Designing the Future City for Human and Global Health

Mark Johnson, Civitas
Healthy City Design Conference
London
October 14, 2019
CIVITAS
We engage people with nature in cities.
We solve urban problems through design.
Our projects make a difference to communities.
We strive to make cities healthy, sustainable and just.
And we have a simple message
GO GREEN
GET MOVING
Global Health is Under Stress

- NCD’s
- Climate
- Inequitable Access to Resource
- Political Turmoil
- War
- and more…
Van Alen Institute is a 125-year-old not-for-profit that uses design to catalyze positive change in cities.
Food + Water Security
FARM TO CITY
To adapt to climate change, cities should learn from farms.
By David van der Leer and Chloe Stugman with Sarah Huan, Van Alen Institute

The Van Alen Institute’s Climate Council meeting addressed the opportunities and challenges of cities, particularly cities in the

Threatened by rising temperatures, the future of the landscape is uncertain. Yet, climate change presents opportunities for cities to rethink their approach to urban planning and development. The Climate Council is an organization that brings together experts from various fields to address climate-related issues.

The council's goal is to help cities adapt to climate change by developing sustainable solutions. They believe that by focusing on both the physical and social aspects of urban development, cities can create more resilient and livable environments.

In order to achieve this goal, the council is working with local governments, non-governmental organizations, and academic institutions to develop innovative strategies and initiatives.

One of the key areas of focus is the integration of green infrastructure into urban planning. This involves using natural elements, such as vegetation, water bodies, and open spaces, to improve the resilience of cities to climate change.

Another area of focus is the promotion of sustainable transportation systems. By encouraging the use of public transportation, biking, and walking, cities can reduce their carbon footprint and improve the overall health and well-being of their residents.

The council is also working to increase public awareness of climate change and the importance of taking action. They organize events, workshops, and conferences to educate the public and encourage them to participate in efforts to create a more sustainable future.

In conclusion, the Climate Council is a powerful force in the fight against climate change. By bringing together experts from various fields, they are able to develop innovative solutions that can help cities adapt to the challenges posed by climate change.

The council's work is crucial in helping cities become more resilient and sustainable. By focusing on both the physical and social aspects of urban development, they are helping to create a more livable future for all.

References:

Time is of the essence
We have only a few days left to act. The future of our cities is in our hands. It's time to take action now to create a more sustainable and resilient future.
150 years of planning theory focused on public health
Urban Planning & Public Health

1854 London Cholera Outbreak
Urban Planning & Public Health
1860-1920: Industrial Revolution

New York City Health Department
Train Station + Commercial Center
Multi-Family Corridor
Train Station + Commercial Center
Multi-Family Corridor
Expensive Homes
The Garden City, 1890
Ebenezer Howard
Ville Radieuse
Le Corbusier

Dream Realized
Dubai
Urban Planning & Public Health

1950-2000: Highway building era:
access to green space and clean air supposed to improve health...
Age-adjusted Prevalence of Obesity and Diabetes Among US Adults

**Obesity (BMI ≥30 kg/m²)**
- **1994**
- **2000**
- **2015**

- No Data
- <14.0%
- 14.0%–17.9%
- 18.0%–21.9%
- 22.0%–25.9%
- ≥26.0%

**Diabetes (all types, excluding pregnancy related)**
- **1994**
- **2000**
- **2015**

- No Data
- <4.5%
- 4.5%–5.9%
- 6.0%–7.4%
- 7.5%–8.9%
- ≥8.9%
Growing recognition that our environment is making us sick

Our environment is making us sick warns Richard Jackson, health expert

Kroger-supported public TV series will showcase ways to create healthier communities.

October 20, 2011

America’s homes, businesses, transportation systems and public spaces are contributing to increases in obesity, chronic disease, loneliness and even depression, warns internationally recognized public health expert Richard Jackson.

"We tend to take our surroundings for granted," Jackson says. "However, our built environment profoundly influences our health and well-being. If current trends are not reversed, this could be the first generation of American children to have shorter life spans than their parents." Jackson, professor and chair of the department of environmental health sciences in the School of Public Health at the University of California, Los Angeles, has served in leadership positions with the California Department of Public Health and the Centers for Disease Control and Prevention.

Designing Healthy Communities

Richard J. Jackson with Tracy Toerner

As host of an upcoming four-part multimedia "Designing Healthy Communities," Jackson focuses on our built environment. The four-hour program on the centerpiece of a larger multimedia campaign, supported by a book, town hall meetings and...
Healthy Food Access

Provide places for affordable, nutritious foods

Low-income/underserved communities have less access to healthy foods and higher prevalence of unhealthy foods
## Urban Planning and Health Outcomes

### Relationship of Built Environment to Health

<table>
<thead>
<tr>
<th>Issues Related to Land Use</th>
<th>Related to Auto-dependency</th>
<th>Related to Social Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Obesity</td>
<td>• Air pollution</td>
<td>• Mental health issues</td>
</tr>
<tr>
<td>• Cardiovascular disease</td>
<td>• Asthma</td>
<td>• Social capital</td>
</tr>
<tr>
<td>• Asthma</td>
<td>• Car crashes</td>
<td></td>
</tr>
<tr>
<td>• Water quality</td>
<td>• Pedestrian injuries</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram showing the relationship between urban planning and health outcomes](image-url)
Leading Causes of Death in the U.S.

Figure 3. Age-adjusted death rates for the 10 leading causes of death: United States, 2013 and 2014

- Heart disease
  - 2013: 169.8, 2014: 167.0

- Cancer
  - 2013: 163.2, 2014: 161.2

- Chronic lower respiratory diseases
  - 2013: 42.1, 2014: 40.5

- Unintentional injuries
  - 2013: 39.4, 2014: 40.5

- Stroke
  - 2013: 36.2, 2014: 36.5

- Alzheimer’s disease
  - 2013: 23.5, 2014: 25.4

- Diabetes

- Influenza and pneumonia
  - 2013: 15.9, 2014: 15.1

- Kidney disease
  - 2013: 13.2, 2014: 13.2

- Suicide
  - 2013: 12.6, 2014: 13.0

Related to physical inactivity or environment
And costs to health care system and economy:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Heart disease and stroke</td>
<td>$190 billion</td>
</tr>
<tr>
<td>Diabetes</td>
<td>$245 billion</td>
</tr>
<tr>
<td>Obesity</td>
<td>$147 billion</td>
</tr>
</tbody>
</table>
Spent on health care in US

17.8% of GDP

$3.2 trillion / $9,990 per person – CDC 2015

Disease burden

12% infectious disease

88% non-communicable diseases (obesity, asthma, cardiovascular disease, diabetes, etc.)

-CDC
What Makes Us Healthy

- Genetics: 20%
- Environment: 20%
- Healthy Behaviors: 50%
- Access to Care: 10%

What We Spend On Being Healthy

- Medical Services: 88%

Healthy Behaviors: 4%
Other: 8%
Healthy Environments

Since 1900, life expectancy in the United States has increased by approximately 40 years. Only 7 of those years can be attributed to improvements in disease care; the rest are the result of improved prevention efforts and improved environmental conditions, including sanitation and water. The link between the nation's health and the environment is unmistakable.

A healthy community environment encompasses aspects of human health, disease, and injury that are determined or influenced by factors in the overall environment. Examining the interaction between health and the environment requires studying how health is directly affected by various chemical, physical, and biological agents. We must also consider the effects of factors in the broad physical and social environments, which include housing, urban development, land use, transportation, industry, and agriculture.

Healthy Community Design

In April 2002, the American Planning Association identified six qualities that describe healthy community design. According to the association, healthy communities

- have a unique sense of community and place;
- preserve and enhance valuable natural and cultural resources;
- equitably distribute the costs and benefits of development;
- expand the range of transportation, employment, and housing choices in a socially responsible manner;
- value long-range, regionwide sustainability rather than short-term, incremental, or geographically isolated actions; and
- promote public health and healthy communities.
Principles for Healthy Community Design

1. Increase Physical Activity
2. Reduce Injury
3. Improve Access to Healthy Food
4. Improve Access to Clean Air and Water
5. Decrease Mental Health Stress
6. Strengthen Social Fabric
7. Provide Fair Access to Jobs
8. Minimize Impact of Climate Change
Putting the Knowledge to Work
NYRP

New York Restoration Project

New York Restoration Project...
Greening New York City one block at a time

BETTE MIDLER
FOUNDER
WE OWN 52 COMMUNITY GARDENS
TENEMOS 52 JARDÍNES COMUNITARIOS
WE ARE HELPING TO PLANT ONE MILLION TREES BY 2015
ESTAMOS AYUDANDO A PLANTAR UN MILLÓN DE ÁRBOLES PARA 2015
"NEW YORK RESTORATION PROJECT"

MEANS MORE THAN GREEN PLACES

IT MEANS RESTORATION OF COMMUNITY
AND PUBLIC HEALTH
THE HAVEN PROJECT

MOTT HAVEN / PORT MORRIS
THE BRONX
GOAL:
DESIGN A PROJECT BASED IN EVIDENCE
AND COMMUNITY OBJECTIVES
TO IMPLEMENT & MONITOR PERFORMANCE
FOR MANY YEARS
A COLLABORATIVE PROJECT:

CLINICAL CARE PROVIDERS

PUBLIC HEALTH RESEARCHERS

GEOGRAPHERS

DESIGNERS

THE COMMUNITY
DESIGN + RESEARCH TEAM

**Project leader . . . . . . .**  New York Restoration Project

**Hospital partner . . . . .**  Montefiore Medical Center

**Designer . . . . . .**  Civitas

**Health researcher . . . . .**  Columbia University Mailman School of Public Health

**Geospatial analyst . . . . .**  Columbia University Spatial Information Design Lab

**Evaluation expert . . . . .**  Health x Design

**Community engagement**  Barretto Bay Strategies + South Bronx Unite

**Environmental health . . .**  New York University Environmental Health Clinic
Letter from the Executive Director

Parks and open spaces are critical components of New York City's dense neighborhoods – infrastructure as essential as housing, sewer lines, and roads. The impact that these spaces have on neighborhoods extends far beyond their boundaries.

The New York City Housing Authority (NYCHA) acknowledged this essential role when it asked New Yorkers to conduct an Open Space Index assessment of Mott Haven as part of its application for a U.S. Department of Housing and Urban Development Choice Neighborhoods grant.

Our report will arm NYCHA, elected officials, community groups, and local residents with a tool to help prioritize and advocate for future open space investments that address some of the community's most pressing concerns, including public safety and public health.

That advocacy begins with cultivating an engaged community of local park and open space stewards – in both Parks Department and NYCHA properties – which can send a resounding message across the community, and to City and elected officials, that the health of these spaces lies at the heart of the health of Mott Haven itself.

We have already begun to engage the neighborhood with a series of meetings with NYCHA residents. It should continue with the important work of Partnerships for Parks and the Housing Authority's tenant associations. Fostering this stewardship will help catalyze investment in Mott Haven, both through public dollars and potential private fundraising efforts.

This report offers recommendations to help accelerate that local advocacy push. They vary from addressing public safety, to improving waterfront access, to capitalizing on nearby Randall's Island Park. The report makes a strong case for capital investments and more robust civic engagement, both in the neighborhood's smaller playgrounds and in St. Mary's Park, a critical 35-acre park. Finally, we discuss how NYCHA open spaces – often overlooked in the City's network of green spaces – can more fully serve as public amenities for residents of the five NYCHA complexes within our study area.

While the needs of Mott Haven extend far beyond quality parks, it is to NYCHA's credit that it recognizes the central role that safe, accessible, and well-maintained open space plays in building healthy urban neighborhoods. We hope that this report treats those spaces – and their potential to improve the quality of life for all Mott Haven residents – with the thoughtful analysis that they deserve.

Tupper Thomas
Executive Director
100,000 People / 15,000 in Projects
PROJECT GOAL

• Implement Physical Environment changes that improve Public Health, Well-being and Safety

• Monitor the effectiveness of the physical environment on Public Health, Well-being and Safety over a period of years.
The Issues

• Mott Haven Ranks in the **Worst for Asthma** Rates in New York City (NYC Health)

• Ranks among the **highest mortality rate in the state** with the leading cause of death being Coronary Heart Disease (Montefiore Community Health)

• **Highest rates of vulnerable populations** in NYC; including people in poverty and those without health insurance (NYC Health)

• **Highest rates of Heart Attack and Pedestrian Injury Emergency Room Visits.** (NYC Health)
45% POVERTY / 71% OBESITY
50% HIGHER ASTHMA RATES

Twice the city average for:

CARDIOVASCULAR + ACCIDENT RELATED
EMERGENCY ROOM VISITS
31% UNDER AGE 18
EXCESSIVE CRIME
A VOCAL COMMUNITY

WE WANT SAFE STREETS
NO MORE TRUCKS
A SPIRITED COMMUNITY
AN ENVIRONMENT THAT IS UNHEALTHY UNFRIENDLY
AN ENVIRONMENT THAT IS NOT READILY ACCESSIBLE
AN ENVIRONMENT THAT IS NOT SAFE FOR WALKING
AN ENVIRONMENT THAT IS DERELICT
COMMUNITY MEETINGS
COMMUNITY FEEDBACK
Supporting evidence-based investment in public spaces: A literature review

This research synthesis has been tailored to support the efforts of New York Restoration Project and their partners in The Haven Project. A master plan is being developed to renovate a network of open spaces in Mott Haven and Port Morris in the South Bronx. The Haven Project aims to demonstrate measurable health and social outcomes resulting from an improved physical environment at the neighborhood scale. This literature review has developed in parallel to the design planning process and community engagement efforts. We would like to thank the New York Restoration Project for their leadership of this effort, the Haven Project planning team, and Richa Gupta of Columbia University for guidance on framing and refining this review. Special thanks to the John S. and James L. Knight Foundation and the Doris Duke Charitable Foundation for funding the planning phase of The Haven Project. More online: www.nyrp.org/about/programs/the-haven-project

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SUPPORTING EVIDENCE-BASED INVESTMENT IN PUBLIC SPACES

Key Health Concerns:

1. Insufficient Physical Activity
2. Traffic related air pollution exposure
3. Traffic patterns that put pedestrians at risk*

*Columbia University, Mailman School of Public Health
YOU MAKE ALL THE DIFFERENCE

1. Project Success

Community Members in the design planning process increases the likelihood of project use.
II. Insufficient Physical Activity

Sidewalk improvements, walking paths and enhanced connectivity may increase likeliness of outdoor exercise.

Assumption: A connected circuit of trails and parkspace v. a dead end will increase users and time spent outside.
GREEN DOES MAKE A DIFFERENCE

III.

Obesity
Heart Disease
Insufficient physical activity

Increased tree canopy may reduce BMI and increase physical activity.
IV. Traffic Patterns that put pedestrians at risk

Signage, traffic signals and better lighting may reduce pedestrian/motor vehicle collisions
V. Traffic Related Air Pollution

Adding places for physical activity, particularly large parks, may also increase physical activity levels.

Assumption: Air quality is better near the water.
VI.

Parks > 6 Acres Have Significant Benefit for Asthma, Diabetes, BMI.

Increased Length of Stay

Increased Activity

Motivation to Go to the Park
THEORY OF CHANGE

MOTIVATION IS GREATEST TO GET TO WATERFRONT

AIR QUALITY IS BEST AT WATERFRONT

LINKED, LOOPED ACTIVITIES CAN EMULATE LENGTH OF STAY AND ACTIVITY
The Many Opportunities for Implementation
WHAT DO YOU THINK?

**RATE THIS OPTION 1-10**

1 = lowest
10 = highest

**WALK SCORE (1-10):**

**BIKE SCORE (1-10):**

**SAFETY SCORE (1-10):**

**CONVENIENCE SCORE (1-10):**

**DESIRABILITY (1-10):**
Master Framework

Area of Focus
ACHIEVING BETTER HEALTH OUTCOMES IN THE DISTRICT
PHYSICAL ACTIVITY

DESIGN INTERVENTIONS:
• Create Large Parks or Links to Large Parks
• Steward Ownership
• Incorporate Destinations
• Connect Neighborhood Nodes
• Design Ped-Friendly Sidewalks
• Improve Perceived Safety
• Create Park Proximity
• Increase Street Tree Density
• Connect to Nature
• Promote Mixed-Use Development
Existing Conditions

WILLOW AVE @ 133nd
Example: Good sidewalk conditions and proximity to trails may lead to a healthier BMI.
IMPROVEMENTS & PROGRAM

Civic Engagement  Tourism  Traffic Calming  Bike & Ped Safety  Social Interaction  Trees  Lighting  Youth Engagement

WILLOW AVE @ 133nd
CAPITAL
PROJECTS

Civic Engagement  Tourism  Traffic Calming  Bike & Ped Safety  Social Interaction  Trees  Lighting  Recreation / Sustained physical activity  Open Space  Youth Engagement

WILLOW AVE @ 133nd
132nd @ Connector
132nd @ Walnut
The Haven Project: Impact Framework

The impact framework illustrates how the design of The Haven Project will advance neighborhood-level outcomes and impacts. The five design strategies identified are based in scientific evidence and community input and will influence factors relating to health, wellbeing, and social capital, among others.

### Design Strategies
- Link Neighborhood Nodes
- Access To Large Park/Open Space (Randall’s Island Connector + Waterfront)
- Waterfront Green Trail
- Creative/Interactive Placemaking
- Resilient Shoreline

### Factors
- Street Connectivity/Pedestrian + Bicycle Friendly Paths
- Social Interaction
- Tree Canopy/Density
- Traffic Calming
- Visibility/Lighting
- Local Tourism
- Organized Spatial System
- Proximity To Large Park/Open Space
- Connections To Nature/Green Space
- Recreation/Play
- Habitat Restoration
- Deposition Surface
- Stormwater/Green Infrastructure
- Maintenance
- Community Engagement
- Interactivity
- Cultural Appropriateness/Identity
- Storm Surge Protection

### Short Term Outcomes
- Active Transport/Physical Activity
- People Presence
- Social Connectedness/Socialization
- Biodiversity
- Microclimate
- Road Safety
- Increased Demand For Services
- Perception Of Self Efficacy
- Increased Neighborhood Retail
- Ecological Awareness
- Stress Recovery
- Stormwater Management
- Lower Crime
- Civic Engagement
- Cultural Preservation/Expression
- Storm Surge/Hazard Mitigation

### Medium Term Outcomes
- Decreased Diabetes Rate (adults)
- Lower BMI/Weight Loss (adults)
- Chronic Stress
- Mood
- Perceived Safety
- Lower Crime
- Increased Local Purchasing
- Social Cohesion
- Air Quality
- Traffic Related Accidents
- Increased Neighborhood Investment
- Heat Island Effect
- Reduced Vehicular Injury
- Energy Use
- Respiratory Health
- Stewardship

### Impacts
- Obesity Related Illness/Premature Death
- Cardiovascular Health
- Mental Health
- Bone Health (children)
- Muscular Fitness
- Stress Related Illness
- Local Economic Investment
- Neighborhood Safety
- Social Capital
- Ecosystem Health
- Infectious Disease
- Heat Island Effect
- Reduced Vehicular Injury
- Energy Use
- Respiratory Health
- Stewardship
- Water Quality
- Landscape Resilience
- Employment
**Short Term Outcomes**

**Active Transport/Physical Activity**
- % population with self efficacy/behavioral control and positive beliefs relate to physical activity (positive attitudes/social norms)
- % of population reporting exercising* (10 consecutive minutes) in last 24 hours

**Perception Of Self Efficacy**
- % community/individual reporting self efficacy (scale)

**Stress Recovery**
- % reporting good or very good self rating of health
- % population with high stress recovery level (psychological wellbeing, related to perceptions of safety)

**Road Safety**
- # of Pedestrian injury/fatalities in intervention area
- % of traffic-related crashes, by type (pedestrian-bike, pedestrian-motor, bike-motor vehicle)
- Perceptions of road safety

**Civic Engagement**
- % population reporting volunteering
- % increase in project-related volunteers
- Community participation with social justice organizations
- Community perspectives on civic engagement*

**Cultural Preservation/Expression**
- community perspectives on cultural preservation and expression

**Social Connectedness/Socialization**
- % of population reporting they trust neighbors (part of scale)
- % of population reporting they socialize in project enhanced areas* (5 item scale)
- % of population reporting perception of collective efficacy (related to trust and social cohesion)
- People Presence/Traffic
- Pedestrian counts
- Lower Crime
- Crime/homicide
- Crime Risk Variables (as available)
- Increased Demand For Services
- Reported demand for services (revenue)
- Increased Neighborhood Retail
- Retail and food presence, by type
- Microclimate
- Temperature, relative humidity, precipitation, radiation, wind speed, canopy cooling
- Biodiversity
- % of opportunity area with natural resource features (wetlands, streams, significant habitats, etc.)
- Ecological Awareness
- % population knowledge and awareness of ecosystem health and benefits (scale/items TBD)
- Storm Water Management
- Inflow/infiltration, infiltration, soil moisture, water and sediment quality
- Storm Surge/Hazard Mitigation
- Damage from subsequent storm ($)
New York Restoration Project unveils “new vision” for South Bronx

Today, New York Restoration Project (NYRP) unveiled a master plan to design, build, and fund a new network of connected open spaces that will improve quality of life and deliver measurable health benefits for South Bronx residents with parks, tree-lined streets,
Increasing Population = Demand for more Park Space

2014
- City Center Residents: 60,000+
- Acres of Open Space / 1,000 People: 4.4

2017
- City Center Residents: 80,000+
- Acres of Open Space / 1,000 People: 3.5
Public Realm Design can influence key predictors of health such as physical activity, air quality, social connection, neighborhood safety and traffic safety, which leads to measurable outcomes.
Urban forests deliver a variety of environmental, health, and social benefits. Shaded surfaces can be anywhere from 25-45 degrees cooler than the peak temperatures of unshaded surfaces.
10% Increase in vegetative cover decreases heat related mortality by 7% (in the context of heat island effect / climate change).
A 10% increase in tree canopy leads to a 12% decrease in crime

“For every dollar spent on trail building and maintenance, nearly $3 is saved in health care expenses”

A 10% increase in greenspace leads a 7% decrease in stress – better mental health
Improved lighting leads to significant reductions in crime (20% reduction across all studies).
Changes to signal timing reduced the risk of vehicular and pedestrian / bicycle crashes at intersections by 37% compared to control.
Prioritizing PEOPLE, HEALTH, CULTURE and NATURE, the 5280 Loop is a new, distinctly Denver amenity, that connects many vibrant and diverse city center neighborhoods through the great urban outdoors, creating a powerful SENSE OF PLACE.
THE SQUARE
on 21st
A POP-UP PARK BETWEEN LARIMER & LAWRENCE
The 5280 Loop is the urban manifestation of the Colorado Trail.

Bring nature into the City
WE BELIEVE....

IT’S ABOUT PEOPLE,
IT’S ABOUT CONNECTIONS,
IT’S ABOUT EXPERIENCE,
IT’S ABOUT PLACE,
IT’S ABOUT HEALTH,
IT’S ABOUT CULTURE,
IT’S ABOUT DENVER!
**Outcomes-Based Design Approach:**

Identify key design strategies for addressing cross-cutting needs and opportunities throughout the Loop.

<table>
<thead>
<tr>
<th>Needs + Opportunities</th>
<th>Overarching Design Goals</th>
<th>Specific Design Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childhood Obesity</td>
<td>Link Nodes, Access to Green Space, Tree Canopy, Traffic Calming</td>
<td>Increase vegetative cover by 50%, Increase tree canopy by 200%, increase exposure to green space and recreation.</td>
</tr>
<tr>
<td>Asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td>Link Nodes, Access to Green Space, Tree Canopy, and Improve lighting, visibility and safety.</td>
<td></td>
</tr>
<tr>
<td>Traffic Safety</td>
<td>Link neighborhood nodes, traffic calming</td>
<td></td>
</tr>
<tr>
<td>Urban Heat Island</td>
<td>Increase vegetative cover by 50%</td>
<td></td>
</tr>
<tr>
<td>Stewardship</td>
<td>Increase daily access to nature, green space and views, improve lighting, visibility and perception of safety, celebrate culture and place.</td>
<td></td>
</tr>
<tr>
<td>Social Cohesion</td>
<td>Link neighborhoods, celebrate culture and place, improve lighting, visibility and safety</td>
<td>Body of evidence that demonstrates the relationship between specific design strategies and health-related outcomes.</td>
</tr>
</tbody>
</table>
## BALLPARK / ARAPAHOE SQUARE

### Health Impacts

The impact framework illustrates how the design of the LOOP along 21st Street will advance neighborhood-level health outcomes and impacts.

**Design Goals**
- Better connect Coors Field to the neighborhood
- Create an urban forest/park-like environment
- Celebrate the neighborhood history

**Design Strategies**
- Pedestrian/bike friendly paths
- Connecting civic institutions with the public realm
- Promote social interaction
- Traffic calming
- Increase tree canopy
- Introduce native ecology
- Historic identity

**Specific Health Impacts**
- People presence
- Social connection
- Perceived safety
- Cultural mixing
- Civic identity
- Road safety
- Physical activity
- Stress recovery
- Increase vegetation
- Ecological awareness

**Short-Term Outcomes**
- Perceived safety
- Lower crime
- Social cohesion
- Physical activity
- Civic engagement
- Traffic injuries
- Reduce BMI/diabetes/stress
- Chronic stress
- Air quality
- Heat island effect

**Medium-Term Outcomes**
- Physical activity
- Mental health
- Neighborhood safety
- Social capital
- Obesity related illness
- Stress related illness
- Stewardship
- Reduced vehicle-related morbidity/mortality
- Asthma respiratory health

**Impacts**
- Physical activity
- Mental health
- Neighborhood safety
- Social capital
- Obesity related illness
- Stress related illness
- Stewardship
- Reduced vehicle-related morbidity/mortality
- Asthma respiratory health
22,801 Downtown Denver population

80,217 Center City population
What is The User Experience?

What are we trying to connect?

Fluidity of The Route?
Create Shared Street / woonerf from 15th to 19th.
Extend plaza character across Wynkoop between 16th and 18th.
Create wider pedestrian / storefront zone at south side.
The Loop goes ‘quiet’ through this zone.
Requires more detailed transportation and parking study.
Golden Triangle
Calgary, Alberta, Canada


Notes:

- Six hundred and twenty years ago, Strathcona Island and Alberta were the center of the region.
- Less than fifty years ago, the island was at the edge or even the back of the downtown.
- The naturalization of Strathcona Island is an exciting component of the past initiative.
<table>
<thead>
<tr>
<th>Birds</th>
<th>Lichen</th>
<th>Plants</th>
<th>Insects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnyard Owl</td>
<td>Lichen</td>
<td>Common Horsetail</td>
<td>Tipulidae</td>
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<td>Lichen</td>
<td>White Goosefoot/Lab's Quarters</td>
<td>Tipulidae</td>
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<td>Mallard</td>
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<td>Balsam Poplar</td>
<td>Tipulidae</td>
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<td>Common Goldeneye</td>
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<td>Lichen</td>
<td>Northern Bog Violet</td>
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<td>Lichen</td>
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<td>Canada Bluegrass</td>
<td>Tipulidae</td>
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a balanced approach to placemaking

5 notes:

• New amenities and spaces engage visitors with the natural processes of the dynamic Bow River.
• Creating more meaningful park spaces, by providing uses that appeal to all ages and demographics.
• The ‘Living Island’ concept unites ecology and urban living in a uniquely sustainable experience.
• Restores and enhances the biodiversity of the island’s natural habitat, but increases the flood resiliency of the island and the amenities being constructed.
ecology through design

4 notes:

• Creating a balance between usable active spaces, while preserving ecologically sensitive areas, and enhancing/restoring degraded ecosystems.

• The concept of triangulation of spaces enhancing safety, celebrating ecology, and creating a venerated community space.

• Shared experiences link along a multi-use pathway traversing the island, connecting into Downtown Calgary and adjacent urban centers.
> 90% of Global Health Expenditure:

Pathogenic Research and Care
> 90% of Global Health Expenditure:

Pathogenic Research and Care

11% of World Mortality results from Pathogens
< 5 % of Global Health Expenditure:

Well-Being Research and Care
< 5 % of Global Health Expenditure:

Well-Being Research and Care

>70 % of World Mortality results from well-being factors