TOD to Regenerative City

Treatment Precedence for Urban Disruptions

Presented by:
Charles Kelley | ZGF Architects
Mitsu Yamazaki | ZIBA
Rimus Gulbinas | maalka
Joshua Foss | Regensia
Learning Objectives

01
Learn how Transit Oriented Development supports advanced Smart City Design concepts.

02
Determine how the interests within the community can be achieved through real-time data use.

03
Consider the value of resiliency and health benefits relating to the use of public space in a shared economy.

04
Consider how investments in transit rich and ecommerce supportive places benefit from technological advances.
# Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00 PM</td>
<td>Introduction</td>
<td>Charles Kelley</td>
</tr>
<tr>
<td>3:10 PM</td>
<td>Compact Smart City</td>
<td>Mitsu Yamazaki</td>
</tr>
<tr>
<td>3:25 PM</td>
<td>Data Governance</td>
<td>Rimas Gulbinas</td>
</tr>
<tr>
<td>3:40 PM</td>
<td>Regenerative Urbanism</td>
<td>Joshua Foss</td>
</tr>
<tr>
<td>3:55 PM</td>
<td>Discussion</td>
<td>Charles Kelley</td>
</tr>
<tr>
<td>4:30 PM</td>
<td>Close</td>
<td></td>
</tr>
</tbody>
</table>
An Uncertain Future that Holds Great Promise

Transit Oriented Development to Regenerative City

Transit Oriented Development
Pearl District, Portland

Regenerative Urbanism
Central SoMa, San Francisco
Leveraging Value in New Systems

**Economic Development**
Building Community with Automation

**Occupant Engagement**
Aligning human aspirations with hyper efficiency.

**Capturing Value**
Leverage externalized resources with local economic goals
Demonstrating Value in New Systems

Smart City: Use the form of the City to reconcile sustainable and resilience costs equitably in a shared economy.

Work at scale to adapt human behavior and aspirations with hyper efficiency.

Regenerate resources in the delivery and reuse of services in a local first cyclical economy.

Automation
Mitsu Yamazaki

E-Commerce
Dr. Rimas Gulbinas

Shared Economy
Joshua Foss
Unique Role of Compact Smart City

Mitsu Yamazaki

Theme

TOD plus energy efficiency plus occupancy engagement equals community cohesion and aspiration to build and sustain a high-performance neighborhood.

Conclusion

Precedent (Kashiwa-no-ha, Portland) with Mixed use and high density 18/7 live-work-play lifestyles that leads to avoided trips because local services are strong and well used throughout the day leading to more balanced transit usage.
Portland

*Car Oriented Society*

Impacts of cars in downtown.
Portland

Dead Streets

Disconnected communities.
1970’s Downtown

Fixing the Problem

Before  Downtown Plan  After
CLICK PHOTO FOR MOVIE.

https://www.youtube.com/watch?v=rH1-E5awPdo
Strategic Location

16 miles from downtown Tokyo in Japan’s high-tech corridor.
Key Organization

• Urban Design Center Kashiwa-no-ha
• Since 2006
Existing

1,777 Jobs
1,229 Residential Units

JOBS : HOUSING
1.5 : 1
Kashiwano, Japan Work Session

Moving onto the next step. The first table focuses on open spaces and the other on community services.

CLICK FOR MOVIE
https://www.youtube.com/watch?v=S7NPCQi44gg
Proposed

15,329 Jobs
5,546 Residential Units

JOBS : HOUSING
2.8 : 1
Area Energy Management System (AEMS) of Kashiwa-no-ha Smart City

Resiliency, battery storage, and real-time display

Source: Mitsui Fudosan: Environmental Initiatives, Kashiwa-no-ha Smart City
International Student Housing: Gamified

- Feedback during their stay, visitors compete and contribute.
- Communal Services
Station
Campus Plaza & Street

Since 2014

Testing strategies supporting community development.
Unique Role of Data Governance

Rimas Gulbinas

Theme

Data tools that supports agreements and behavior change that uses new and sunk neighborhood investments more efficiently.

Conclusion

US, Western, and Eastern European precedents where Individual inclination can be organized because of data reporting to support desirable outcomes in neighborhoods relating to development investments, transit use, resource use, partnerships.
Human networks are powerful channels for change

Normative Eco-Feedback

- Researchers have examined the impact peer networks play in energy consumption and have established the existence of a network correlation among linked nodes (i.e., users who view peer usage will save more than users who do not) (Foster et al. 2010, Mankoff et al. 2010, Peschiera et al. 2010).
- Correlation between how connected a user was to his/her peer network and reductions in energy consumption (i.e., more connected the less you use) (Peschiera & Taylor 2012).
- Studies suggest that “influence” plays a role in impacting users’ energy consumption, however could be due to other network effects.

Peer influence can drive energy savings

Networks effects can be scaled
The Sustainability Spiral
So how can we leverage networks and transparency to accelerate progress?
Big Data, Big Opportunity

• Cities are sitting on a tremendous amount of data

• Data can be used to track goals and metrics can be communicated to stakeholders to increase transparency and trust

• Data can be used to effectively scale programs
Data Structuring
Set goals and engage with proven frameworks.
2030 Districts

2030 District Template-Driven Program

Network of commercial and residential owners and property managers collaborating to:

• Meet Energy, Water, Waste reduction goals
• Set Target reductions relative to National Medians
• Set intermediate goals (e.g. 20% by 2020, 35% by 2025)
• Incorporate RECs on path to goals
• Compare normative progress to buildings of similar type (e.g. Office buildings over 200,00 sq. ft)
Green School Alliance

Green Schools Alliance Template-Driven Program

- 53 Metrics across 3 Categories
- Educational, Organizational, Physical Place
- Survey Based
- Compare scores across buildings and districts
- Join other Districts
7,449 Cities | 674,484,562 People | 9.31% of Total Population
San Francisco is growing rapidly
Saw an opportunity to test new tools
RCA for San Francisco

Tasked to Answer:

- What is Regenerative Urbanism?
- What is its potential value for San Francisco?
- What are path-breaking examples?
- What hidden potential might be revealed when tested on Central SoMa*?

*A 230 acre district on the edge of downtown*
Step 1: Define regenerative urbanism

Shifting from ad-hoc, incremental greening to holistic, systems-level regeneration
Step 2: Examine global best practices

**REGENERATION**
BURNABY, BC. Adopting an Environmental Sustainability Strategy that anchors an integrated, regenerative, and net positive community vision.

**ENERGY**
VANCOUVER. Leading a comprehensive Renewable City Strategy committed to 100% greenhouse gas-free supply (including transport) using neighborhood energy utilities.

**WATER**
BARANGAROO SOUTH DISTRICT, SYDNEY Utilizing an integrated district water system that exports surplus recycled water to surrounding communities.

**IT / SMART CITY**
KASHIWA-NO-HA, JAPAN. Managing a comprehensive Smart City program that enhances environmental performance and social cohesion.

**MOBILITY**
VIENNA. Providing a coordinated network of emissions-free transit options that eliminate the need for personal automobiles.

**LAND USE + ECOSYSTEM**
SINGAPORE. Employing a ‘livable density’ approach that integrates the built environment within natural systems.

**MATERIALS + WASTE**
AMSTERDAM. Designing a local circular economy to eliminate waste, create jobs, and anchor new district developments.

**FOOD**
SUNQIAO DISTRICT, SHANGHAI Integrating large-scale vertical farming systems within the public realm to expand regional foodshed capacities.

**GOVERNANCE**
COPENHAGEN. Using an innovative public-private model to finance large-scale community regeneration projects.
Step 3: Central SoMa baseline assessment

Current Conditions:
District imports key resources; high costs of living; little green space and public amenities; poor air/noise quality; high social inequality; high public transit use
Step 4: Central SoMa area plan assessment

Planned Improvements:

Strong vision and goals, yet held back by impact reduction focus and limited interconnectivities between issues
Step 5: Regenerative strategies to bridge gap

Proposed Four ‘Big Moves’

1. District Water with Heat Exchange
2. Coordinated Blue-Green Infrastructure
3. Connected Blocks & Buildings
4. Integrated Utility Hub(s)

Projected score upon implementation of Regenerative Proposal
Step 6: Cost-benefit analysis
Step 7: Governance analysis

Non-Profit Association Grants
- Home Owner Associations
- Business Owner Associations
- Foundations
- Community Development Corporations

Assessments
- Community Benefits Districts (CBDs)
- Business Improvement Districts (BIDs)
  - Property owner based
  - Business owner based
- Green / Joint Benefits District

District Financing
- Infrastructure Finance Districts (IFDs)
- Community Facilities Districts (CFDs)
- Enhanced Infrastructure Financing Districts (EIFDs)

Occupant Tolls and Taxes
- Block Chain
- E Commerce
- Transfer Taxes

COOPERATIVE GROUPS
- Kashiwa City Development & Promoting Foundation
- Chiba Prefecture
- Wacoal Art Center/SPIRAL
- Urban Design Institute Co., Ltd.
- U.G. Toshi Kenchiku Co., Ltd.
- NPO Support Center Chiba
- Japan Life Design Systems
- PRAP Japan, Inc.
- YRP Ubiquitous Networking Laboratory
- FUJISAKI Office Co., Ltd.

COMPOSITION GROUPS
- Public
  - Kashiwa City
  - The Kashiwa Chamber of Commerce & Industry
  - Regional Council of Tako Area
- Academic
  - University of Tokyo
  - Chiba University
- Private
  - Mitsui Fudosan Co., LTD.
  - Tsukuba Express Metropolitan
  - Intercity Railway Company
Step 8: Inter-agency workshop

Collaborative Workshop:

- Tested results with senior staff from multiple municipal agencies

Feedback on Value Proposition:

- Helped articulate a new vision of a healthy and prosperous SF
- Can improve coordination of city agencies around regenerative systems performance
- Can anchor inter-agency working groups and corresponding pilot projects
- Can catalyze new governance and advanced capital planning models
Discussion
Visible & Tangible Benefits

Meaning and Purposeful Design
And Therefore

The City is Adaptable with Meaning and Purpose

We can be hopeful because of the promise of urban form to hold community oriented networks as demonstrated:

- **Portland** | Cleaning up its act
- **Kashiwa-no-ha** | Integrated Tech and Community
- **2030 Districts** | Social and Collaborative Networks
- **Regenerative Assessment** | Tools for A Cyclical Economy
Consider how investments in transit rich and ecommerce supportive places benefit from technological advances in sustainability.

01 \textbf{Automation.} 
In what ways does community engagement enhance Smart City Design?

02 \textbf{E-Commerce.} 
How are the interests within the community supportive by continuous reporting of real-time data use?

03 \textbf{Shared Economy.} 
What is the value of net positive outcomes within a shared economy?
TOD to Regenerative City

Treatment Precedence for Urban Disruptions

Thank you!
Thank you!