



Cities of the Future

Summary Report

Eli Davis, Donald Swen, Bill Burnett
Stanford University for Scania

Project Review - City of the Future

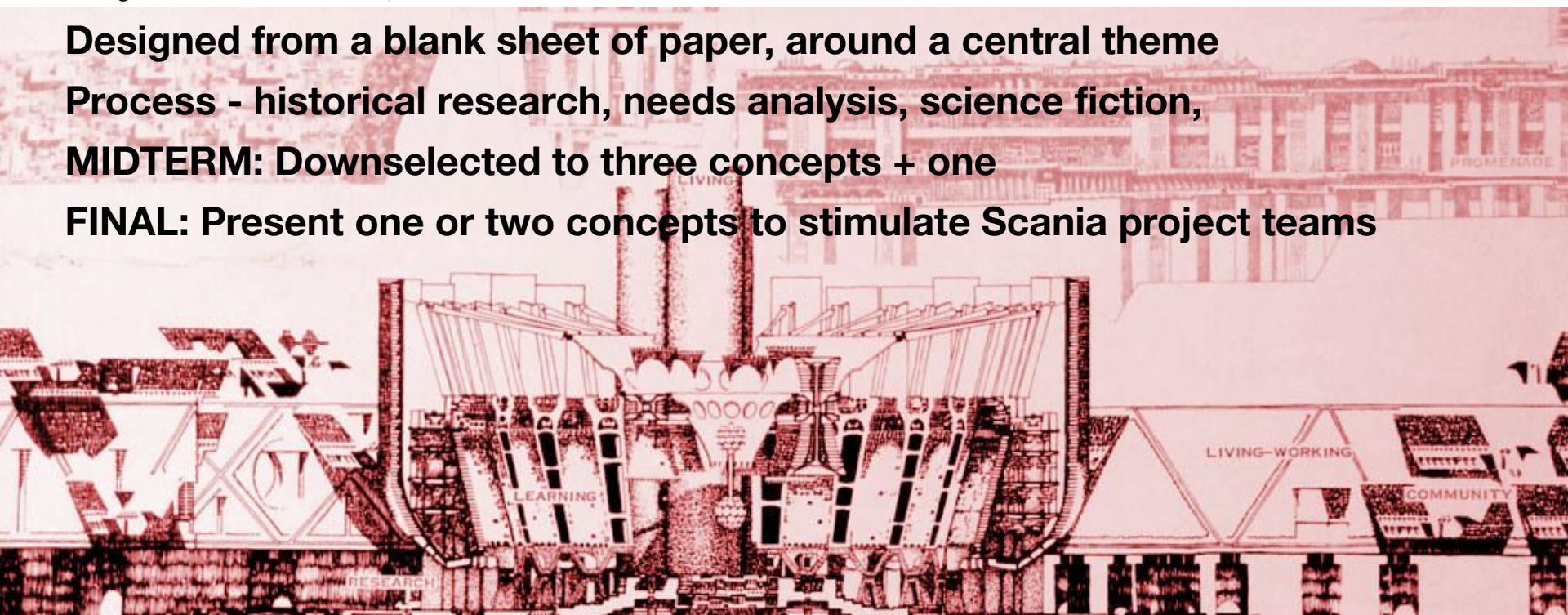
An eight week project, exploring the possibilities of a new, mid-sized City of the Future, near Stockholm.

Designed from a blank sheet of paper, around a central theme

Process - historical research, needs analysis, science fiction,

MIDTERM: Downselected to three concepts + one

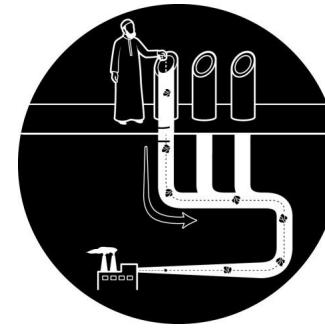
FINAL: Present one or two concepts to stimulate Scania project teams



THE CITY OF THE FUTURE

Research process: Inspirations

- Nature in cities
- Sci Fi visions for the future
- City Planning
- Exciting technology
- Transportation
- Circular economies
- Indigenous technology



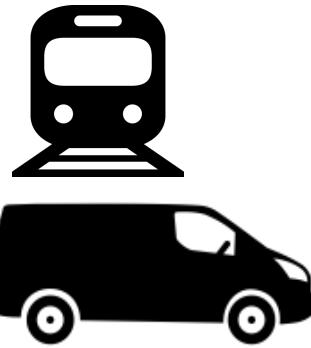
Transportation Framework

Long haul bulk shipping



Between Cities

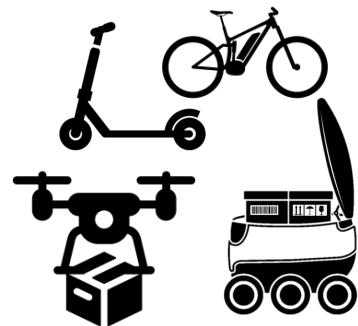
Lightweight transit



Smart Logistics Hub

Outskirts to Urban

Micro mobility



Smart Distribution Hub

Last Mile (or less)

Mid Project Review

March 9th 2021

Village of the Future



A City for Family



Tree City



Honoring the Culture of the Past





Village of the Future

What if cities felt more human and at a scale that nurtures connection?

Preconditions:

- A city of hundreds of villages
- Village as bias towards connection & community
- Embrace the rural as its core
- Efficient technology & infrastructure

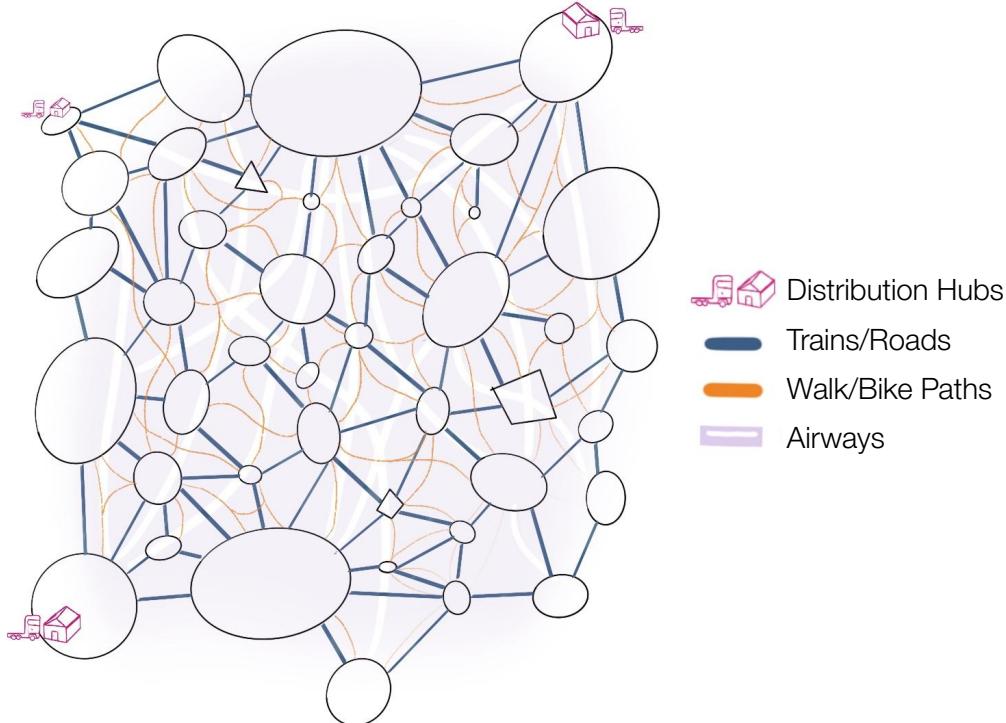
Transportation

People

- Walking/bike paths within and between villages
- Robo-taxi and trains between villages
- High speed trains and highways to other cities

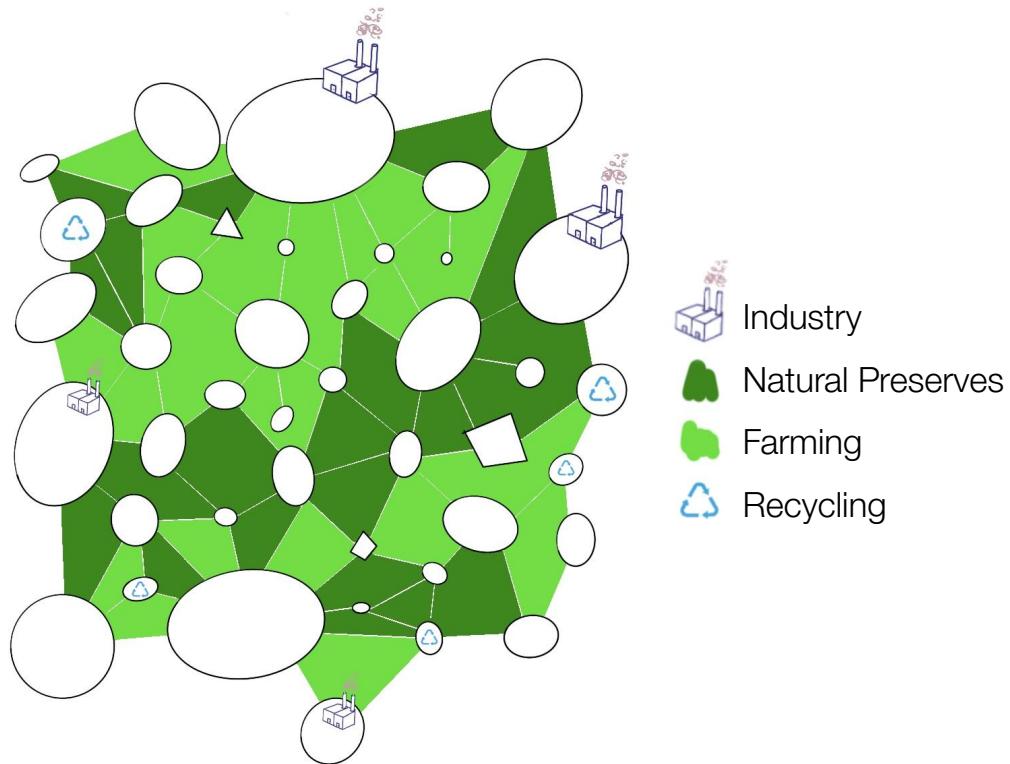
Things

- Smart hubs collect bulk goods at city edges
- Goods directed to villages with flying drones or autonomous delivery vehicle
- Micro-transport (small driving drones) within village



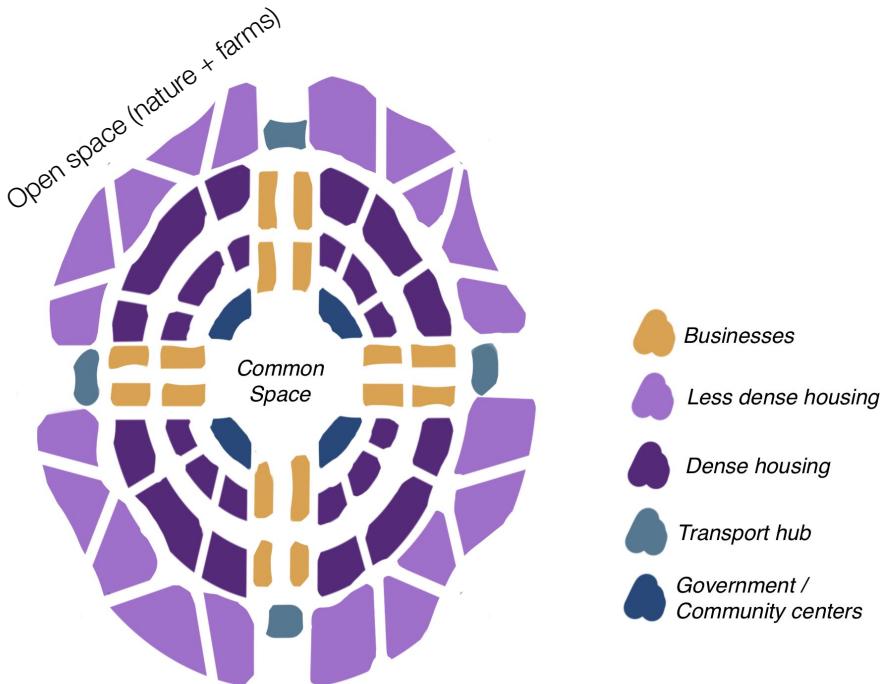
Industry

- Shared infrastructure for easy organized expansion
- Space between villages used for farming and as nature preserves
- Villages specialize:
 - Artisan creation, unique restaurants etc.
- Entire village does not hold single trade so that there is cross-pollination
- Local waste sorting in each village
- Composting to enrich soil
- Recycling centers on city edges



Community

- Villages are made up of 1000 people
- Each village is formed around common space and surrounded by open space
- Common space is used for rituals, celebrations, and other events
- Each village has local government
- Village identity associated with culture and tradition





A City for Family

What if we spent our waking hours with the ones most important to us?

Preconditions:

- *Workplace is close to home, remote work is commonplace*
- *A city of lifelong learning*
- *Safety for children*
- *Facilitates time with extended family and friends*

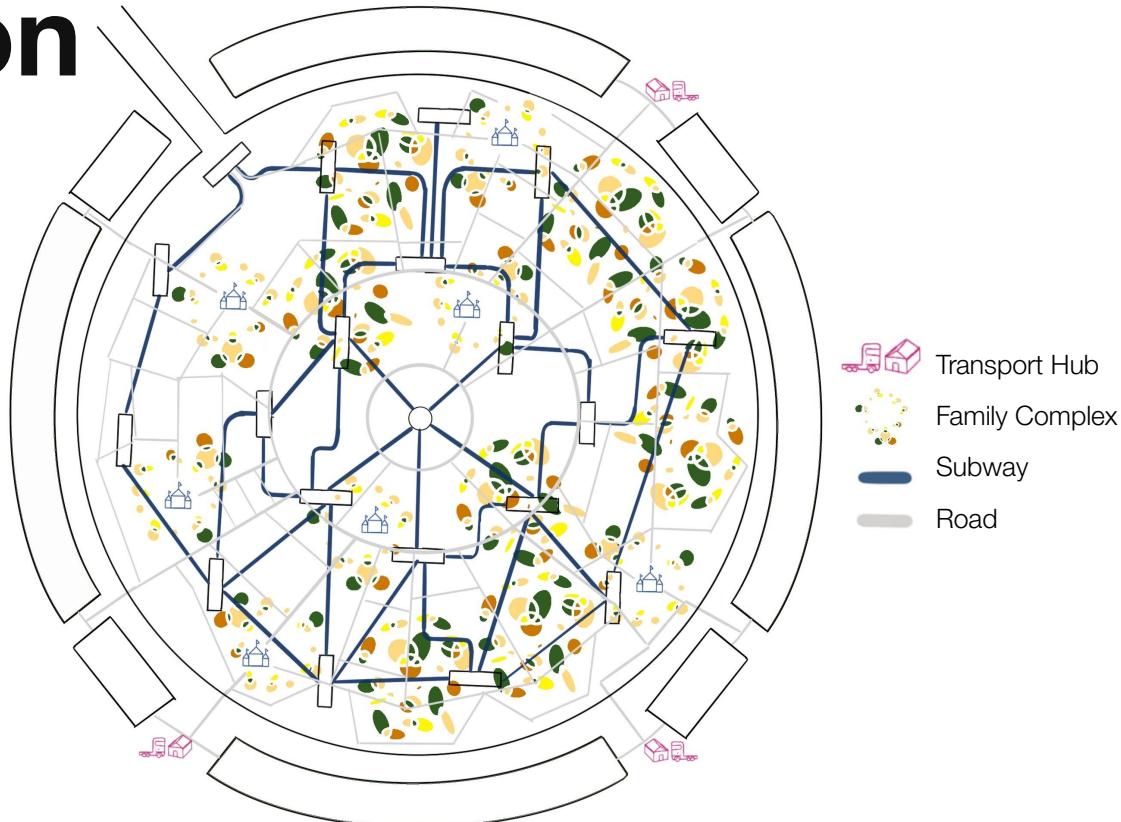
Transportation

People

- Fast and reliable subway system
- Long distance high speed trains to other cities
- Autonomous vehicles for city transport
- Minimal lanes on city roads

Things

- Bulk goods delivered to smart logistics hub at outer edge
- Autonomous delivery to family complexes and businesses



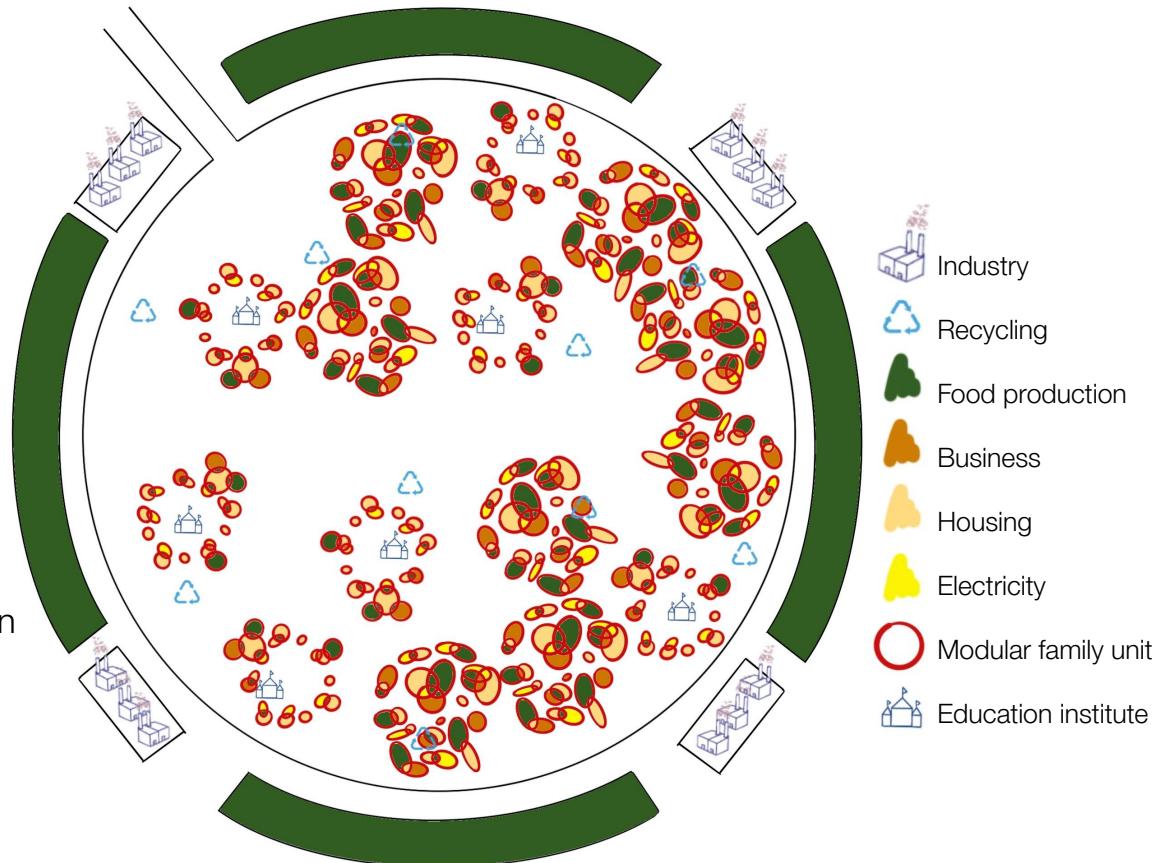
Industry

Work

- Family run businesses
- Offices located close to or in homes
- Energy generated by families and supplemented by centralized grids
- Food grown in family complexes

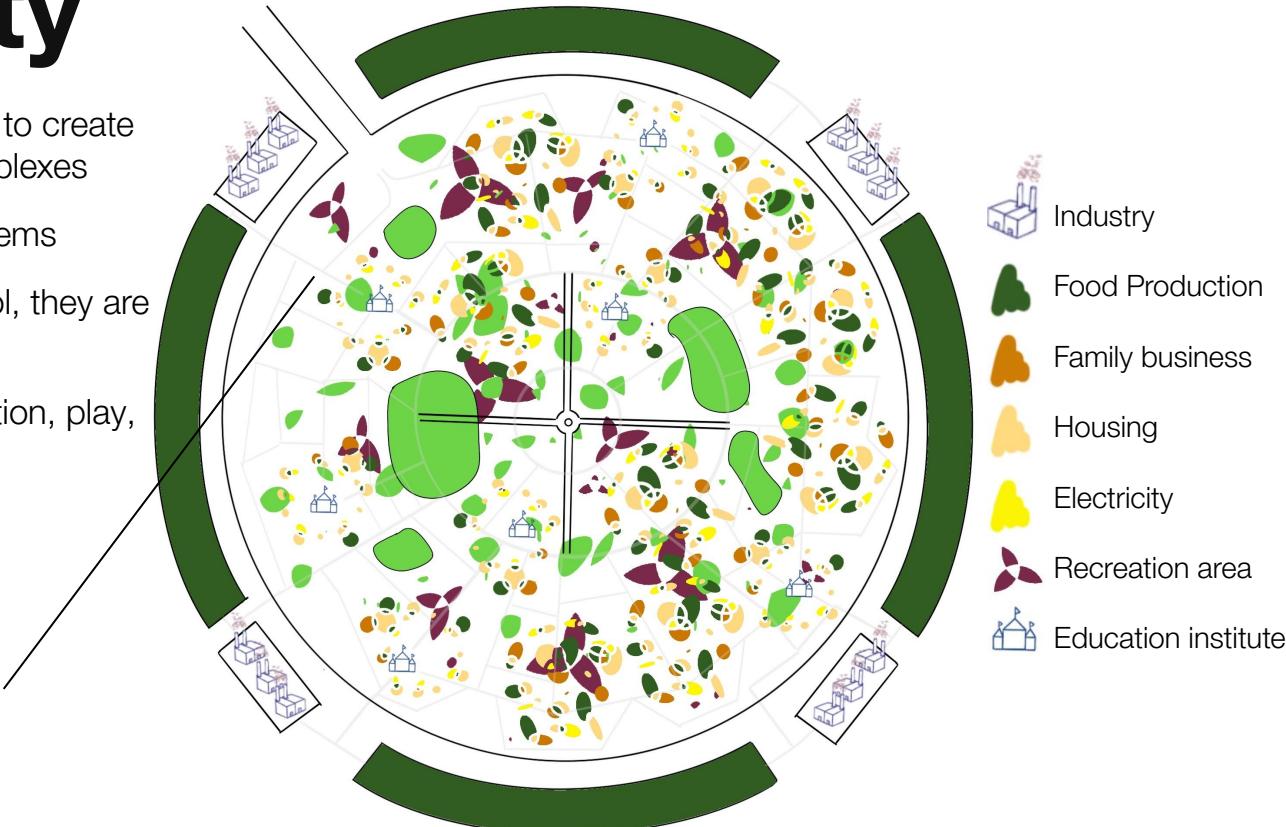
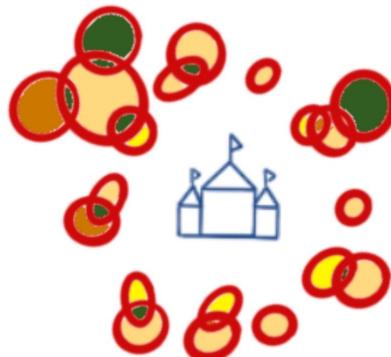
Waste

- Garden composting widespread
- Waste dropped into shoots, sorted in underground facilities
- Recycling centers
 - Scrap diversion, life extension, reuse end of life components create local cycling of materials

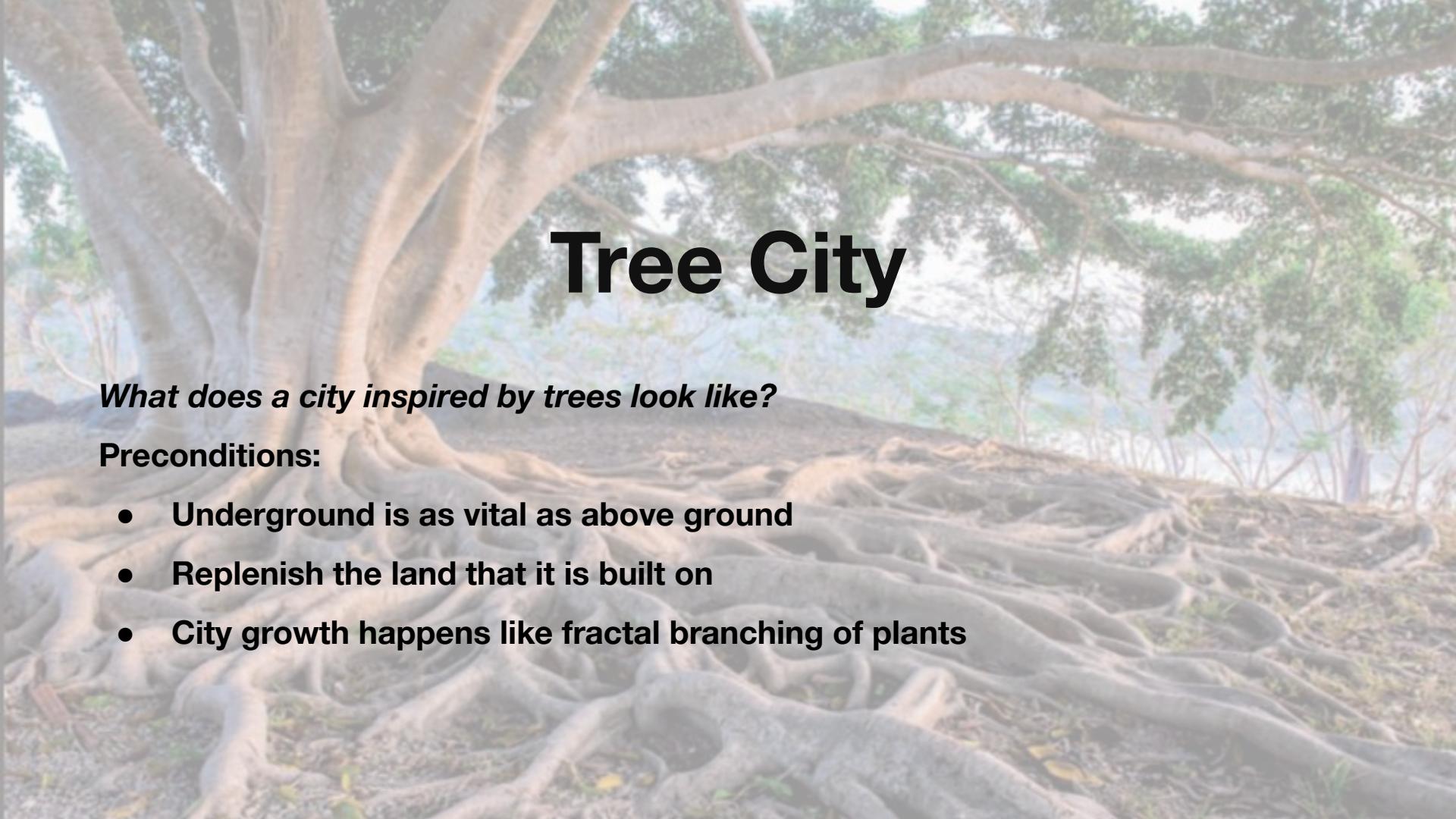


Community

- Modular family units combine to create multi-generational family complexes
- Abundance of education systems
- Citizens don't graduate school, they are lifelong students
- Space is optimized for recreation, play, and creating community



- Industry
- Food Production
- Family business
- Housing
- Electricity
- Recreation area
- Education institute

A large tree with many thick, gnarled roots exposed at the base, symbolizing a tree city.

Tree City

What does a city inspired by trees look like?

Preconditions:

- Underground is as vital as above ground
- Replenish the land that it is built on
- City growth happens like fractal branching of plants

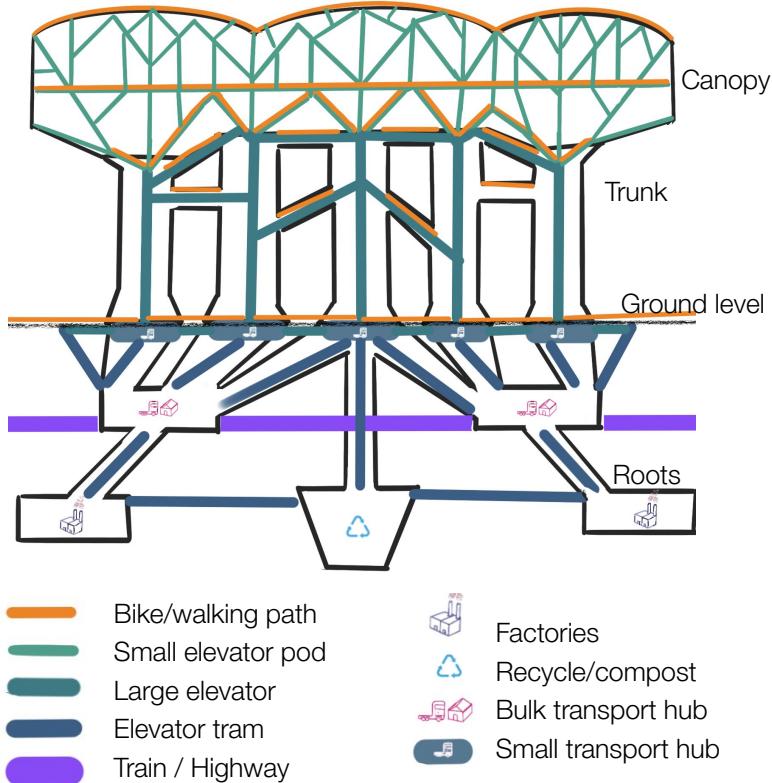
Transportation

People

- Underground trains/highways converge under city
- Multi-direction elevator pods travel up through “trunk”
- Small elevator pods & glass bike/walkways in “canopy”

Things

- Smart hub aggregates bulk goods from rail and highway
- Elevator pods have compartments for goods transport
- Driving drones move packages between pods and final destinations



Industry

Work

- Services - at the junction of “branches”
- Office space - in the “trunk”
- Manufacturing - below ground in “roots”

Energy

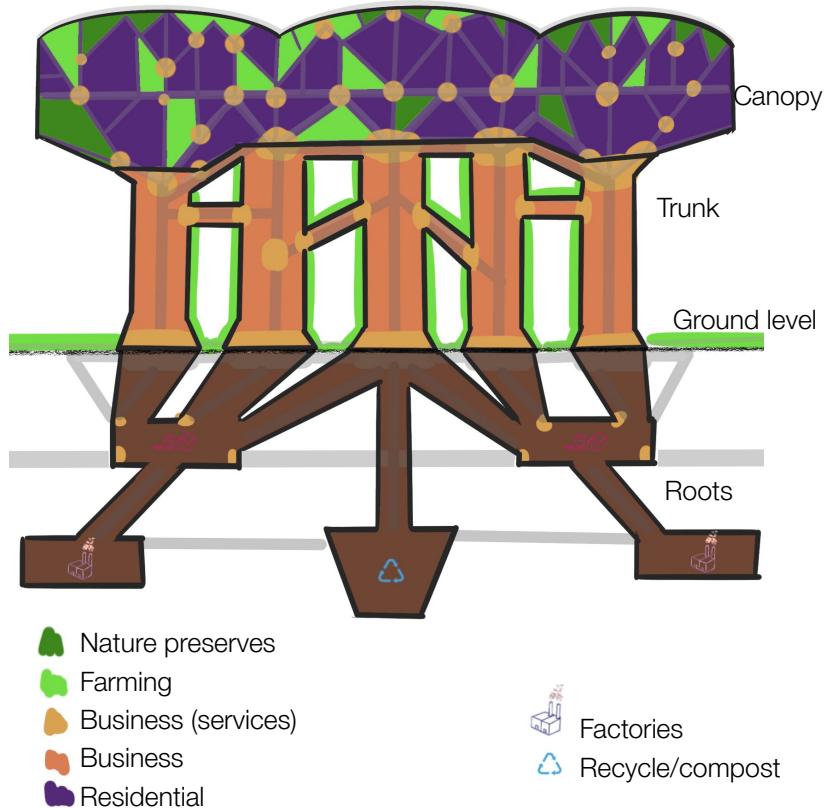
- Pathways in “canopy” are solar panels
- Wind turbines on “canopy”

Farming

- Urban gardens - rooftops in “canopy”
- Hanging gardens - sides of “trunk”
- Livestock and classic farming - ground at “tree” base

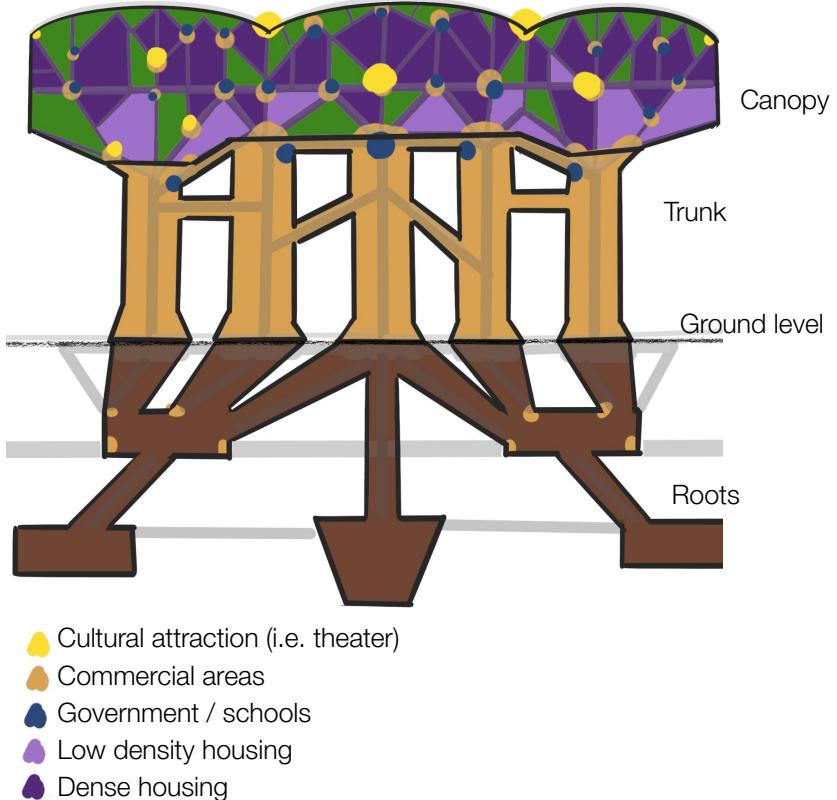
Waste

- Elevator system transports waste underground
- Compost replenishes surrounding farmland



Community

- Living space is in “canopy” of the city
- Top of homes create shared outdoor neighborhood space
- “Canopy” holds social and cultural venues
- Schools are at branching nodes - connected to multiple home groupings
- “Branch” junctions form commercial areas
- “Trunks” create downtown business districts



Honoring the culture of the past

What if a city preserved the historical culture of Sweden in a rapidly shifting world of technology?

Preconditions:

- Technology enhances a sense of identity for the citizens
- Promotes cultural preservation and city growth
- Historical culture dials were turned up

Concept

Transportation

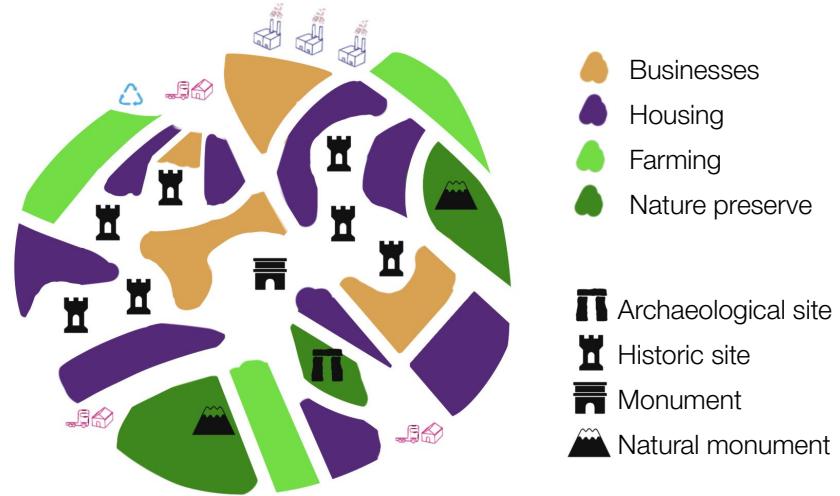
- Roads and paths are formed around cultural, historic, and archaeological sites

Industry

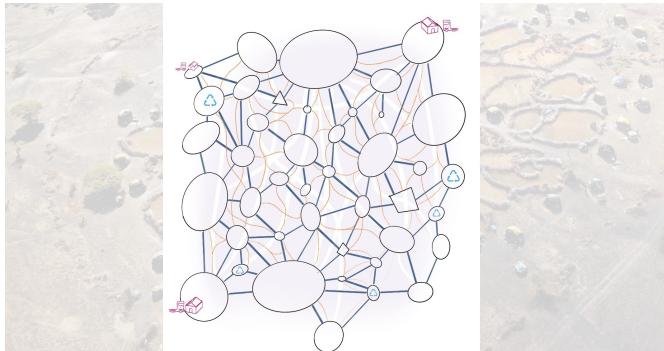
- Manufacturing is far from historic sites

Community

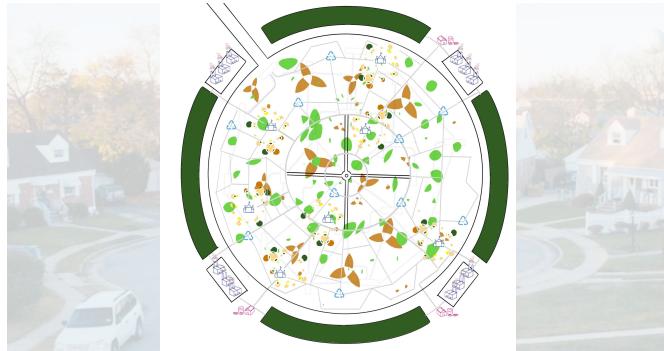
- City responds to history of the past
- Downtown areas are focused on significant sites
- Landmarks are restored or re-created to form cultural gathering points
- City common space is designed for festivals and celebrations



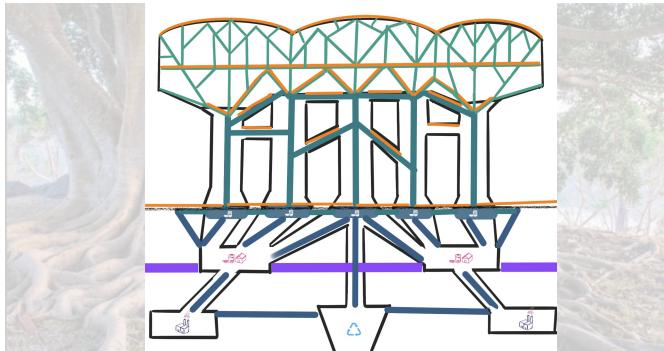
Village of the Future



A City for Family



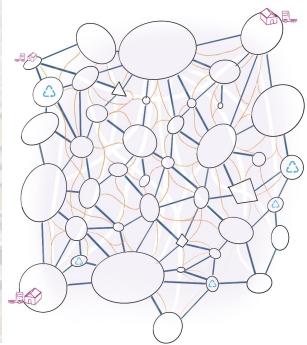
Tree City



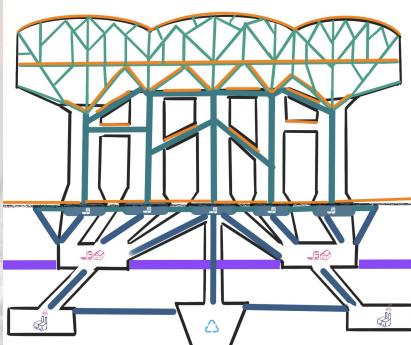
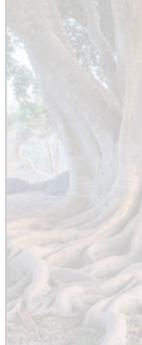
Honoring the Culture of the Past



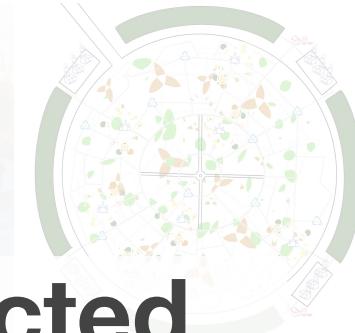
Village of the Future



Tree City

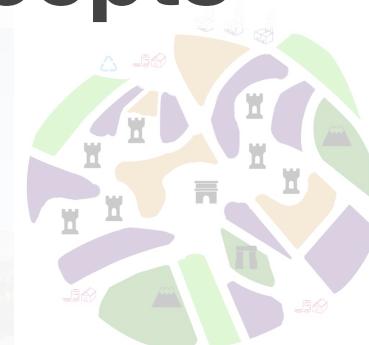


A City for Family



Selected Concepts

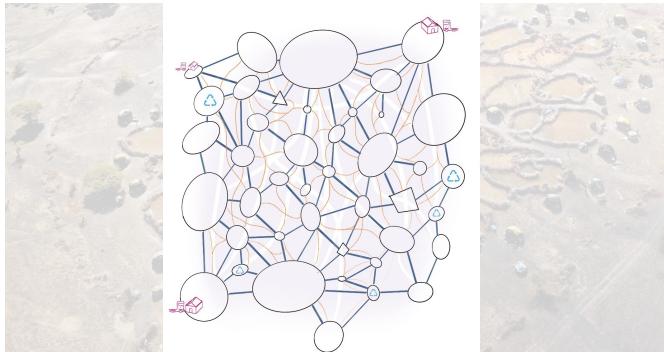
Future of the Past



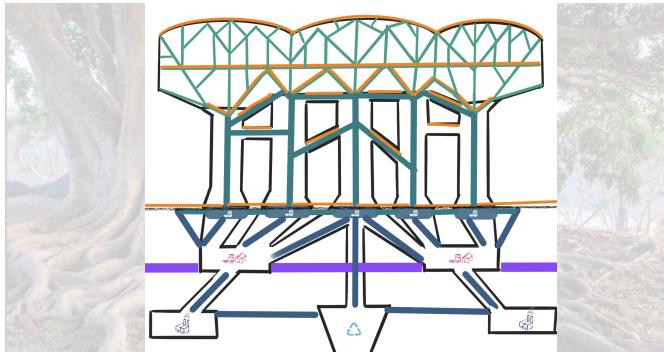
Final Workshop

March 23rd 2021

Village of the Future



Tree City



**Focus for
Ideation Session**

Brainstorming Instruction

4 STEPS TO BETTER BRAINSTORMING

- Framing a Good Problem
- Warming Up
- The Brainstorm
- Grouping and Extracting Ideas (prototypes)

#1 (Re) Framing



- **Framing a Good Problem**
 - Ask open-ended questions
 - “How might we...” “How many ways...”
- **Set goals, don't describe methods**
 - Bad: “How can I design a new wheelbarrow?”
 - Good: “How can I move bricks efficiently?”
- **Don't be too abstract**
 - Bad: “How can we make everyone in the company happy?”

#2 Warming Up

To innovate, people need to transition from their hectic, event-driven workday to a state of relaxed, creative attention.



analytical/critical
mind



synthesis/non-judgemental
mind

#3 the Brainstorm - The “RULES”

DEFER JUDGEMENT

GO FOR VOLUME

ONE CONVERSATION at a time

BE VISUAL

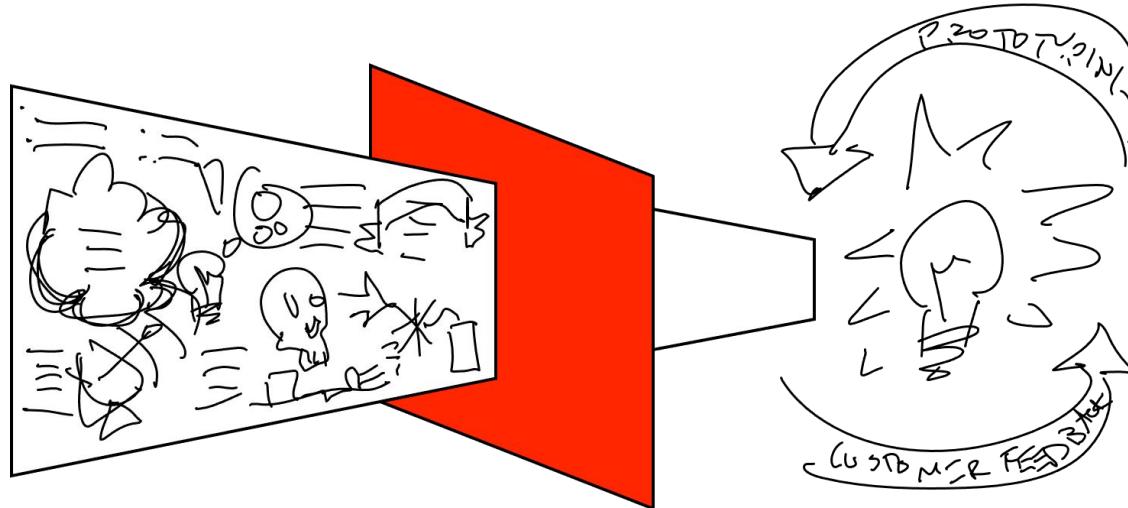
HEADLINE

Build on the Ideas of Others

Stay on TOPIC

Encourage WILD IDEAS

#4 Grouping and Extracting Ideas (prototypes)



All the **creative, wild, bad, OK, and undeveloped** ideas from your brainstorm... Grouped and selected with generative criteria: wildest, most delightful, biggest breakthru if... (ignoring what makes it impossible)

High potential ideas can always be **developed for feasibility**.

#4 Grouping and Extracting Ideas (prototypes)



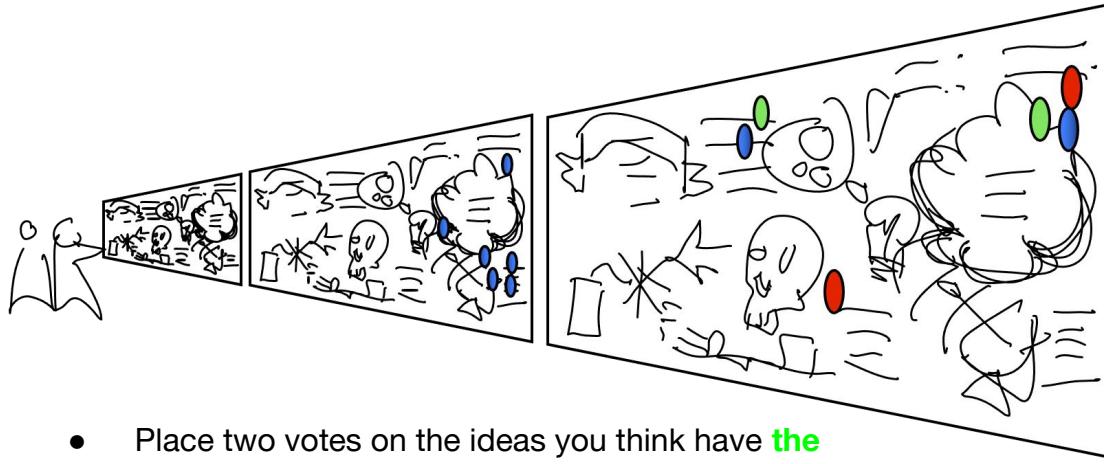
“highest potential”



“most likely to delight”



“biggest breakthru if”



- Place two votes on the ideas you think have **the highest potential**
- Place two votes on the ideas that you think would **delight the users** (disregard practicality)
- Place two votes on the idea that, if you could ignore an impossible constraint) would be **the biggest breakthrough**.

Session 1: Village of the Future



Village of the Future

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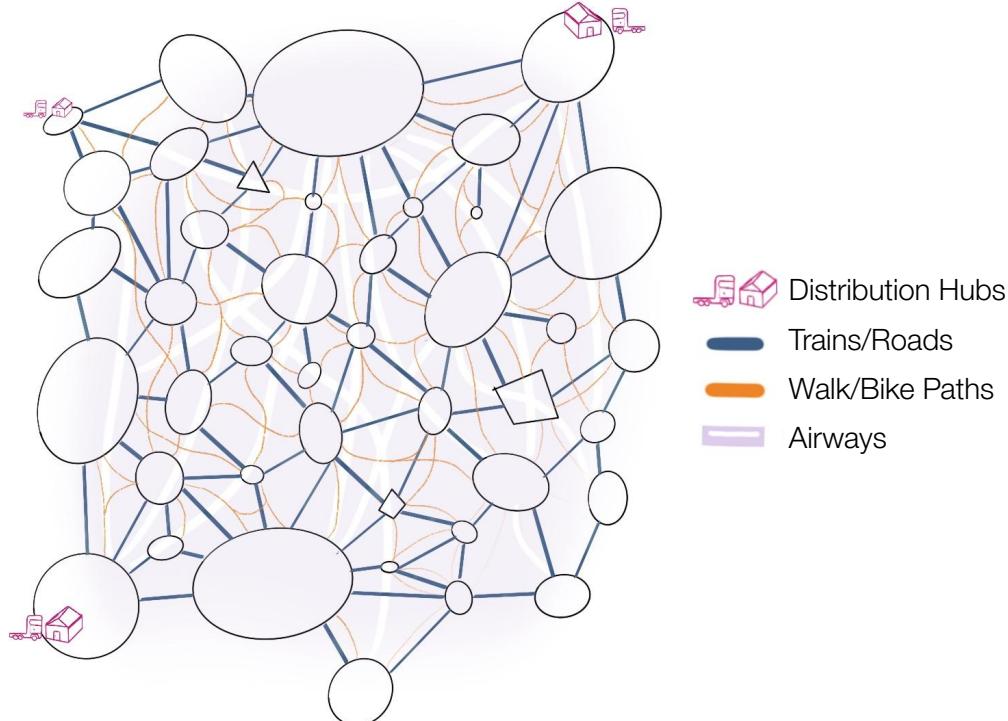
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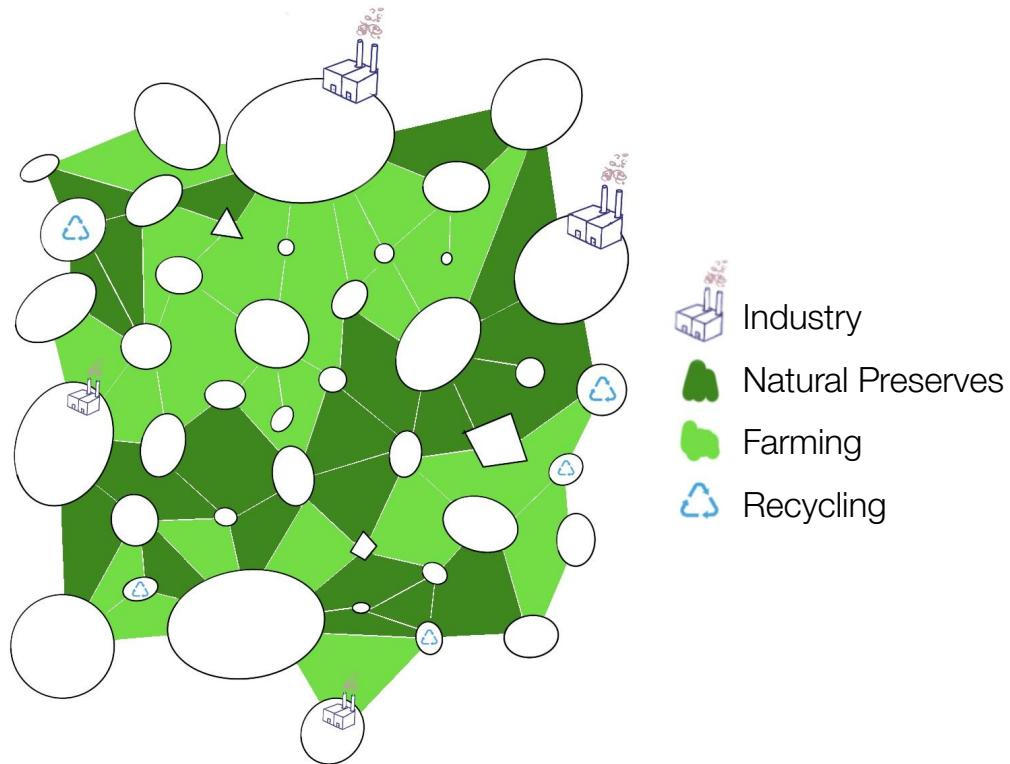
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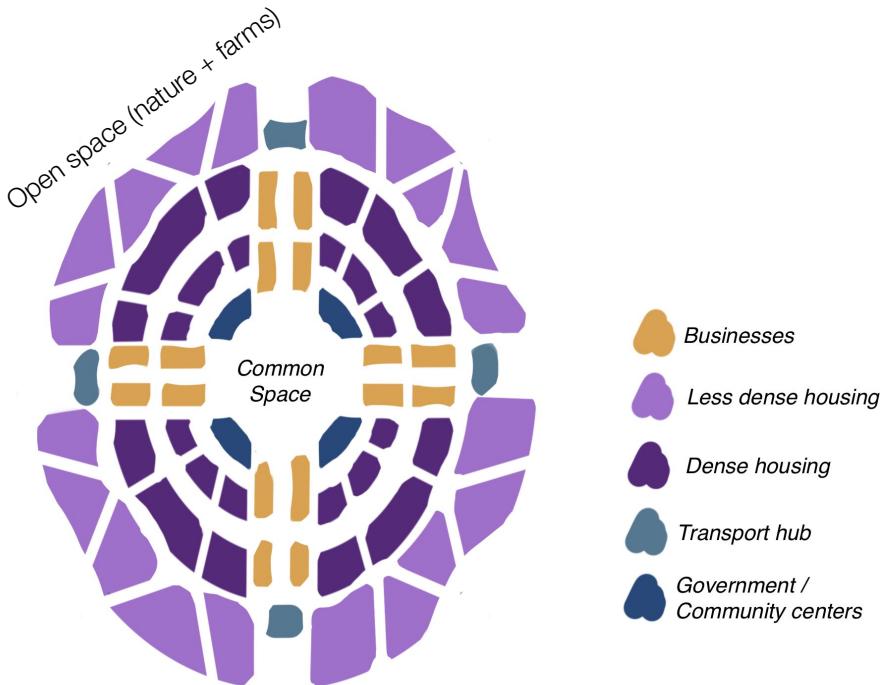
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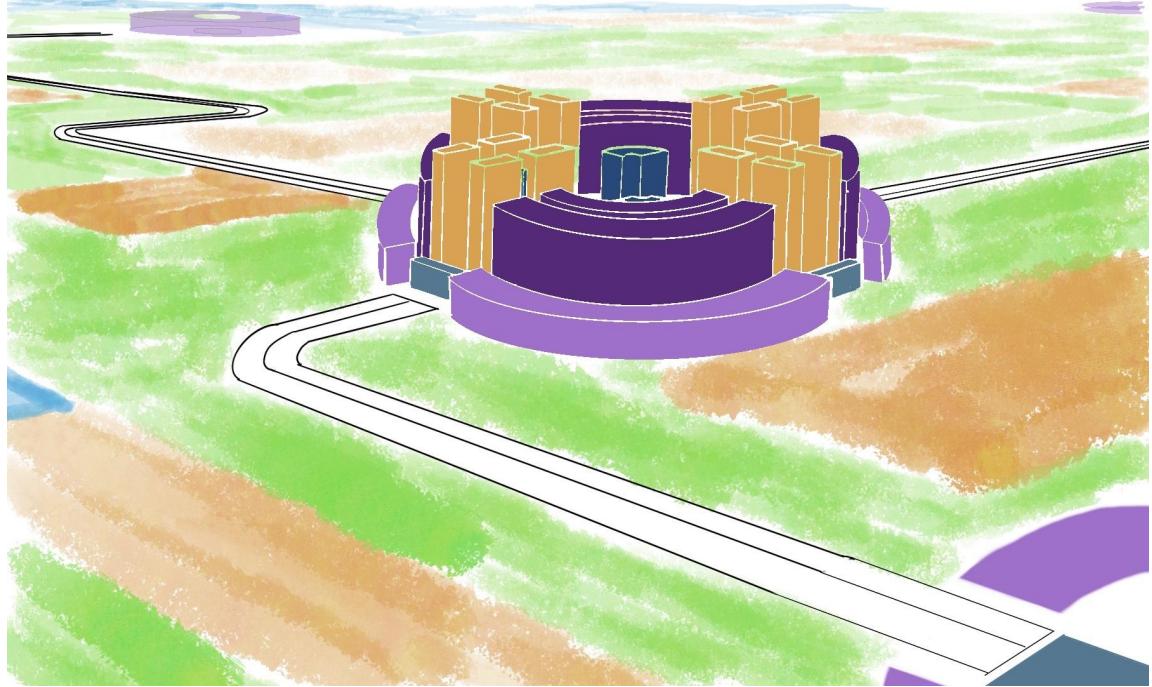
Community

-  Businesses
-  Less dense housing
-  Dense housing
-  Transport hub
-  Government / Community centers



Community

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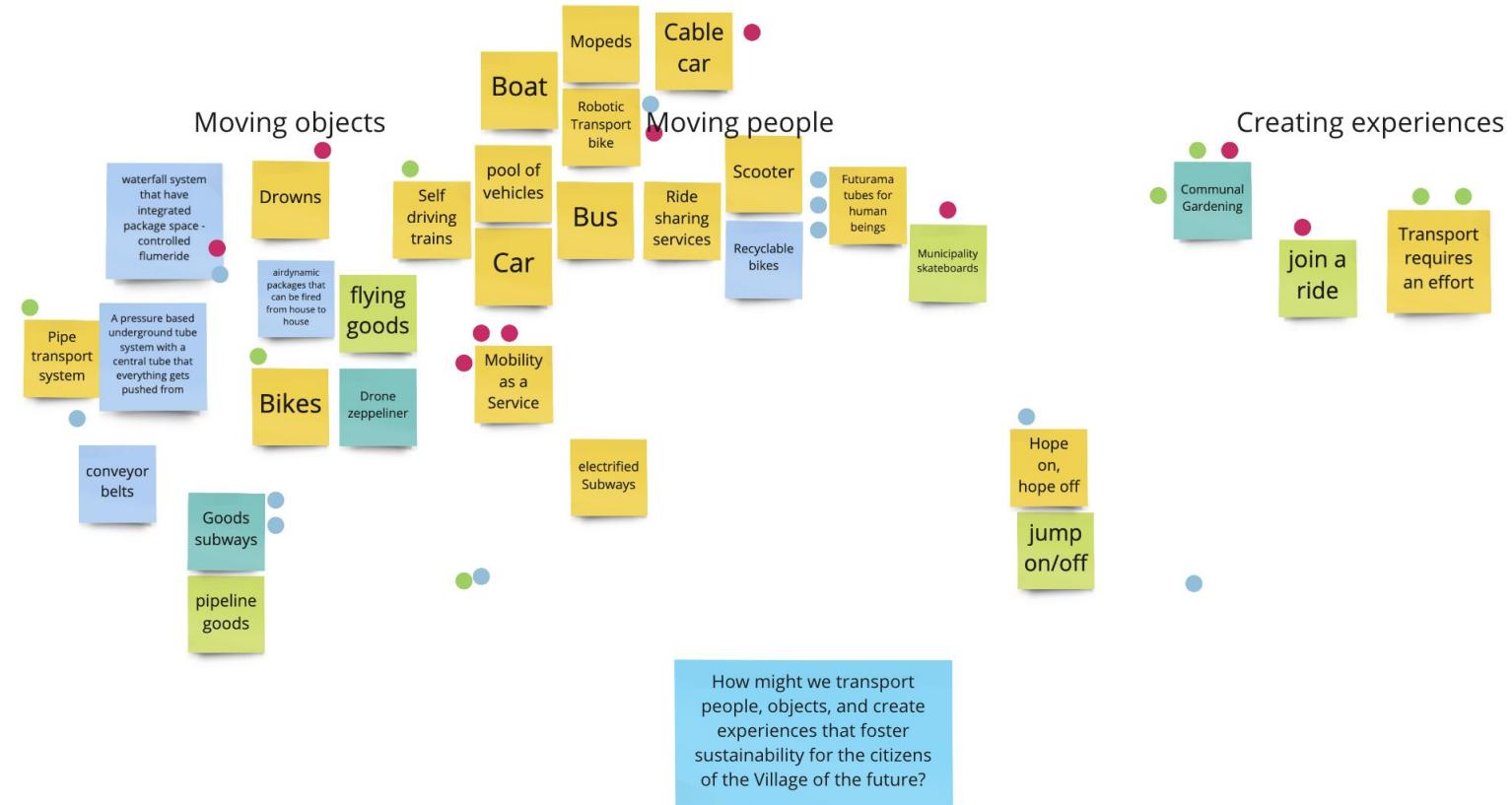
Sustainability

- Local waste sorting in each village
- Composting to enrich soil
- Village Meetings, small enough in scale so all voices are heard
- Places for ritual and community celebration are in abundance, both indoors and outdoors
- Schools as centers for ecosystem stewardship, doubly functions as community centers to protect surrounding lands

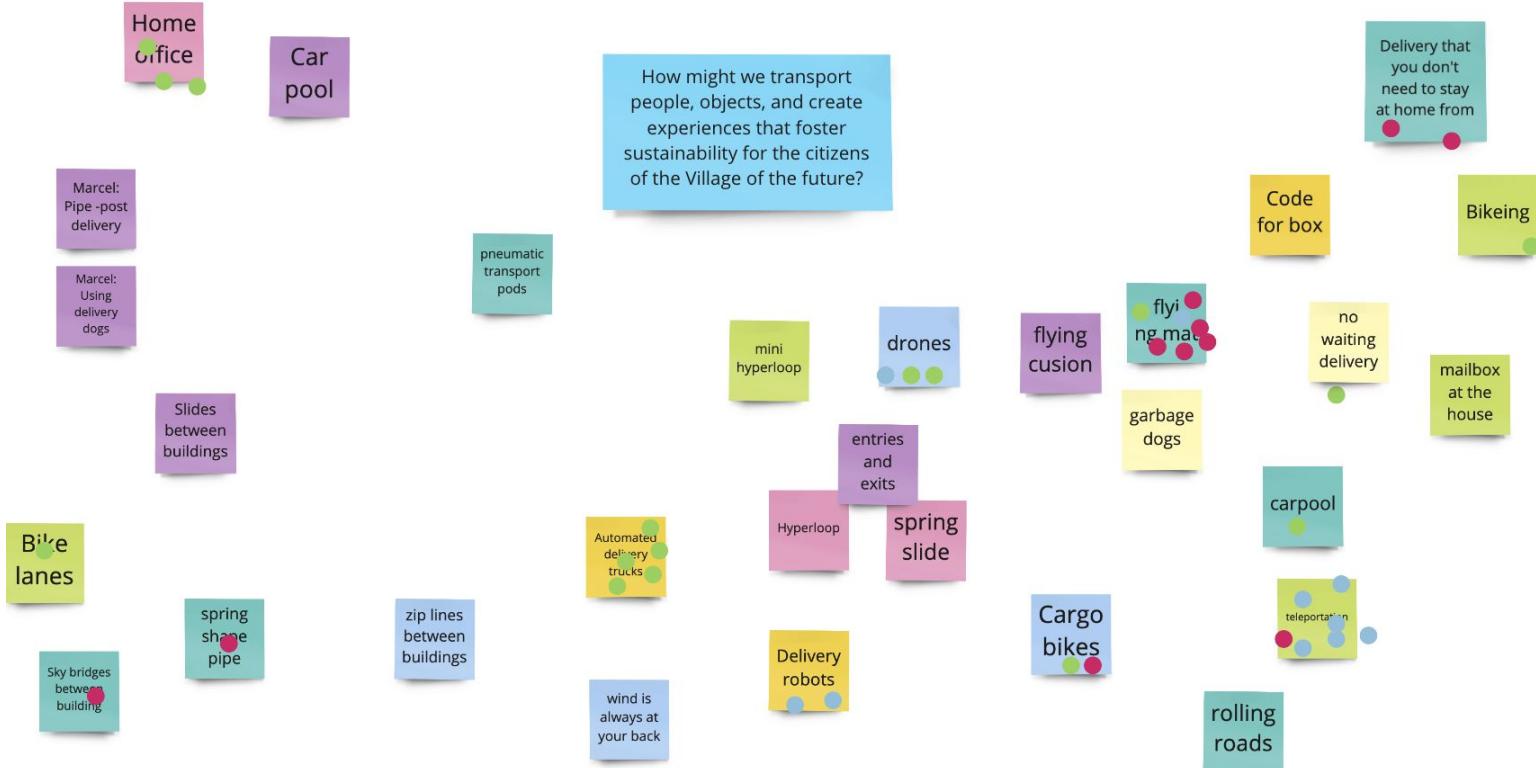
How might we?

*How might we transport people, objects,
and create experiences that foster
sustainability for the citizens of the Village of
the future?*

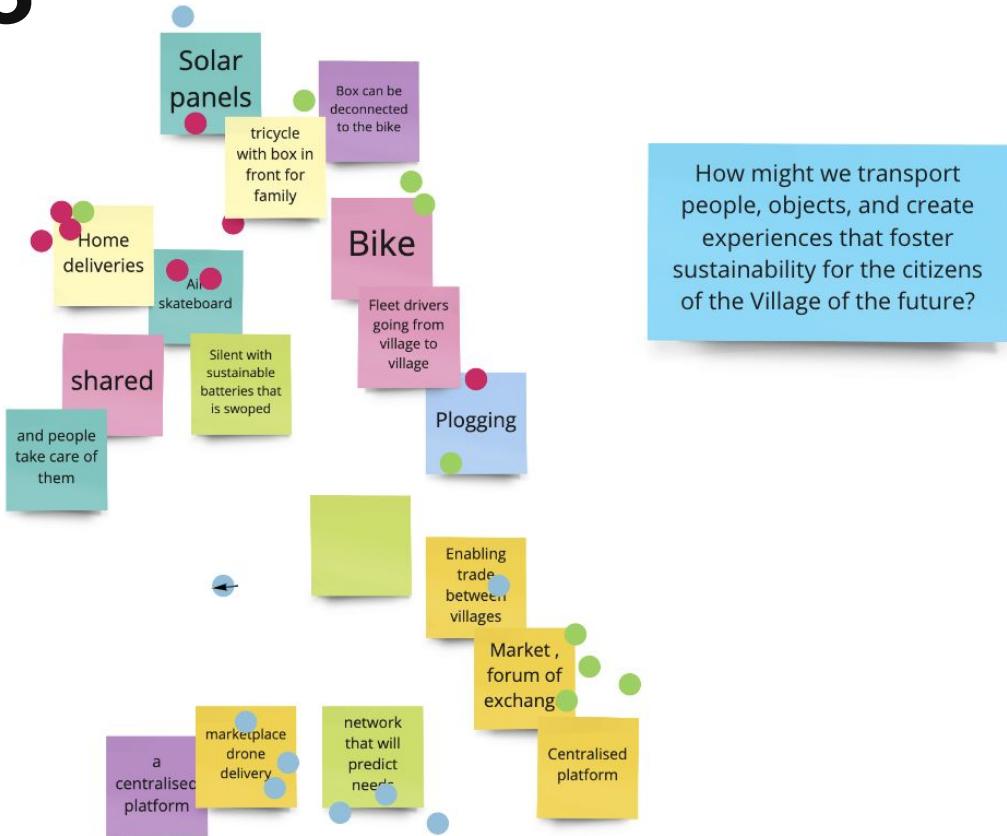
Results - Group 1

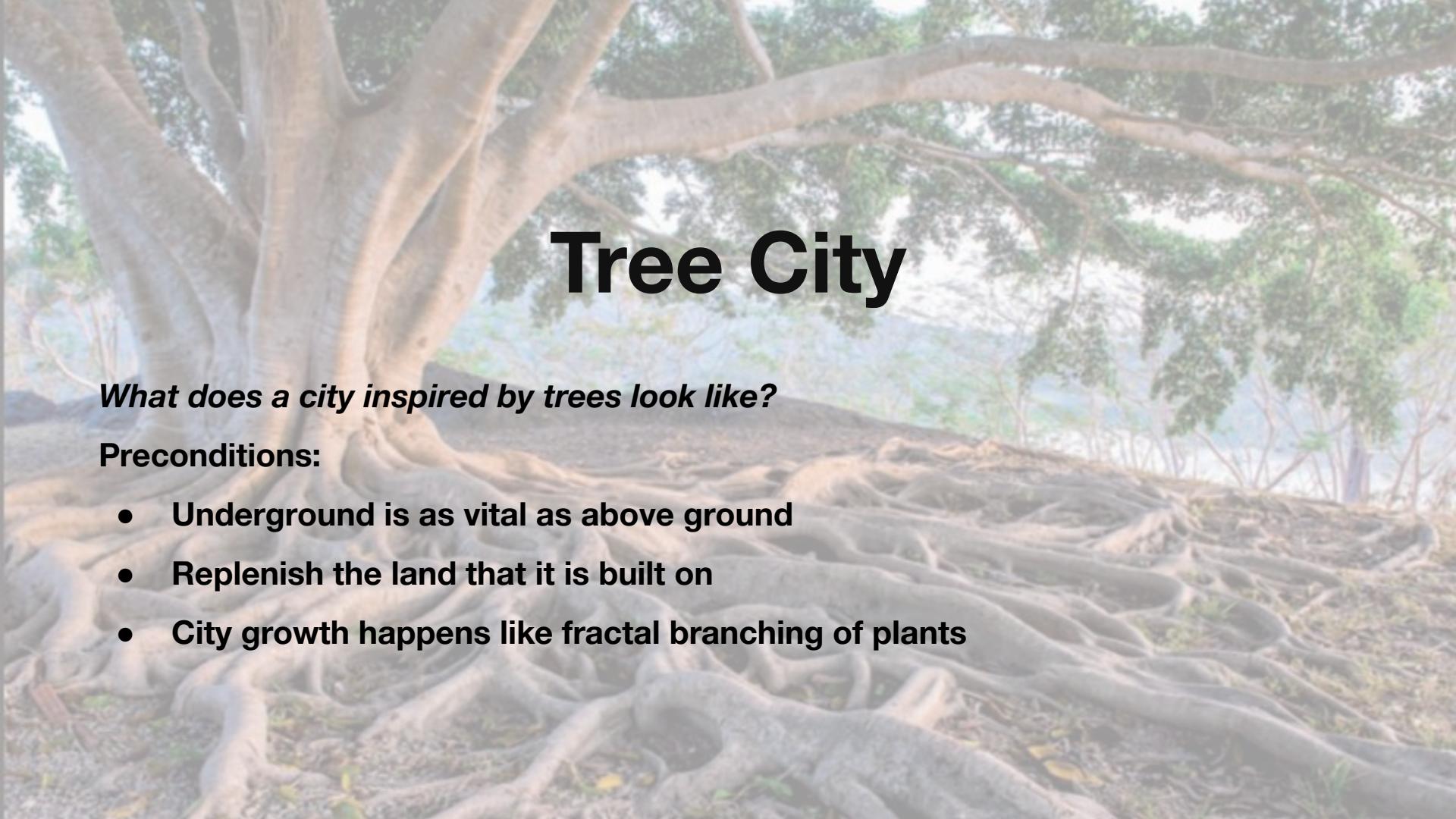


Results - Group 2



Results - Group 3



A large tree with many thick, gnarled roots exposed at the base, symbolizing a tree city.

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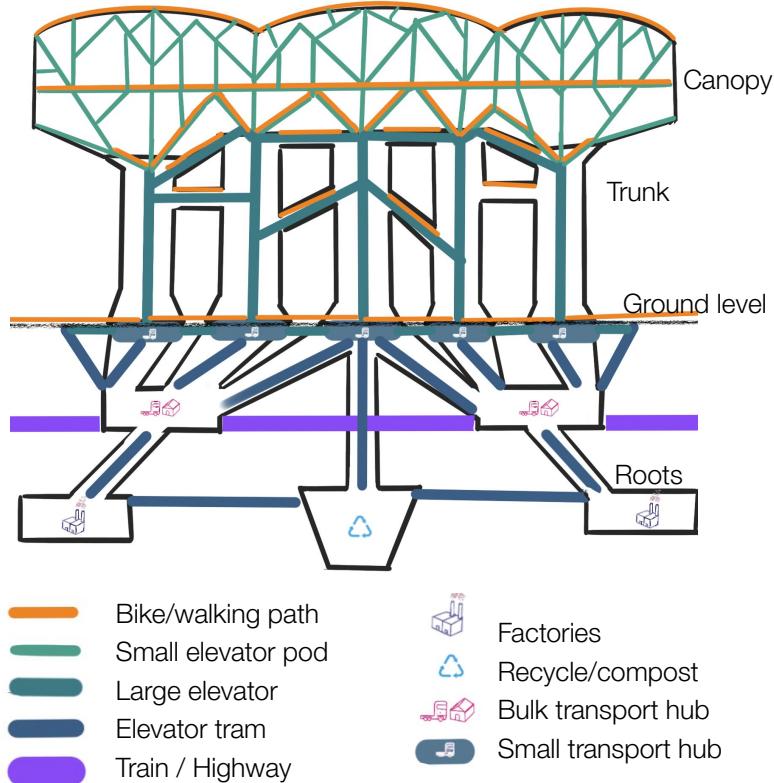
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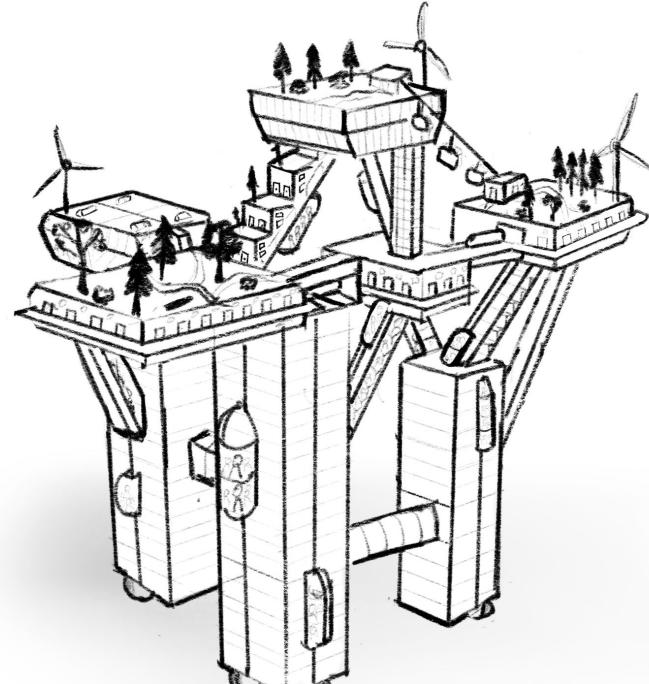
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TREE CITY

Transportation



Industry

Work

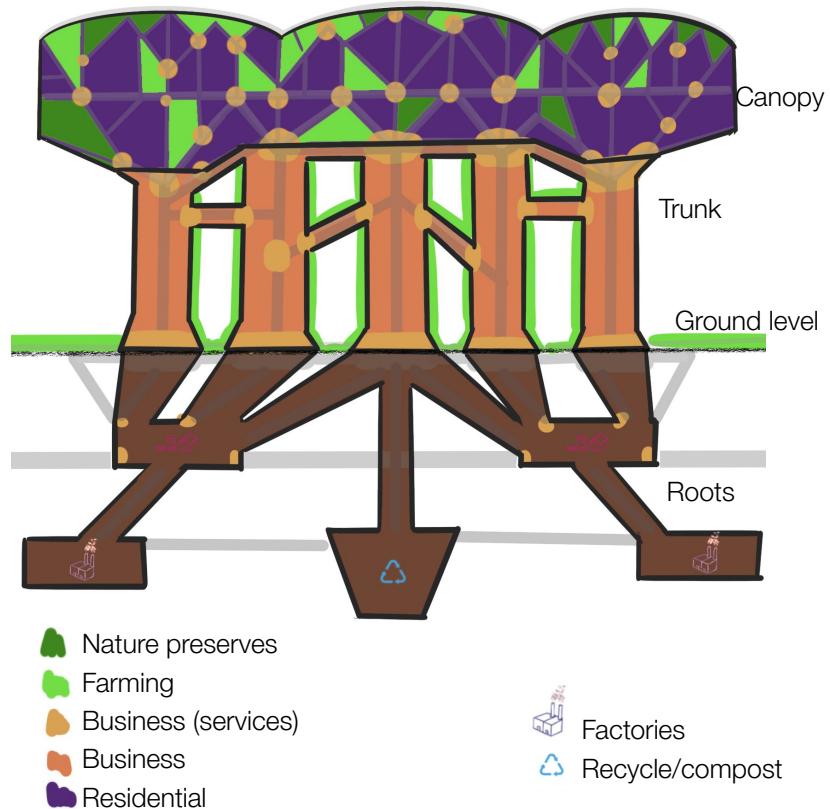
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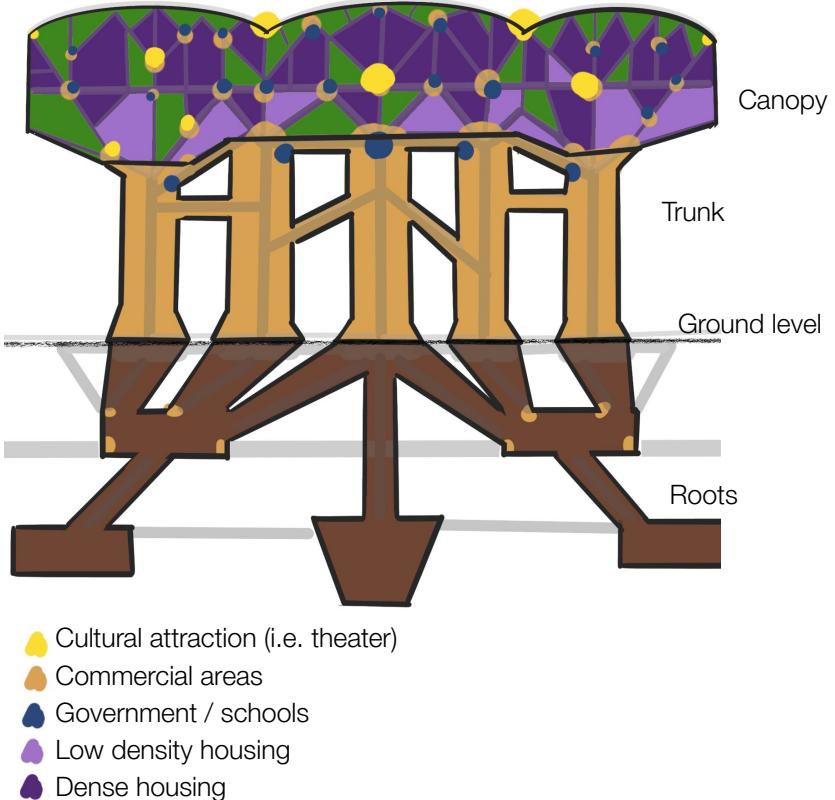
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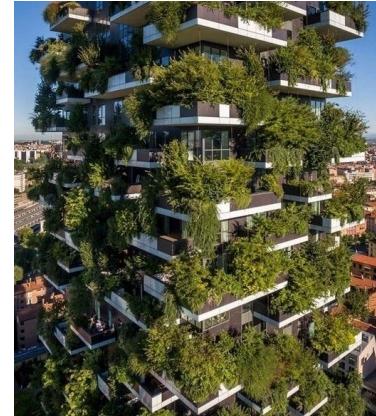
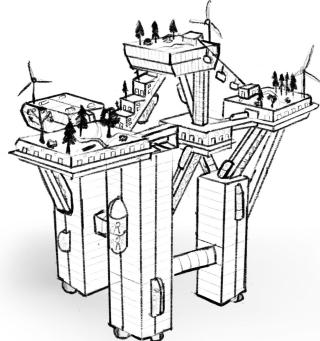
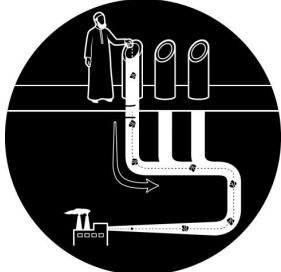
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- “Trunks” create downtown business districts



Sustainability

- Pathways in “canopy” are solar panels
- Wind turbines on “canopy”
- Compost replenishes surrounding land
- Rooftops and balconies creating nature
- Roots upcycle waste and materials



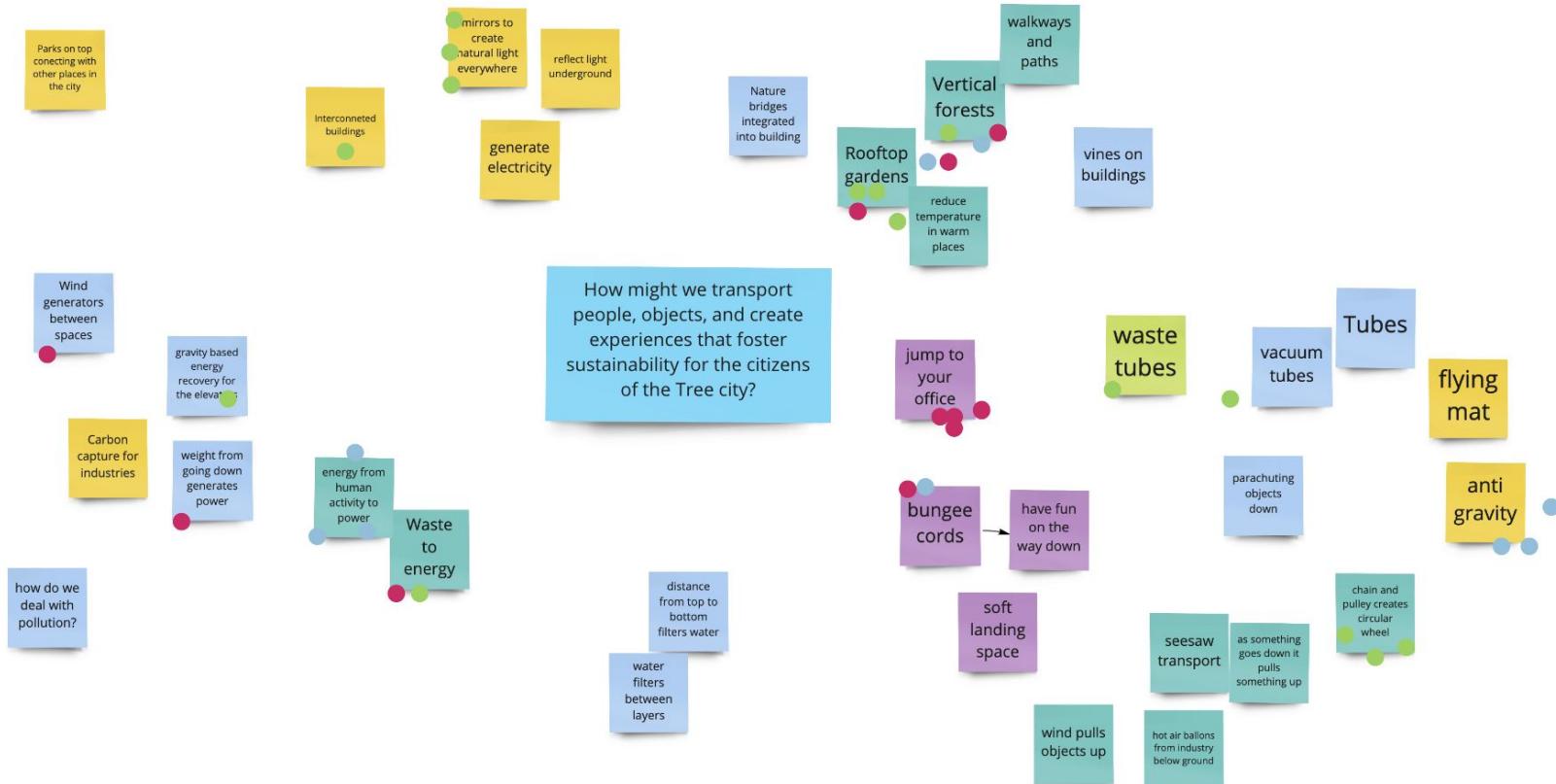
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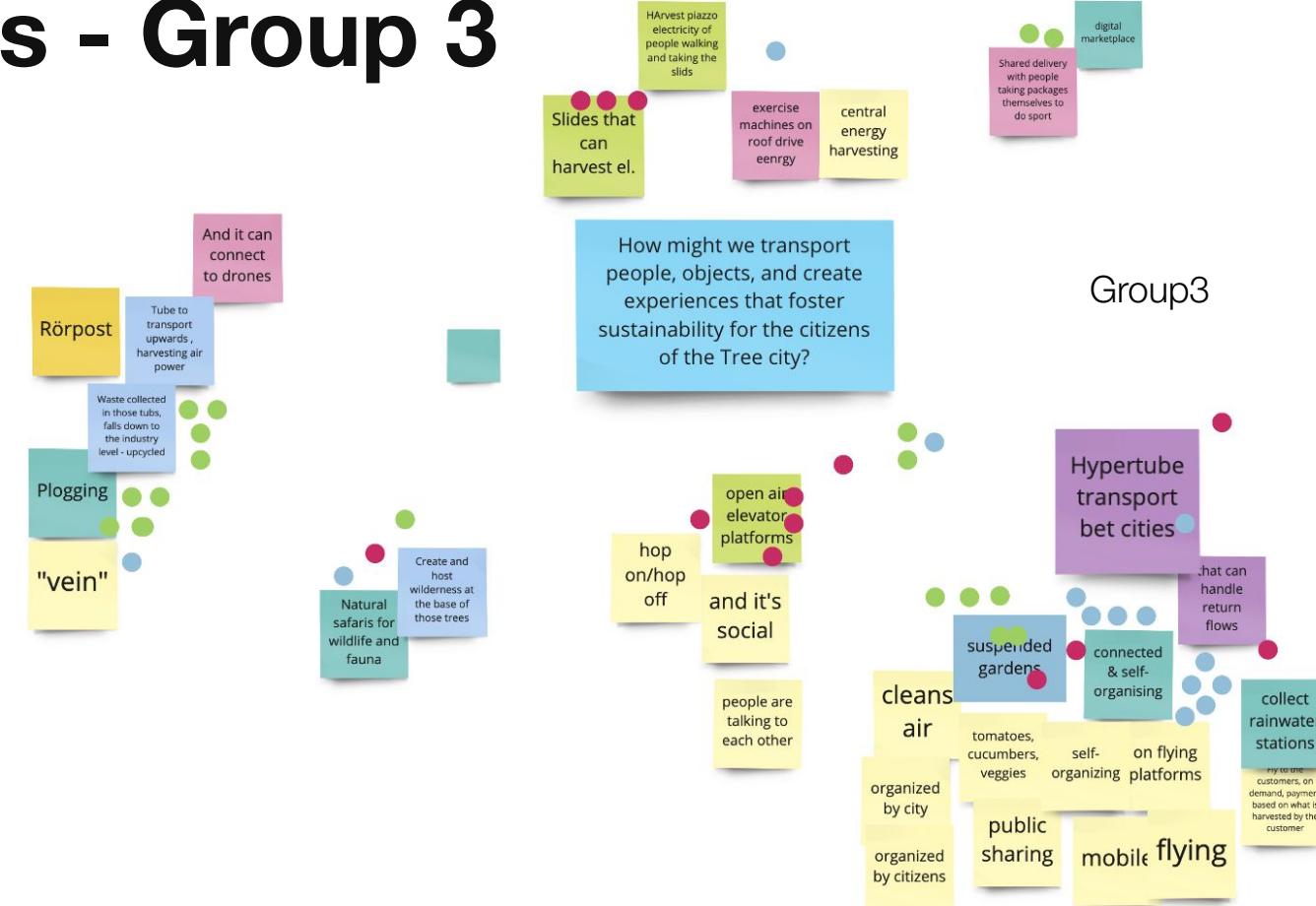
Results - Group 1



Results - Group 2



Results - Group 3



Workshop Post-Synthesis

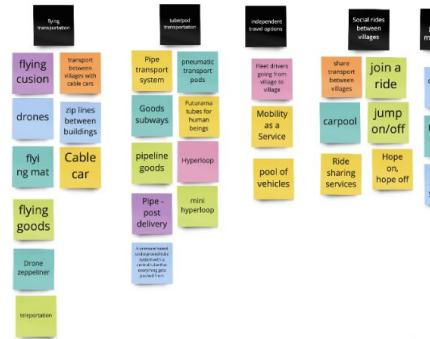
VILLAGE OF THE FUTURE - SYNTHESIS

Major Themes

- Transportation between villages
- No noise pollution from transportation in a village
- Clean green space between villages
- Enabling trade between villages
- Personalized couriers

Transportation between villages

Section summary: The group explored different modes of transportation with the City of Villages. Ideas include drones, tube and pod transport as well as extensive car sharing services. The essential theme was to further push mobility as a service.



No noise pollution from transportation in a village

Section summary: In the City of Villages, noise pollution is minimized wherever possible with bikes and electric vehicles. The design principles aim to keep the green space and peace of the village intact without surrounding the impact that has on people.



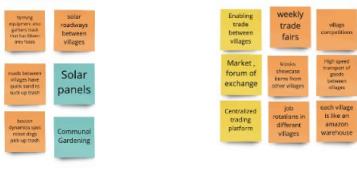
Clean green space between villages

Section summary: To maintain green spaces between villages, Sora team members came up with ideas of plugging in how we pick up trash and clean spaces. The central theme was to encourage recycling. Ideas include self cleaning roads, robust dust or trash collection systems, and recycling building waste and maintenance into infrastructure and production/recycling designs.



Enabling trade between villages

Section summary: The group converged around ideas of fostering events and promoting cross pollination. The idea borrows from the current idea of villages in cities - encouraging cross pollination between different villages to create a truly diverse and vibrant lifecycle.



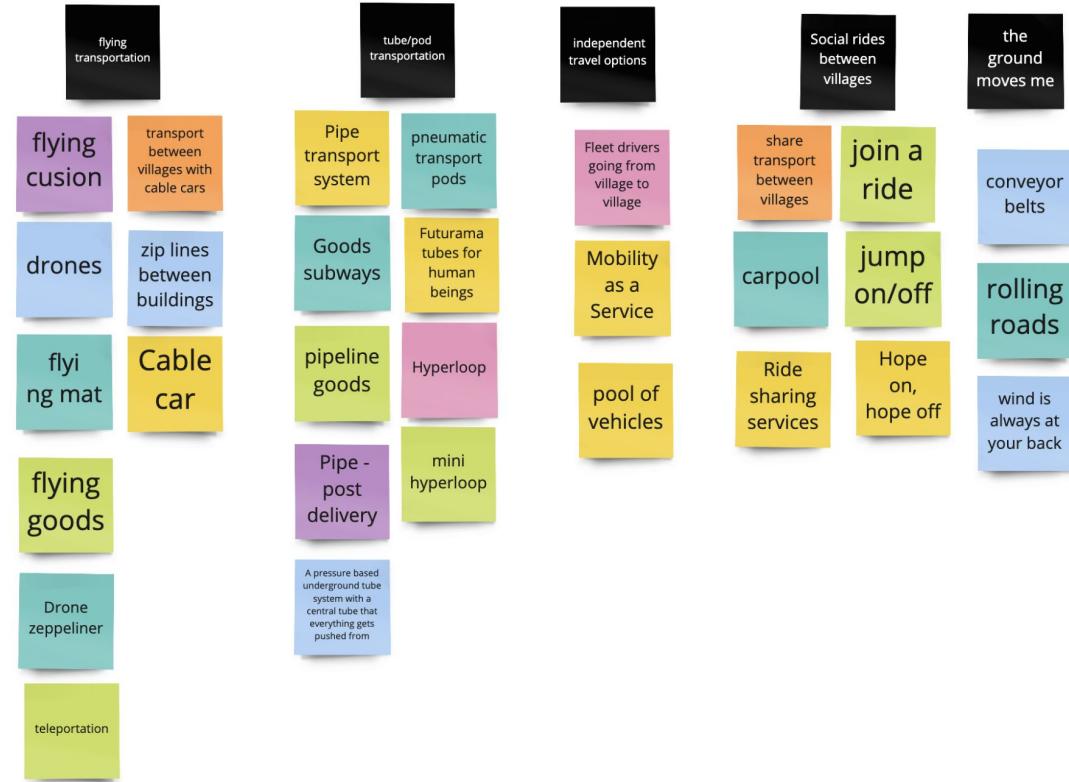
Personalized Couriers

Section summary: How can we rethink or improve upon the current state of delivery? Delivery of services and goods can be micro-positioned to the current footfall, wherever you are. Ideas include the idea of having delivery be an event that facilitates social cohesion. Neighbors can play a role.



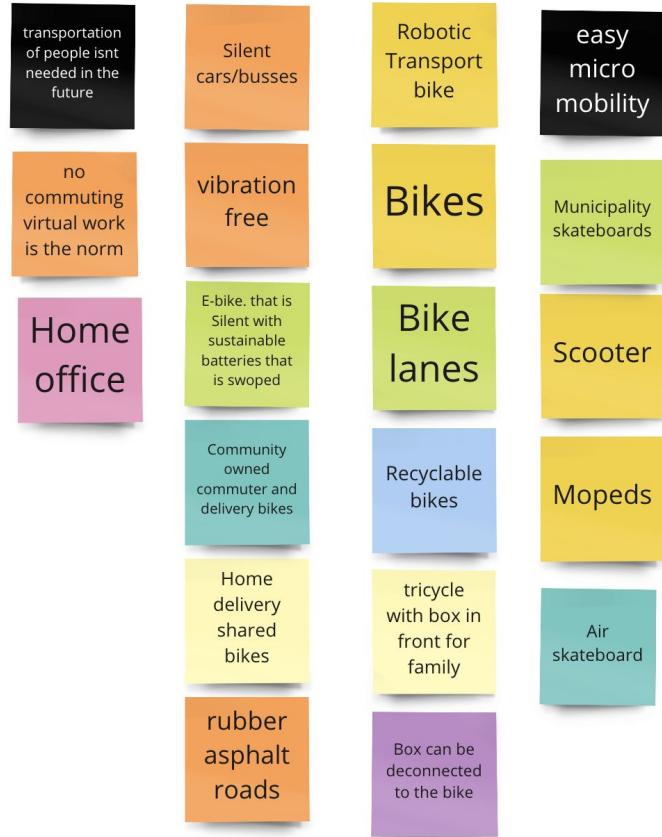
Transportation between villages

Section summary: The group explored different modes of transportation with the City of Villages. Ideas include drones, tube and pod transport as well as extensive car sharing services. The essence of this exploration is the further pushing of mobility as a service.



No noise pollution from transportation in a village

Section summary: In the City of Villages, noise pollution is minimized whenever possible with bikes and silent vehicles. This quiet allows citizens to enjoy the green space and peace of their villages. The design principle here is being mindful of the noise we bring into our surroundings and the impact that has on people.



Clean green space between villages

Section summary: To maintain green spaces between villages, Scania team members came up with ideas of plogging - how can we pick up trash and clean spaces while commuting or doing other activities? Specific ideas include self cleaning roads, robotic dogs or drones that pick up trash. The design principle being building waste and maintenance into infrastructure and product/service design.



Enabling trade between villages

Section summary: The group converged around ideas of fostering events that promoted trade between villages. The idea borrows from the current idea of villages in cities - encouraging cross pollination between different villages in a city to create a truly diverse and vivid cityscape.

Enabling
trade
between
villages

Market ,
forum of
exchange

Centralized
trading
platform

weekly
trade
fairs

kiosks
showcase
items from
other villages

job
rotations in
different
villages

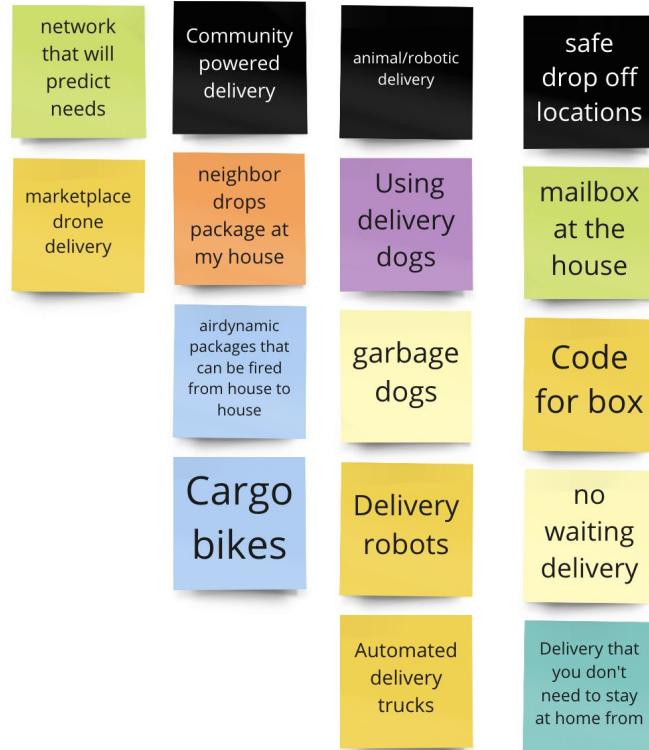
village
competitions

High speed
transport of
goods
between
villages

each village
is like an
amazon
warehouse

Personalized couriers

Section summary: How can we rethink or improve upon the current state of delivery? Delivery of services and goods can be micro-positioned directly to your doorstep, wherever you are. The group also explored the role of having delivery be an event that facilitates social cohesion. Neighbors can play a role.



TREE CITY - SYNTHESIS

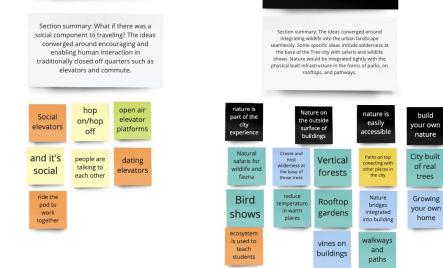
Major Themes

- Food Production Travels
- Tubes
- Harnessing Passive Energy
- A Fun Commute
- Traveling is a Social Experience
- Urban Wildlife

A fun commute



Traveling is a social experience



Urban Wildlife



Food Production Travels

Section summary: Imagine the idea of making the food production and delivery process more sustainable. Our group focused on a transitional model of food delivery that would reduce the amount of packaging that were made and on demand. Consumers would have to go to a local farm to get their food. This current trend of abandoning food production from our local farms.



Tubes

Section summary: What if there were tubes and管道 (tunnels) for transporting goods? This group focused on how to make the delivery system more efficient and how to move things down the line. They also discussed how to move things up the line.



Harnessing passive energy

Section summary: What might we take advantage of the climate and geography of the Tree City for energy harvesting? The group focused on how to harness energy from the wind, water, and sun. They also discussed how to reuse energy from one source to another.



A Fun Commute

Section Summary: How might we embed fun into the commuting experience? The group ideated around wild modes of transportation ranging from kangaroos to hoverboards and swimming on air. Utilizing the structure of the city, there is opportunity for gliding between buildings and bungee jumping downwards. Maybe we bring fun into our commuting vehicles and styles.



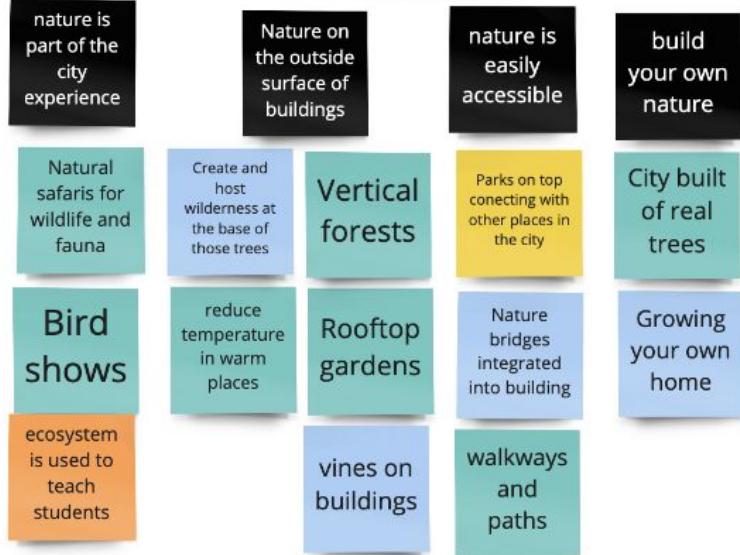
Traveling is a social experience

What if there was a social component to traveling? The ideas converged around encouraging and enabling human interaction in traditionally closed off quarters such as elevators and commute.



Urban Wildlife

Section summary: The ideas converged around integrating wildlife into the urban landscape seamlessly. Some specific ideas include wilderness at the base of the Tree city with safaris and wildlife shows. Nature would be integrated tightly with the physical built infrastructure in the forms of parks, on rooftops, and pathways.



Food Production Travels

Section summary: Imagine the idea of having the food production unit come to you instead of the food itself. Our group flipped the traditional model of food delivery with ideas such as gardens on flying platforms that were mobile and on demand. Consumers would harvest what they wanted to eat, totally reversing the current trend of abstracting food production from our daily lives.



Tubes

Section summary: What if there was more extensive and planned tube system in a city? What opportunities does that present? The group converged around the idea of having a direct home to centralized waste facility enabled by a tube system. Imagine disposing trash in your home and having it sorted at the source and sent to a facility where it is processed. There were also ideas that pushed the idea of using tubes for delivering goods to transporting people between cities.



Harnessing Passive Energy

Section summary: How might we take advantage of the structure and organization of the Tree City for energy harvesting? The group identified a myriad of avenues to harvest energy in the Tree City. Examples include using the potential energy enabled by the vertical nature of the city to filter water and move waste and goods. Other ideas include utilizing the waste heat and energy from the industry below ground to generate hot air balloons that carry goods to the canopy layer.

