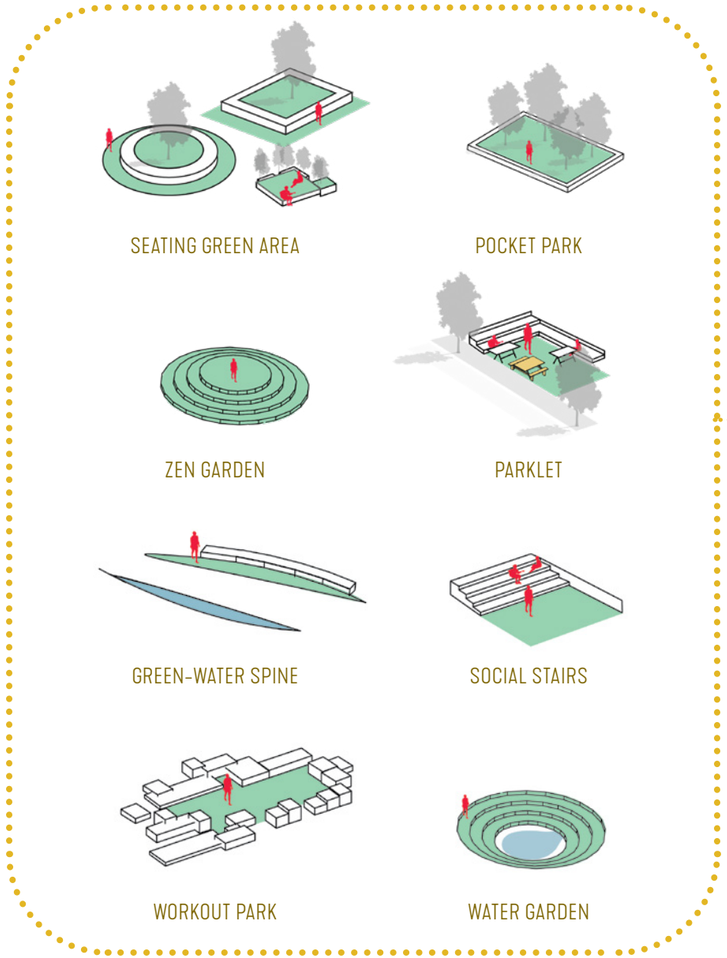
Small catalytic projects can become engines for a longer-term vision for campuses. New spatial ideas can be tested as pilot projects to gauge reaction and comfort level. These ideas can then be modified and improved in parallel with the development of a coordinated long-term strategy.





HIGHER EDUCATION CAMPUS: KIT OF PARTS FOR THE OUTDOORS

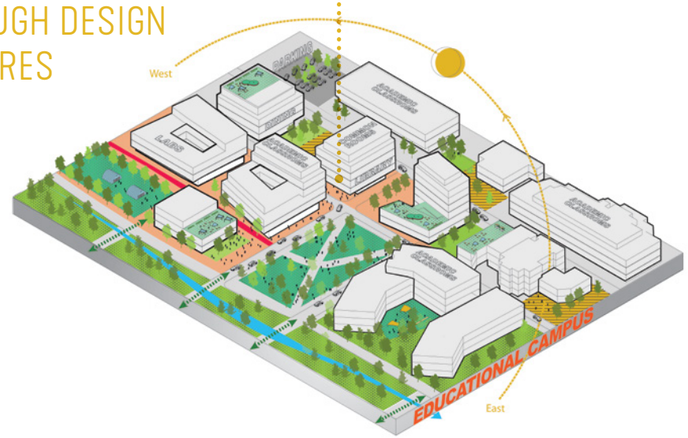




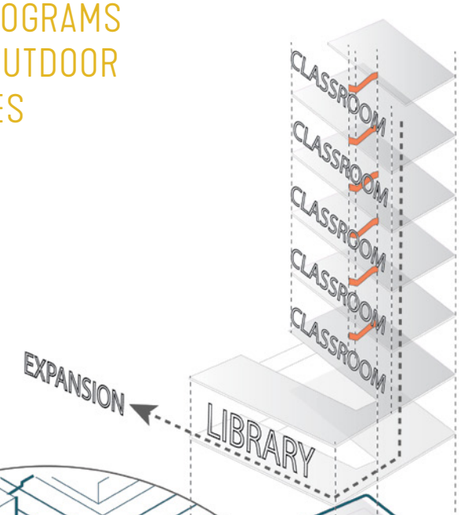
Design that reconnects people with nature – sometimes referred to as biophilic design – provides us with opportunities to create healthy work and live environments, by lowering stress and creating greater overall well-being. The benefits are immense as lost productivity from stress-related illnesses accounts for over three hundred billion dollars in the US[18] (Martin, 2012). Outdoor design elements incorporating foliage can also combat the heat island effect whereby concrete and hard surfaces absorb the sun's heat and cause temperatures to rise.

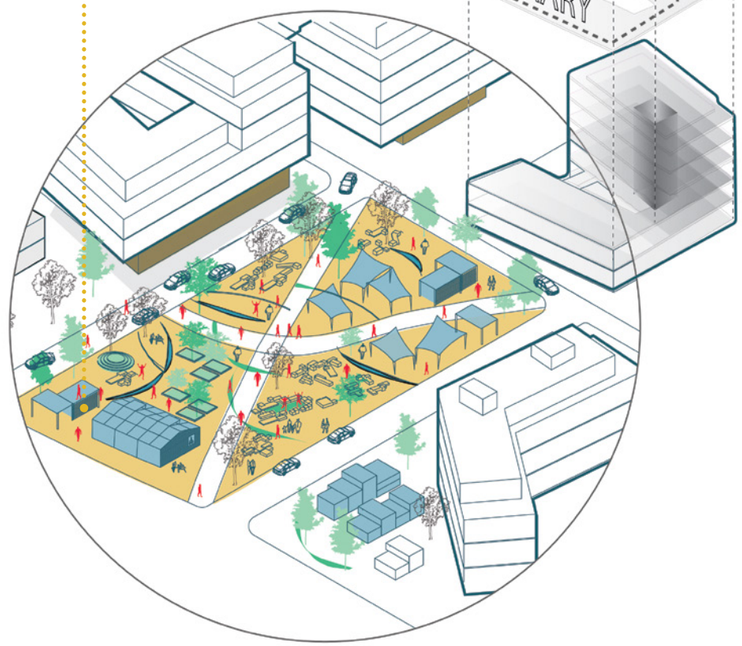
The weather plays a big part in determining how much time we can spend outdoors. Cities as far back as ancient Egyptian times used architectural features such as awnings and canopies to effectively mitigate wind and heat. Every outdoor space has its micro-conditions because of buildings and orientation. Tools to predict the thermal comfort of outdoor space can be used to guide design decisions for specific climatic conditions and desired outdoor use. We have developed a kit of parts to respond to specific climatic conditions and support outdoor programs.

CONNECT PEOPLE WITH NATURE THROUGH DESIGN FEATURES



EXPAND PROGRAMS BY USING OUTDOOR STRUCTURES

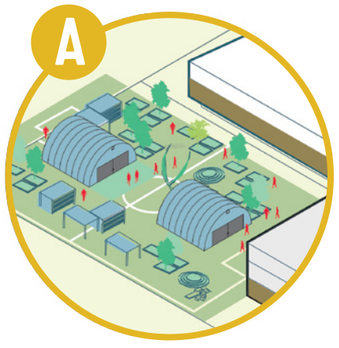




HIGHER EDUCATION CAMPUS: ROOMS WITHOUT WALLS

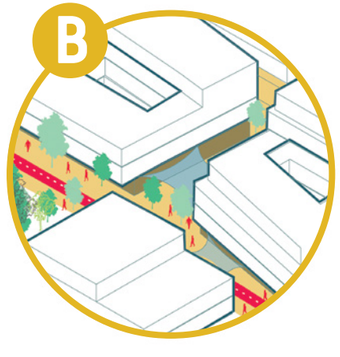
ROOMS WITHOUT WALLS ON CAMPUS

High-quality outdoor spaces, with good ventilation, fresh air, and more opportunity for social distancing can be leveraged for new outdoor "rooms without walls" , during the pandemic and beyond.



CONVERT UNDERUTILIZED SPORTS FIELDS TO OUTDOOR CLINICS

Sports fields can be utilized for temporary use during periods when athletics programs are not in use such as healthcare clinics, legal aid clinics, and workforce development clinics.



EXTEND LOBBIES OUTSIDE

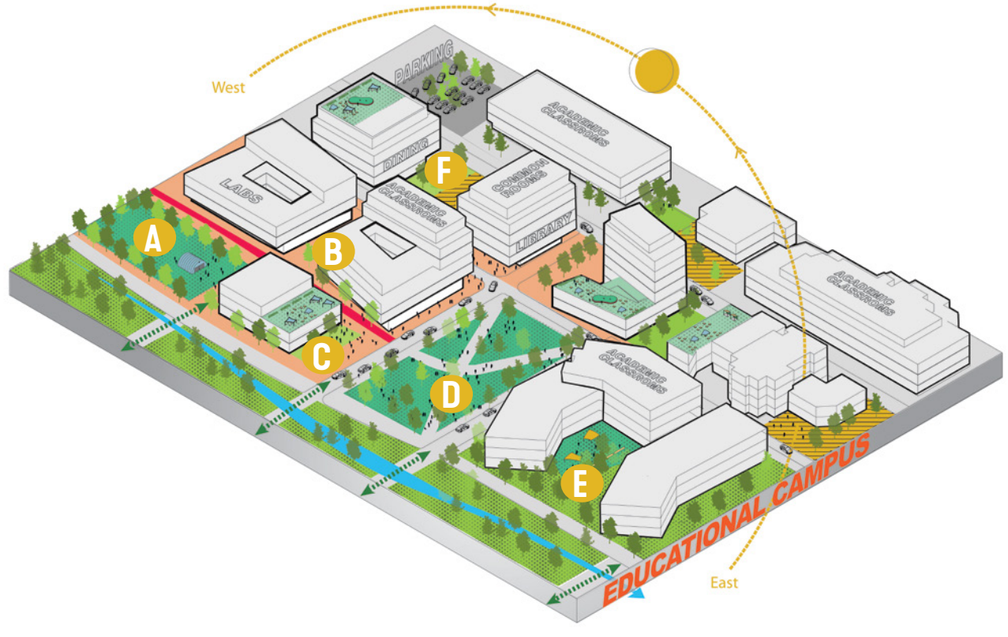
Ground floor lobbies can be extended into the outdoors to capture additional space by utilizing shared streets and closed off superblocks. Outdoor and indoor can be further integrated through touchless entries connected to voice-activated elevators.

CONVERT TERRACES & PATIOS TO OUTDOOR LOUNGES

Lounges can support students' emotional well-being through large communal spaces with comfortable seating where students can see and be seen, and smaller quiet gardens for meditation and reflection.

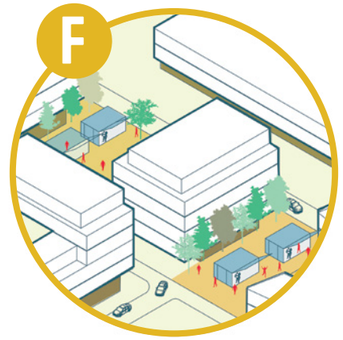
CONVERT PARKING LOTS TO OUTDOOR CLASSROOMS

Outdoor classrooms can offer expanded in-person instruction and staggered schedules. Covid-19 has shown glaring inequities among students. For many the remote learning experience is not ideal, with overcrowded home conditions and lack of access to broadband connection.



CREATE OUTDOOR SPACES FOR DINING

Outdoor spaces can be used for dining when the weather allows. Shade structures can make spaces more comfortable for extended periods of the day.



CREATE OUTDOOR MICRO-LIBRARIES IN COURTYARD SPACES

Outdoor libraries on campus could provide spaces for students to check books out and return them through smartphone apps. Associated seating with a variety of furniture for studying and lounging could provide diverse spaces for different users.

ENGAGEMENT ON AND OFF CAMPUS: A RACE AND EQUITY INFORMED PROCESS

Planning must revolve around the community both on campus and off. Diverse voices make projects better. Design needs to take future activation into account to develop spaces that can be managed with empathy by those who will use it. Campus environments can have a broad impact on empowering communities through job creation and making the spaces and places on campus an open resource for everyone. A starting point for a race and equity informed inclusive engagement process is asking questions, aligning with shared values, testing, prototyping, pilot projects, observing, iteration, and refinement:

1 WHO IS THE PROJECT SERVING AND WILL THEY BE BETTER OFF?

This should be the starting point for any project. Any campus project must take voices of all constituents on campus and the surrounding neighborhoods into consideration.

2 THE COMMUNITY KNOWS BEST.

We have a responsibility to engage and empower the communities we work with. They know best about what they want and need.

3 TAKE HISTORY INTO ACCOUNT

Systemic racism has created tremendous harm for over 400 years in the U.S. Past historic injustices have inflicted profound harm on communities of color from Jim Crow to redlining to urban renewal and need to be addressed during the engagement process.

4 WHO IS MISSING IN THE CONVERSATION?

The most vulnerable communities are those that may be the hardest to reach. Planning must be inclusive with everyone in the room.

5 TRULY KNOW THE CONTEXT

Get to know the neighborhood history and background very well through real research into the past, present, and future. This helps build an empathetic point of view.

6 DO NO HARM

Compassion, integrity and respect place the unconditional value of people and communities first and foremost in any decision making.

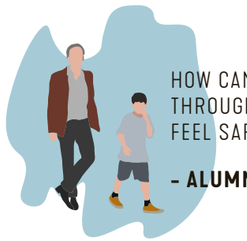
Each process needs to be transparent and tailored. A determination of needs and space allocation at the outset will define the initial broad possibilities. After an ideation process with wide participation, a pilot project followed by observation can help to evaluate success, especially for pandemic conditions that may require solutions not previously tested. This can help towards further refinement before a long-term solution is finally put in place.

WHERE CAN I FIND AN ACCESSIBLE STUDY AREA?

- STUDENT

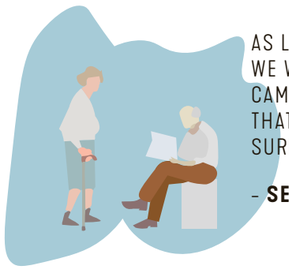
WE NEED MORE SPACE AND A GOOD SYSTEM FOR RESERVING CLASSES

- PROFESSOR



HOW CAN I NAVIGATE THROUGH THE CITY AND FEEL SAFE?

- ALUMNI

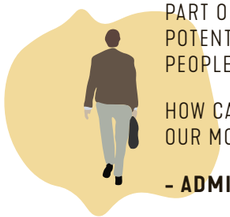


AS LONG TERM NEIGHBORS, WE WANT TO SEE LOW DENSITY CAMPUS DEVELOPMENT THAT BLENDS WITH THE SURROUNDING CONTEXT

- SENIOR RESIDENTS

IS THERE ANY OUTDOOR SPACE ON CAMPUS WHERE I CAN STUDY?

- RESEARCHER



PART OF OUR CONVERSATION ABOUT THE POTENTIAL EXPANSION HAS BEEN THAT PEOPLE ARE LOOKING FOR JOBS

HOW CAN WE PRIORITIZE THE NEEDS OF OUR MOST VULNERABLE GROUPS?

- ADMINISTRATOR

I HAVE NO PLACE TO STAY & I'M HUNGRY. I'D LIKE A PLACE TO SLEEP & A FOOD PANTRY.

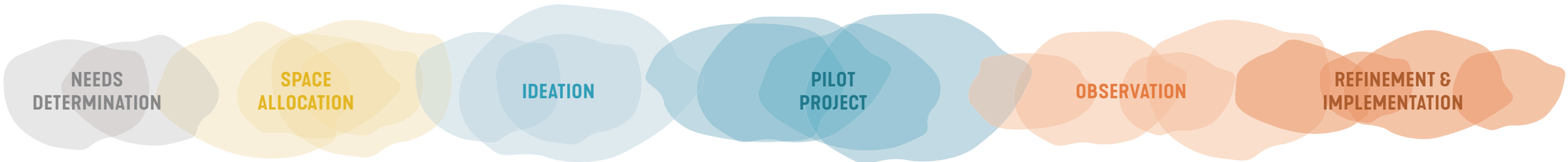
- HOMELESS STUDENT

"THERE ARE A LOT OF KICK-UPS AND BREAKS ON THE SIDEWALKS, WHICH MAKE WALKING NOT SAFE FOR US."

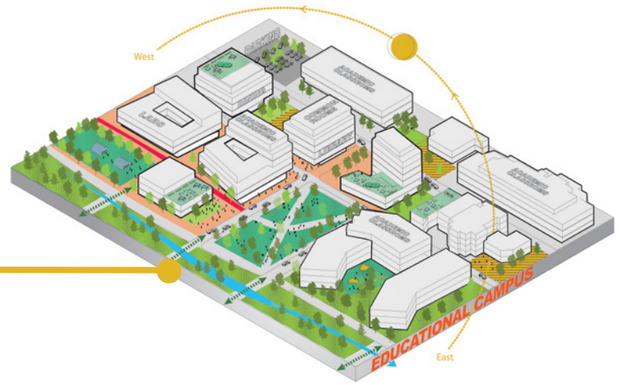
- VISITORS

WHAT WE NEED IS JOBS, MORE OPEN SPACE AND STABLE HOMES

- STUDENT



HIGHER EDUCATION CAMPUS: A DAY IN THE LIFE



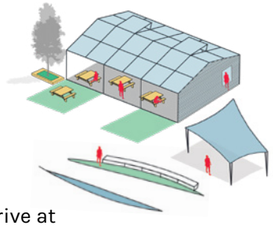
MARIA
(PROFESSOR)

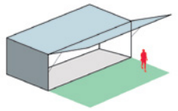
DIEGO
(STUDENT)

9:30 AM

OUTDOOR CLASSROOM

Diego and Maria arrive at the outdoor classroom and sit in the garden outside until the class starts.





1:35 PM

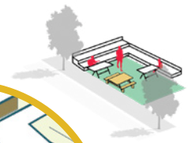
MICRO-LIBRARY

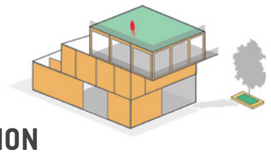
The class finishes and Diego heads to the outdoor micro library. He checks out a book and makes himself comfortable in the micro-workstation to begin studying for an exam.

2:00 PM

CAFETERIA

Maria grabs some lunch from the outdor canteen and then heads to the micro - study unit that she has reserved for an hour until her next class.

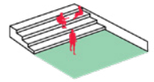




3:00 PM

LEARNING AND EXHIBITION PAVILION

Maria heads to the outdoor exhibition pavilion to attend the showcase of her students' work.



3:45 PM

SMART SOCIAL STAIRS

Diego completes his homework and hangs out with his friend at the social stairs. They listen to music and charge their phones.

MEDICAL CAMPUS: OPEN SPACES IN CREATING HEALTHY & HEALING ENVIRONMENTS

With accelerated technology adoption and new consumer expectations, there are significant opportunities for open spaces on medical campuses to be reinvented in support of creating healthy and healing environments.

NO PARKING.

With telehealth expansion reducing the need for physical clinic visits and next-gen mobility defined by less privately-owned cars and more ride-sharing models, autonomous vehicles and last-mile technologies, there will be little need for dedicated parking adjacent to buildings in the future. Dedicated transportation zones adjacent to the building will be limited to passenger drop-off. Existing parking structures can be torn down to create better utilized open space, or re-envisioned not as parking, but 'docking'.

NO WAITING.

Arrival tracking technologies and 'smart queueing' applications help the clinic anticipate the patient's arrival and allows people to "wait" and experience other more engaging environments apart from conventional waiting rooms.

INSIDE OUT.

Integrating more visual and physical connection to outdoor space, from the ground level to the roof, will create essential places for self-care for patients, families, providers, and staff. Roof gardens, protected balconies, and courtyards--both public and private—should provide space for respite and access to sources of health and wellness.Visual and physical access to roof gardens, protected balconies, and courtyards--both public and private—can provide space for respite and wellness.

CARE AT LARGER SCALE.

Medical campuses can do more to support health at a community scale. A plaza is an "equitable plane" for people to connect through engaging in healthy activities and behaviors. Large open spaces designed with supporting electrical and data infrastructure will provide a place for farmer's markets, group exercise, demonstration cooking, life-long learning, public discourse, music, and performance arts.

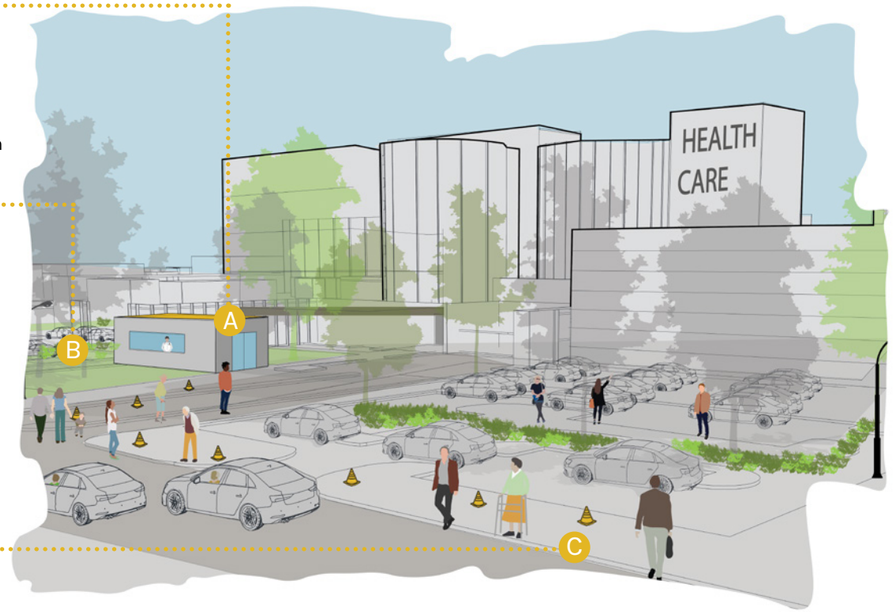
OUTDOORS ENHANCED.

Plaza spaces should be supported with open wi-fi access and contain shelters and kiosks. Kiosks can serve as outdoor rooms for small gatherings, a place to charge personal devices, alternative "check-in" locations, or serve as temporary pop-up space for community partners or local start-up businesses.

A Experience of the space immediately surrounding the medical facility is limited to being 'in transition', i.e. getting from vehicle to front door."

B Outdoor waiting space and green areas are limited. There is excessive space for parking.

C Opportunities to tap into the therapeutic aspects of the natural environment – gained when moving through or lingering in outdoor space – are missed.



CURRENT

D Registration booths and outdoor areas provide generous space to decompress functions and expand to the outside.

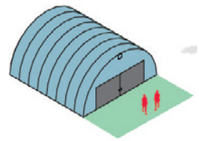
F Rooftops are converted to outdoor terraces for relaxing.

FUTURE

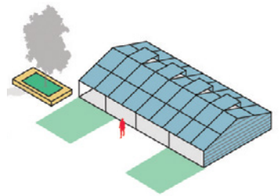
E Smart integrated stations allow patients to register through an application and wait for their turn to go inside while watching a movie or even enjoying music.

G Outdoor space is programmed to enhance indoor-outdoor continuity, and accommodate functions that would normally happen inside such as waiting, eating, and meeting.

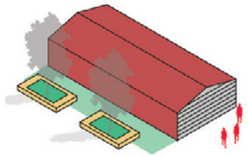
KIT OF PARTS FOR THE OUTDOOR MEDICAL CAMPUS



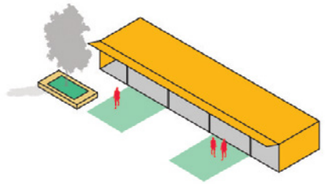
TRIAGE TENT



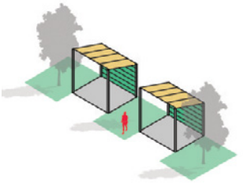
VACCINATION & TESTING



ON-SITE SLEEP SPACES FOR PROVIDER/STAFF, OR FAMILY SLEEP SPACES



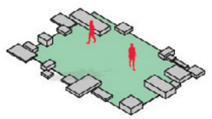
FOOD AREA / INFORMATION CENTERS



SMART STATIONS

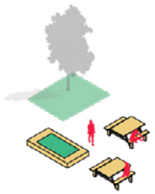
PAVILION

OUTDOOR STRUCTURES THAT SUPPORT DAY-TO-DAY PROGRAMS AND DISASTER RESPONSE NEEDS

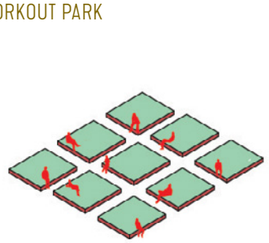


WORKOUT PARK

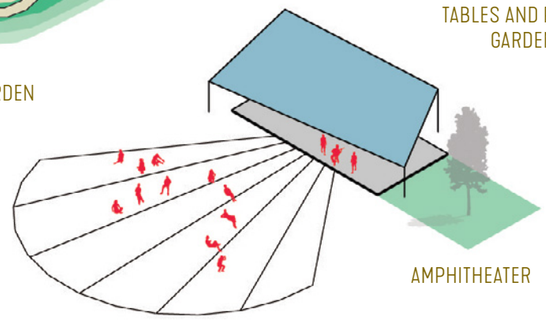
ZEN GARDEN



TABLES AND PLANTED GARDENS



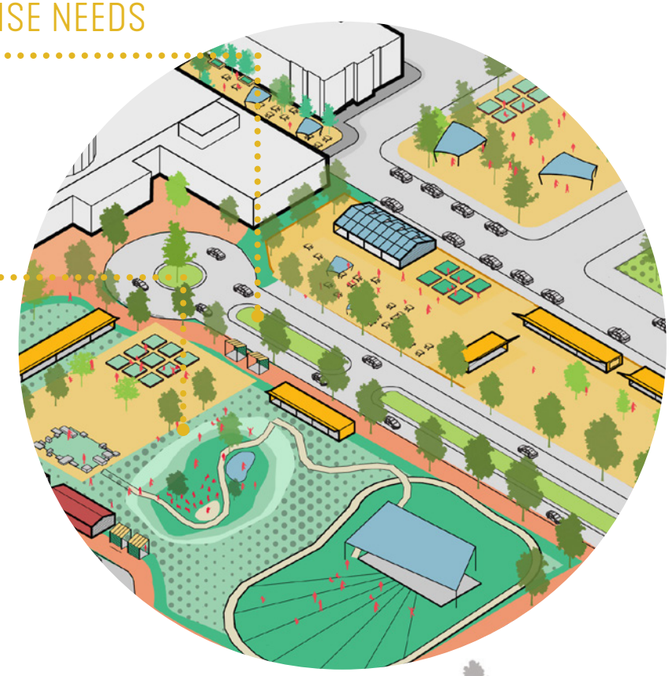
SITTING SQUARES



AMPHITHEATER

CONNECT PEOPLE WITH NATURE THROUGH DESIGN FEATURES

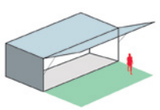
Many medical campuses are not designed to pivot easily in support of changes necessitated by a disaster. Carefully planned and thoughtfully located open space amenities become critical areas in disaster response. They can be used to decompress and expand essential functions typically housed inside the hospital to the outside.



SMITH FAMILY
(PATIENTS)

10:00 AM

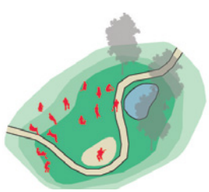
Andrew's son felt sick and they decided to head to the hospital's emergency room.



10:25 AM

REGISTRATION BOOTH

They arrived at the registration booth, gave their data and got added in the waiting list.



11:30 AM

ZEN GARDEN

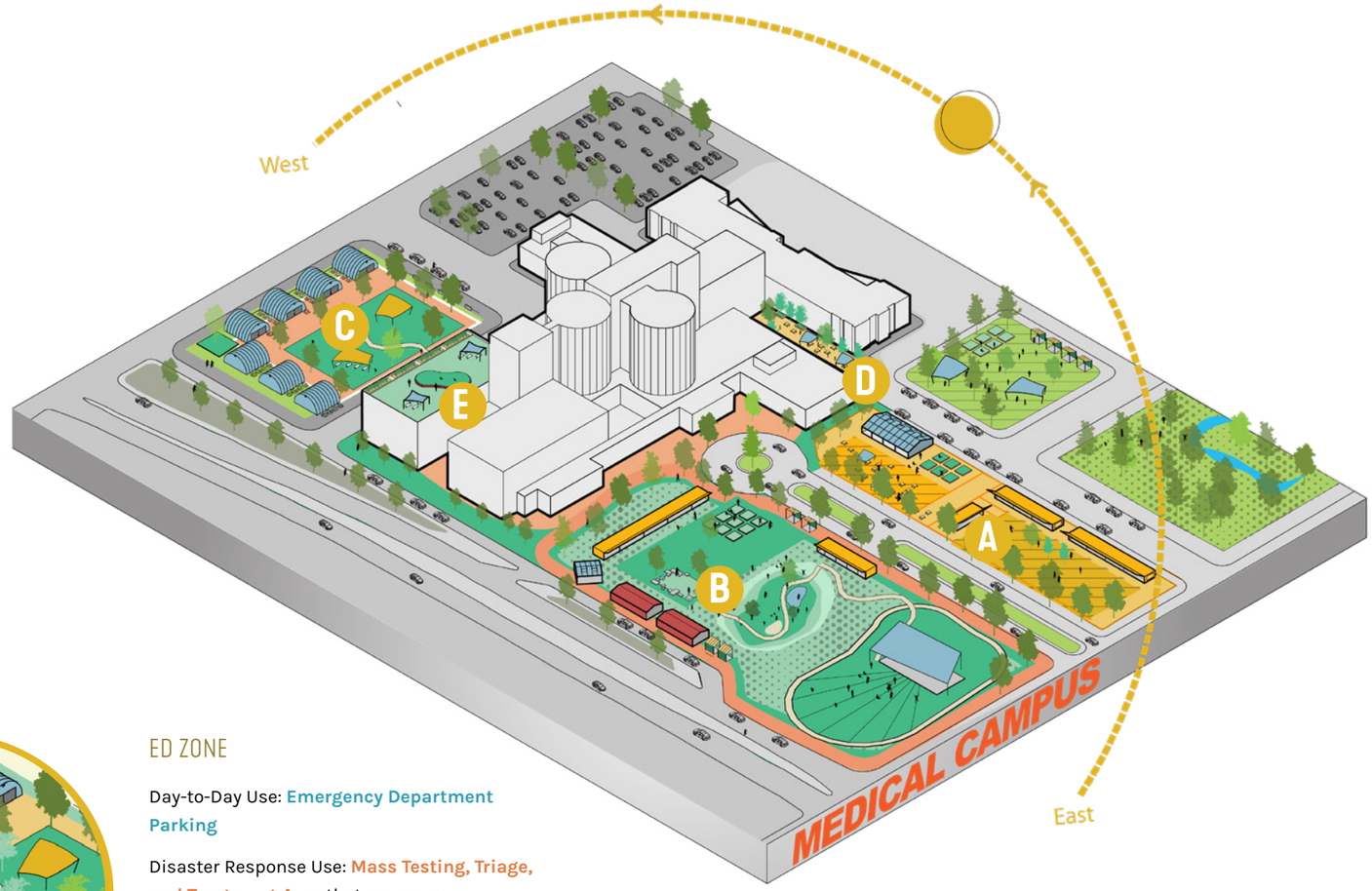
Then, they headed to the Relief-Zen-Water Garden to wait there until they receive a message to their phone.

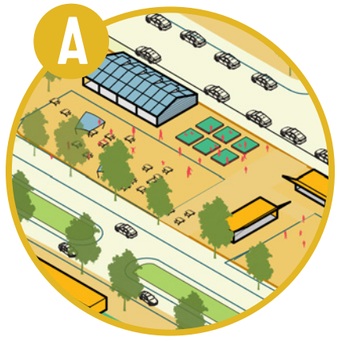
1:00 PM

SMART WAITING RELAXING STATION

They have completed the necessary exams and and it is time to wait until they get the result. They decide to head to the outdoor relaxing station and watch a lecture.

MEDICAL CAMPUS: OPEN SPACE IN DISASTER RESPONSE





ENTRY FORECOURT

Day-to-Day Use: **Welcome Court** as a landscaped amenity marking hospital entrance

Disaster Response Use: **Community Communication and Vaccination Center** with separate zones for registration kiosks, sanitary stations, and gathering. Activities supported include vaccination, community education, on-site information hub for family and visitors to obtain status on family members, get follow-up instructions and directions, and get access to resources and internet.

ED ZONE

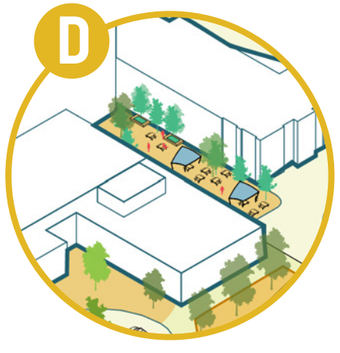
Day-to-Day Use: **Emergency Department Parking**

Disaster Response Use: **Mass Testing, Triage, and Treatment Area** that serves as an extension of urgent care and emergency room space for injury assessment and prioritization, immediate treatment, and/or special isolation. Zone sized to house Quonset-hut like medical tents and large movable storage on pallets to support enhanced logistics needs.

OPEN GREEN

Day-to-Day Use: **Central Green Plaza** for events, farmer's markets, community engagement and land bank for future

Disaster Response Use: **Provider and Staff Respite Area** for front-line essential workers to get refreshments, relax, exercise self-care, and find solace. Zone would include gathering areas, calming zen garden, eating tent, sleeping tent, walking track, and designated activity kiosks.



COURTYARDS

Day-to-Day Use: **Viewing Gardens** that provide immediate views to nature from inside the building and potential outdoor access.

Disaster Response Use: **Functional Outdoor Rooms** with power/wifi and space to accommodate table and seating to serve as decompression space for activities immediately adjacent inside the building, including staff meetings, staff lounges, family gathering and eating.

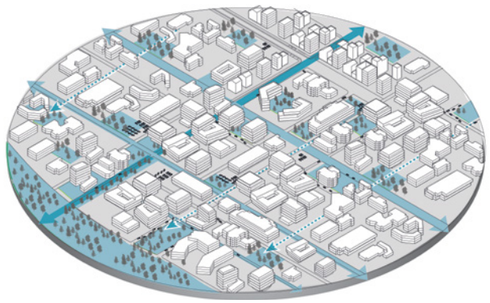
ROOFTOP AREAS

Day-to-Day Use: **Outdoor Space** that is accessible to staff and families

Disaster Response Use: **Private Calming Spots** outside the intense interior activities to support providers, staff, family gatherings/consulting and grieving.

SUSTAINABILITY & ENVIRONMENTAL JUSTICE

Recent environmental perils have shattered our sense that things we once believed impossible may be possible. As we plan to combat climate change, we need to implement green, sustainable and high-density development. The public realm needs to be evaluated through multiple environmental lenses from both resource availability frameworks and future scenario modeling. The complexities of the energy impacts of each site is unique. Development planning needs to be based on a thorough data collection and assessment to provide a holistic framework for future development.



WATER MANAGEMENT

The challenge of water insecurity is a defining issue in many cities. It is exacerbated by increased demands with rapid globalization, diminishing supply and polluted water sources. London, Cape Town, Mexico, Chennai, Cairo, Tokyo, Jakarta, Beijing and Sao Paulo are just a few of the many global cities that are severely water stressed. Greener, sustainable approaches integrated with natural ecological systems will protect this life-sustaining resource.

PUBLIC REALM STRATEGIES:

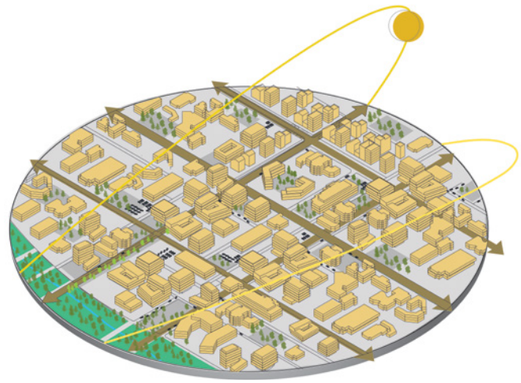
A. Incorporate green stormwater capture strategies.

B. Integrate natural drainage systems.

C. Incorporate urban farming and aquaponics using less water to grow more crops all year round.

D. Build greener in a nature-positive way.

E. Recycle water.



RENEWABLE ENERGY

Cities emit vast amount of greenhouse gases, and they are also particularly vulnerable to the perils of climate change. Design with clean renewable energy sources, including wind, solar, tidal, and geothermal.

PUBLIC REALM STRATEGIES:

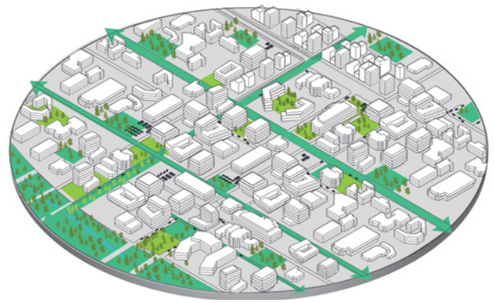
A. Create compact walkable neighborhoods to reduce Vehicle Miles Traveled (VMT).

B. Reduce energy use in the public realm through retrofitting existing infrastructure, passive heating and cooling.

C. Integrate green technologies and enterprises into development.

D. Design to reduce the heat island effect by planting trees, green roofs and green infrastructure.

E. Provide infrastructure for clean mobility, including charging and transfer stations for electric, biogas or hybrid vehicles, biking infrastructure, and car-sharing.



ENVIRONMENTAL JUSTICE

Development and industrial hazards in the public realm often impact marginalized communities the most, while environmental sustainability measures often benefit well-resourced communities. Everyone should be treated fairly with regards the development. All people should have access to healthy neighborhoods that benefit from environmental protection policies.

PUBLIC REALM STRATEGIES:

A. Enable everyone to have a high quality of life without the harmful consequences of pollution, waste, and the depletion of natural resources.

B. Provide accessible, affordable, and effective transportation.

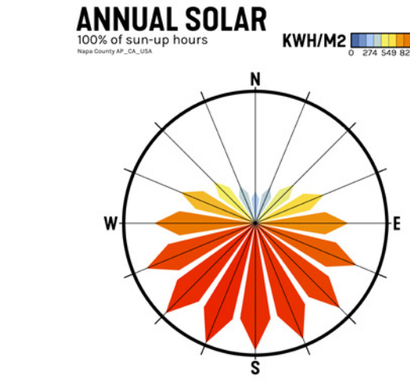
C. A linear "take, make, waste" approach to the environment profits business. A circular economic model is regenerative and can have a triple bottom line benefit to business, society, and the planet.

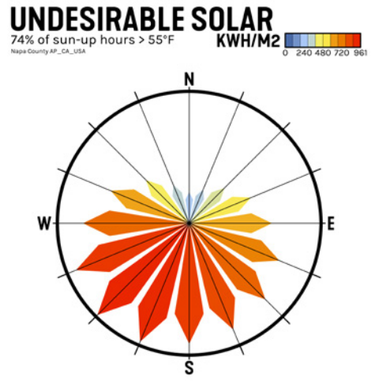
D. Healthy ecosystems, clean air, fresh water, wetlands, parks, and open space should be available to all.

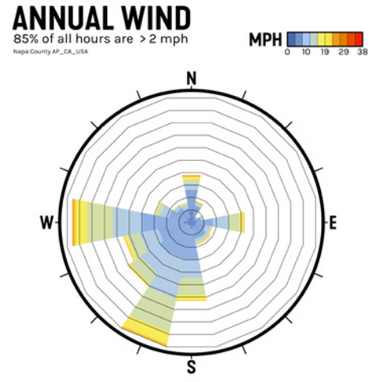
E. Respect and protect indigenous sites of cultural, societal, and archeological meaning.

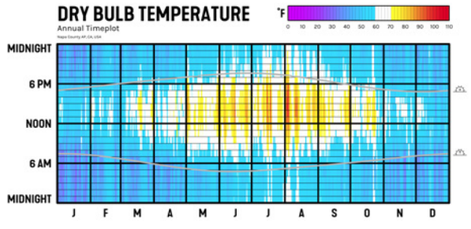
DESIGNING FOR SEASONAL COMFORT

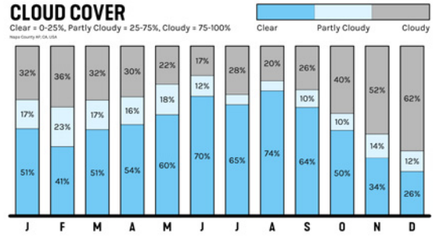
To get the most out of our outdoor spaces, special attention should be paid to the microclimates influencing the spaces. By designing for human comfort and including flexibility and a variety of spaces, we can increase the hours of the day that the outside space is conducive to use and enjoyment. This is particularly important when outdoor spaces are providing pandemic relief in the form of active classrooms or outdoor working environments.

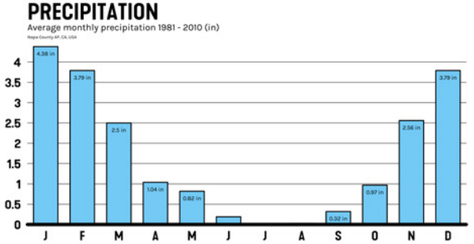




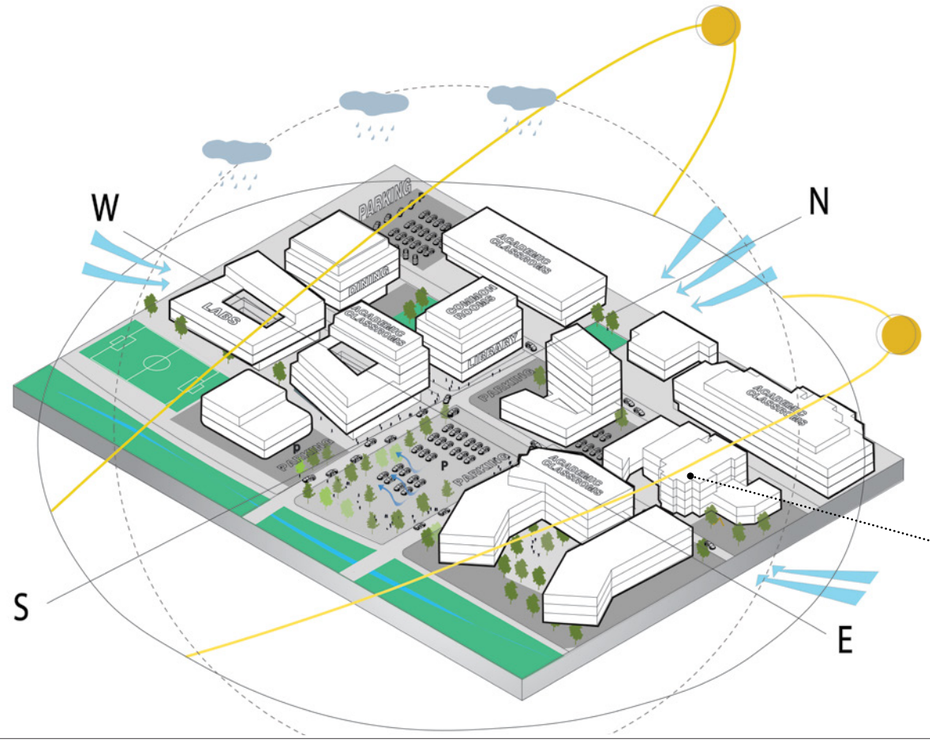








Microclimate needs to be considered for open space design.



Six major factors influence human thermal comfort: Air Temperature, Humidity, Air Speed, Mean Radiant Temperature, Clothing Levels, and Activity Intensity, or Metabolic Rate. In most indoor environments, air temperature is the biggest driver of comfort, as humidity, airspeed, and mean radiant temperature is often more heterogeneous.

However, when we design outdoor spaces, there are huge swings in wind speed and exposure to sun or other surfaces that have been heated throughout the day by the sun.

UNDERUTILIZED SPACES EXPOSED TO HEAT BUILD-UP AND WIND HAVE LIMITED HOURS OF USEFULNESS

MAKING THE MOST OF OUTDOOR SPACES USING THERMAL COMFORT MODELING

To capture the impacts of the transient weather conditions, we use a different thermal comfort index than we use for modeling indoor thermal comfort. The Universal Thermal Comfort Index (UTCI) was designed specifically to account for micro-climate influences and heat/cold stresses one is exposed to in outdoor environments. This comfort index allows our design teams to model large scale campuses and make sure we're providing a variety of space types, which can allow users to self-select the type of space that is the most comfortable for their level of activity and type of clothing. In many climate zones, mid-day sun exposure can cause excessive heat stress.

In shoulder months, many areas can experience high wind speeds combined with lower temperatures. These spaces can feel too cold. Including large portions of shaded spaces for seating or recreating can allow people to use outdoor spaces even when temperatures are warm. Including areas with wind protection and exposure to the sun adjacent to the sheltered spaces can allow users to move into the sunnier areas when temperatures fall or winds pick up.

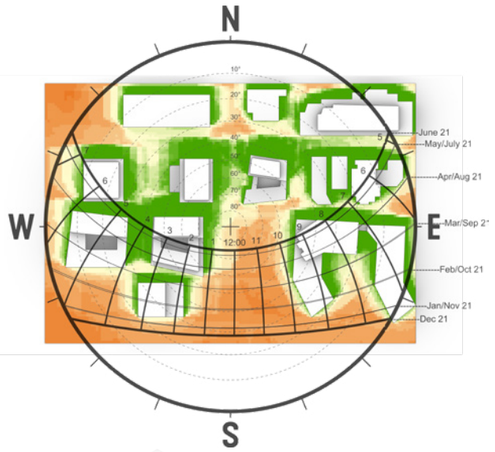
Provision of thermal comfort outdoors is challenging, as a series of environmental conditions must be dealt with. This study examines whether climatic conditions in Napa Valley, California support outdoor activities both during the summer and winter, (as reflected in the two models) and aims at understanding how microclimate conditions influence urban planning and morphological parameters (building form, geometry, orientation, vegetation size etc.). The data measures the percentage of sun hours during daytime that are comfortable, per the UTCI calculation.

The models show where uncomfortable spaces are located on campus, and where potential interventions are needed (shading structures, outdoor facilities, green zones). The winter and summer models show very similar data for percentage of comfortable hours, but they are different "flavors". Uncomfortable hours in the winter tend to be cold (shown in purple), while uncomfortable summer hours tend to be hot (shown in orange). This demonstrates that shade structures can help during hot summer months but not help during cold winter month when warm sun is desirable.

Creating spaces that allow for a variety of shaded conditions throughout the year will maximize outdoor space useability and occupant comfort. Designing for thermal comfort requires a nuanced understanding of the variability of comfort. A design decision that helps for one season may hurt in another. Rigorous analysis of this complex system enables us to develop solutions that balance competing drivers to deliver optimal performance.

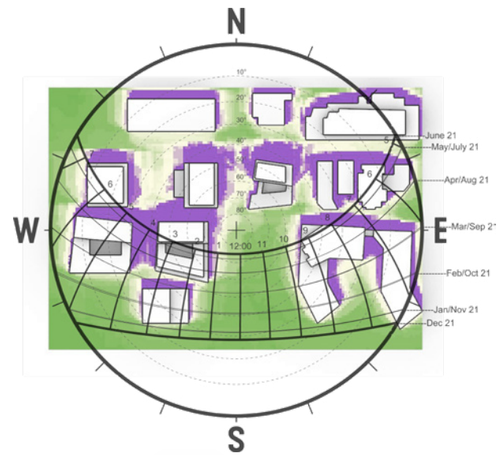
DURING SUMMER (SEP 2ND)

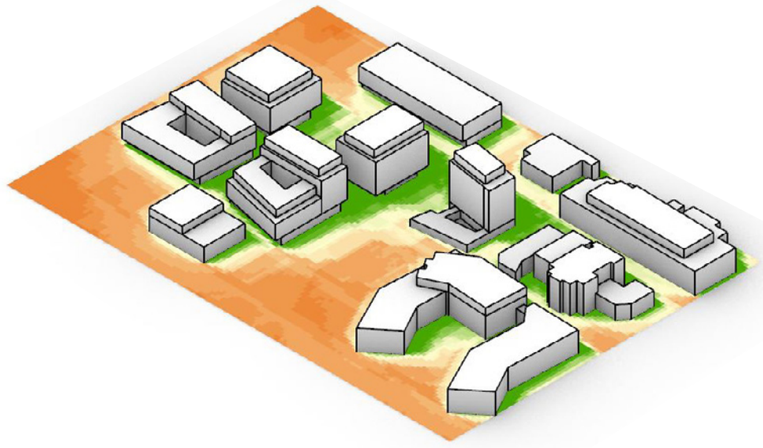
COMFORTABLE HOURS (UTCI 50˚-79 ˚)

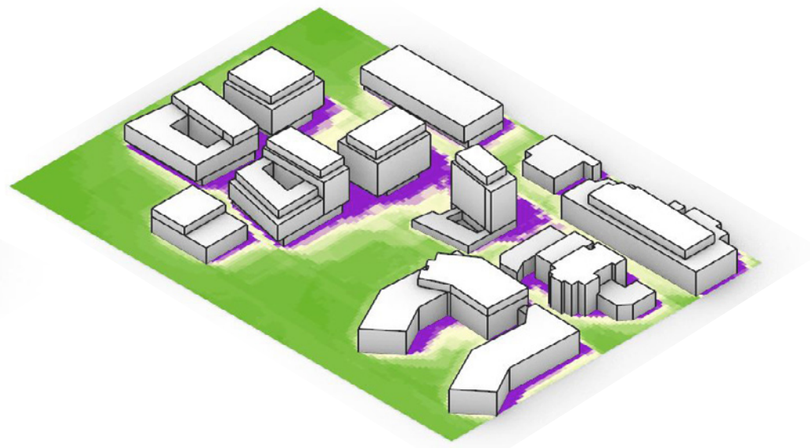


DURING WINTER (JAN 29TH)

COMFORTABLE HOURS (UTCI 50˚-79 ˚)

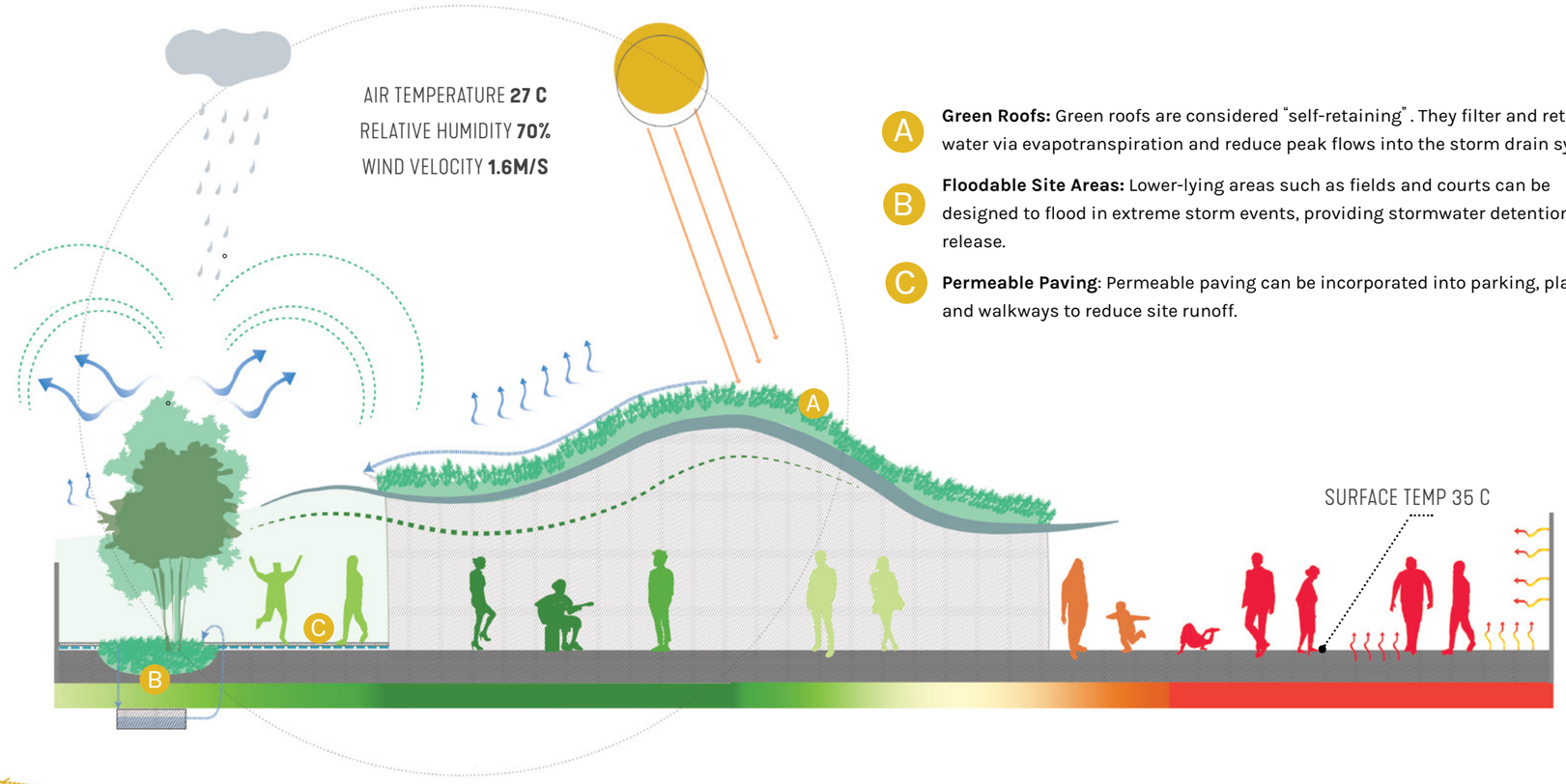






Thermal comfort models are a design tool to increase useful hours outdoors.

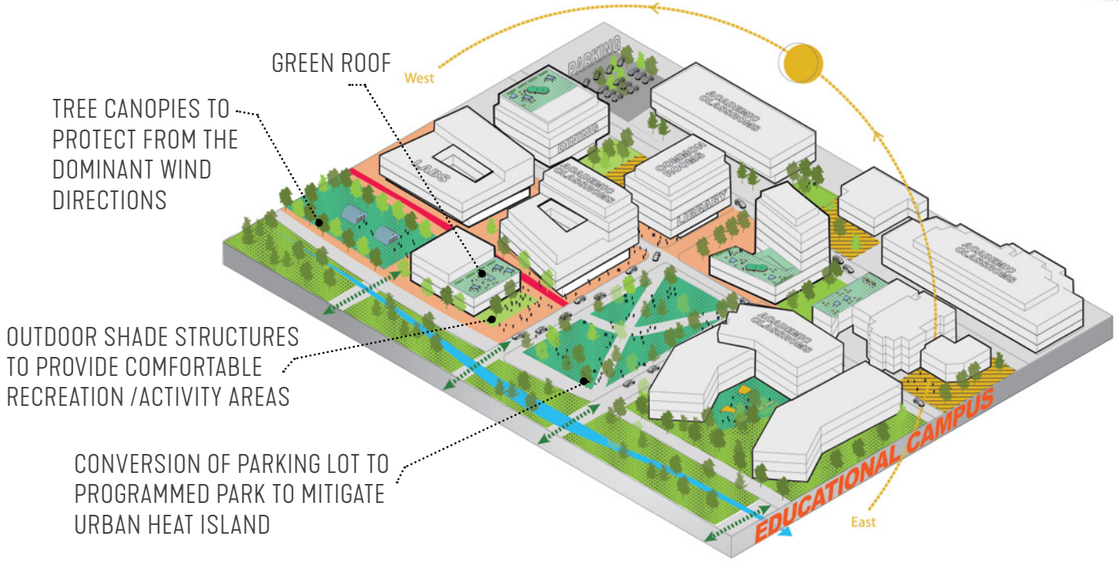
DESIGN ROOTED IN MICRO-CLIMATE FOR COMFORT & DELIGHT



A **Green Roofs:** Green roofs are considered "self-retaining" . They filter and retain water via evapotranspiration and reduce peak flows into the storm drain system.

B **Floodable Site Areas:** Lower-lying areas such as fields and courts can be designed to flood in extreme storm events, providing stormwater detention and release.

C **Permeable Paving**: Permeable paving can be incorporated into parking, plazas, and walkways to reduce site runoff.



It is important to design open space features and building massing to protect outdoor spaces from excessive wind or to help direct airflow through an area depending on the climate zone. Again, providing a variety of space types with different levels of protection allows users to self-select an area that is the most comfortable for them at that time of year and that time of day. When trying to understand wind patterns through an outdoor space, annual wind roses do not tell the whole story. Teams should look at monthly wind roses and split them into daytime hours and nighttime hours. In many areas, winds shift dramatically between daytime hours and nighttime hours and can be the difference between an effective design and one that is uninhabitable.

Like all good design, outdoor space design should be rooted in the local micro-climate and seek to enhance thermal comfort and delight.

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