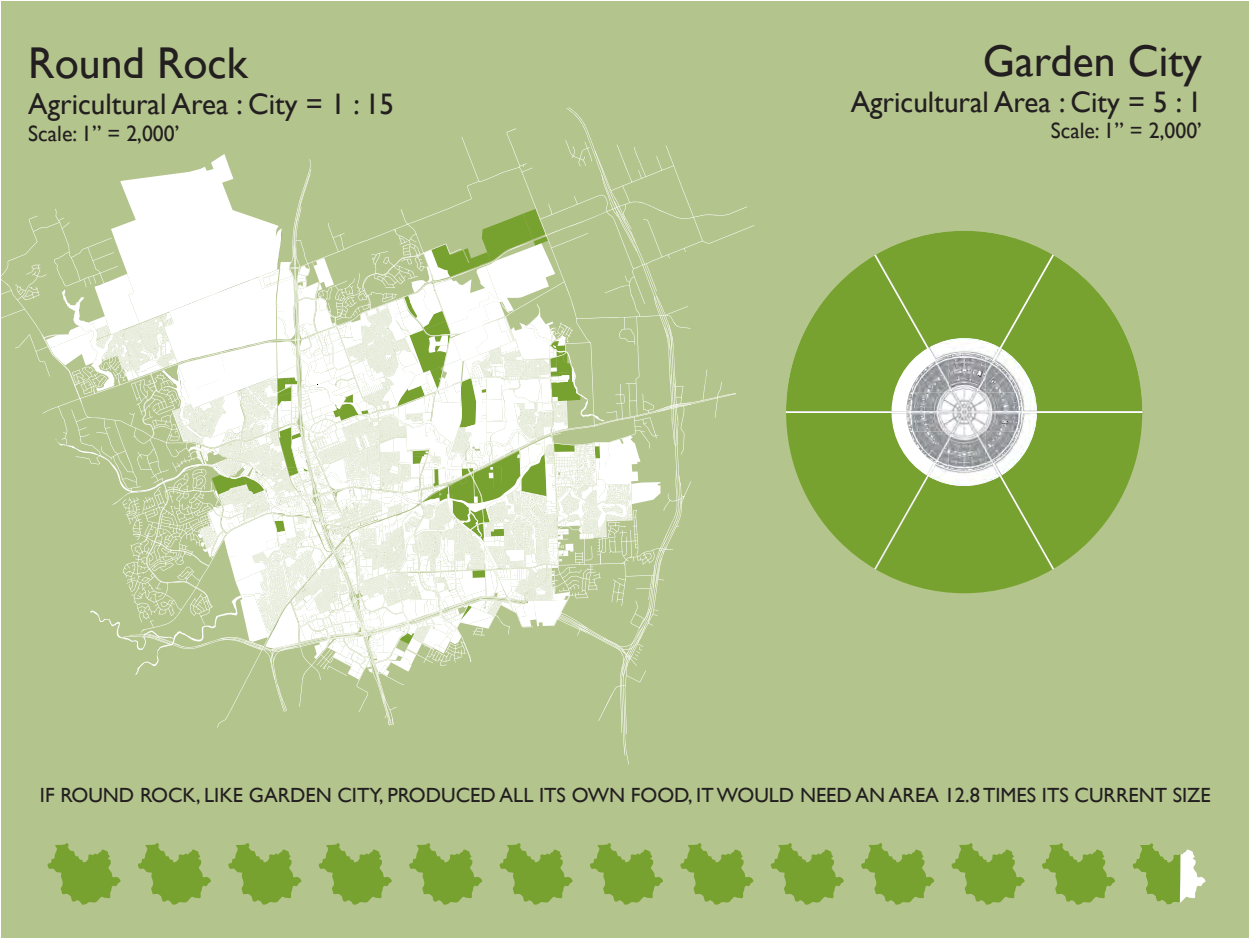


Re-Imagining Round Rock

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& Erica Wannemacher

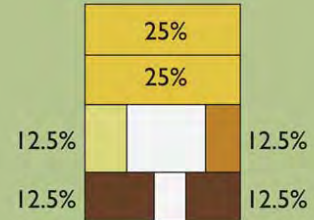
In 2009 Round Rock, Texas, was the second fastest growing city in the United States, in large part due to the Dell Corporation Headquarters site just south of town. This project critiques the status quo - sprawling suburban company town - and aims to re-imagine the city of Round Rock as a denser, more diversified urban proposition through reclaiming the wasted space of the suburban lawn and leveraging the variety and fertility of the city's current soil types.

The project began with an analysis of Ebenezer Howard's 1901 Garden City plan. While we recognize Howard's entirely self-sustaining city proposal to be an unreachable ideal, we sought to apply his understanding of productive added value feedback loops within the city structure to Round Rock. We argue that farming the fertile suburban lawns of the city could not only provide some portion of the city's food, but also diversify the city's Dell-subsistent economy while simultaneously creating more community-oriented productive public space.



Single Family Housing Community Land Use Protocols

To implement the new suburban agriculture of Round Rock we designed a series of land use protocols based on soil class, primary crop type, and single family housing lot arrangement. These protocols aim to maximize tractor pattern efficiency in plowing crops, as well as provide flexibility, multiple use options, and financial incentives for individual land owners.



SUGGESTED LAND USE ARRANGEMENT

- 1) CULTIVATE, AT A MINIMUM, 25% OF THE OPEN SPACE OF YOUR LOT.
- 2) THE FIRST CULTIVATED PERCENTAGE SHOULD BE ALONG THE SHORT SIDE OF YOUR LOT THAT IS NOT ADJACENT TO THE STREET.
- 3) THE CULTIVATED SWATH SHOULD HAVE A MINIMUM WIDTH OF 15'.

CROP RECOMMENDATIONS:

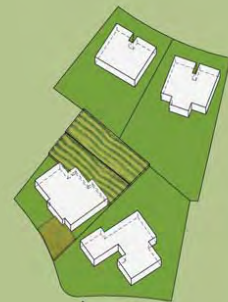
- 1) THE FIRST AND SECOND 25% INCREMENT OF YOUR LOT CULTIVATED SHOULD BE THE HIGHEST YIELD CROP FOR YOUR SOIL TYPE.
- 2) THE FIRST TWO 25% INCREMENTS IN CULTIVATION SHOULD BE PLOWABLE CROPS CONSISTENT WITH YOUR SOIL TYPE CAPACITY.
- 3) CROP RECOMMENDATION 1 DOES NOT APPLY IF THE PRIMARY CROP IS PECANS, AS THEY ARE NOT A PLOWABLE CROP.
- 4) YOU MAY CHOOSE ANY CROP CONSISTENT WITH YOUR SOIL TYPE FOR THE FINAL 50% OF OPEN LOT SPACE.

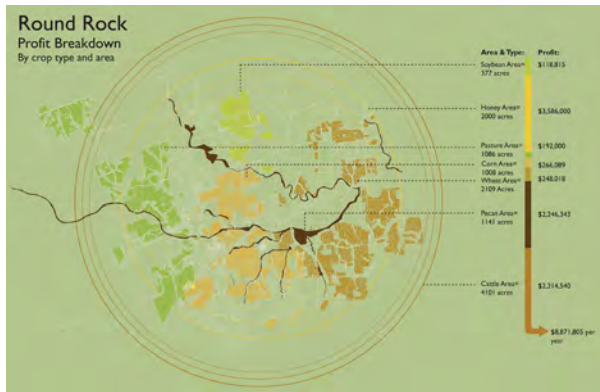
ADJACENCY RECOMMENDATIONS:

- 1) THE SECOND 25% INCREMENT IN CULTIVATION SHOULD MAXIMIZE ADJACENCY WITH ALREADY PLANTED CROPS.
- 2) THE SECOND 50% OF CULTIVATION MAY BE LOCATED ON LOT AT YOUR DISCRETION.

PROFIT SHARING STRUCTURE:

- 1) 50% OF PROFIT WILL GO TOWARD FUTURE INVESTMENT.
- 2) 50% OF PROFIT IS KEPT BY THE LAND OWNER.

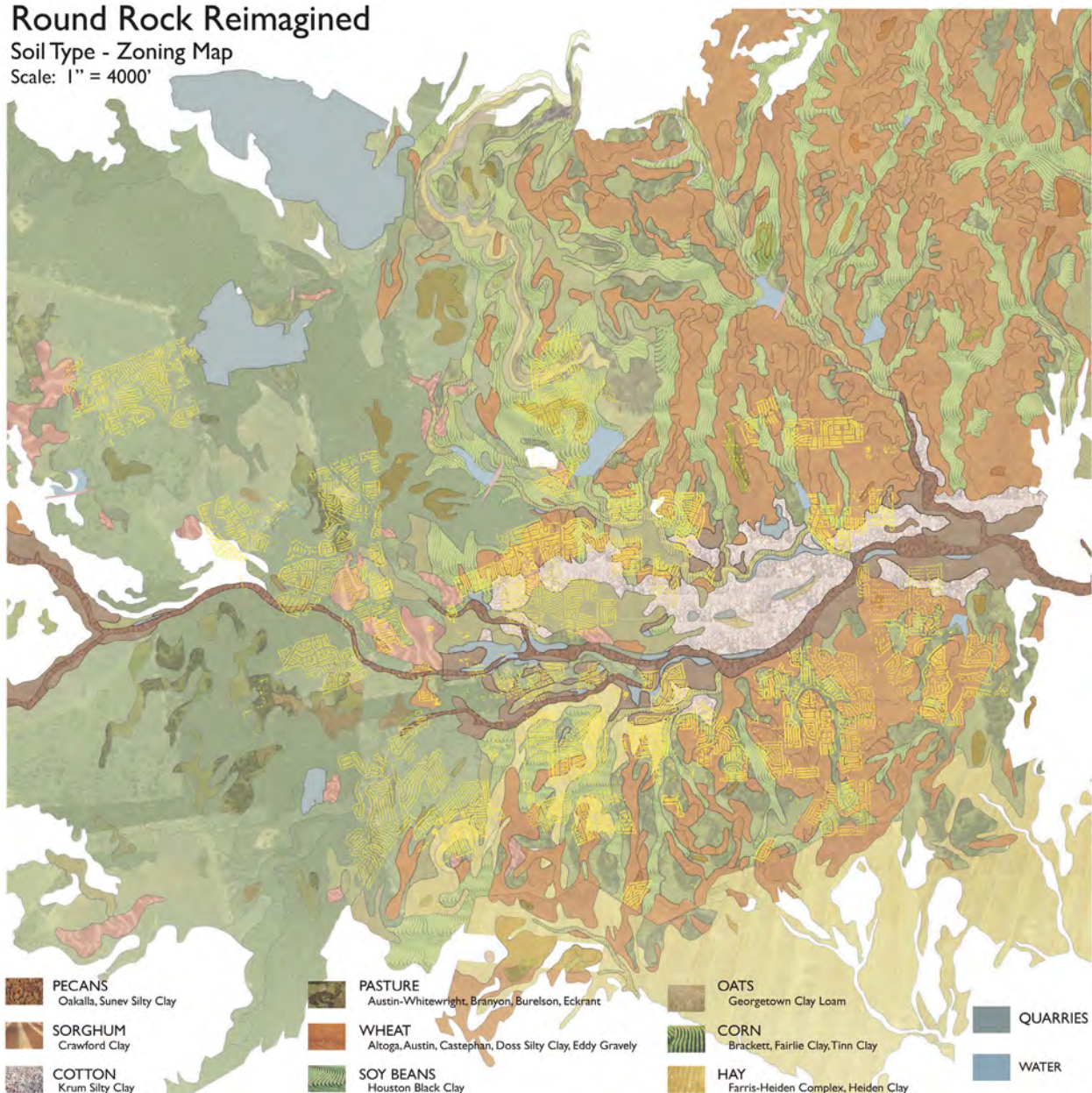


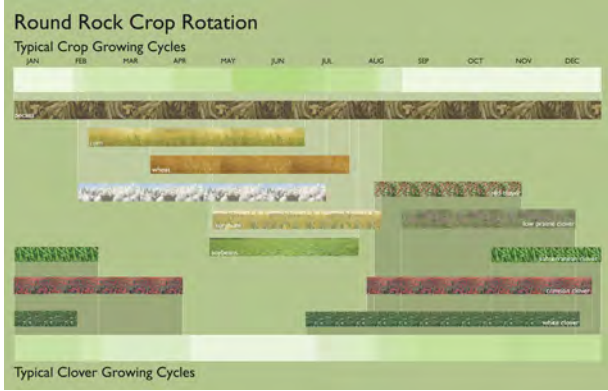


This project aimed to diversify Round Rock's Dell-dependent economy. We performed detailed budget analyses based on soil type and primary crop location, and from these calculations found that reclaiming the suburban lawn as productive space for Round Rock would add almost nine million dollars to Round Rock's annual economy.

Round Rock Reimagined

Soil Type - Zoning Map
Scale: 1" = 4000'



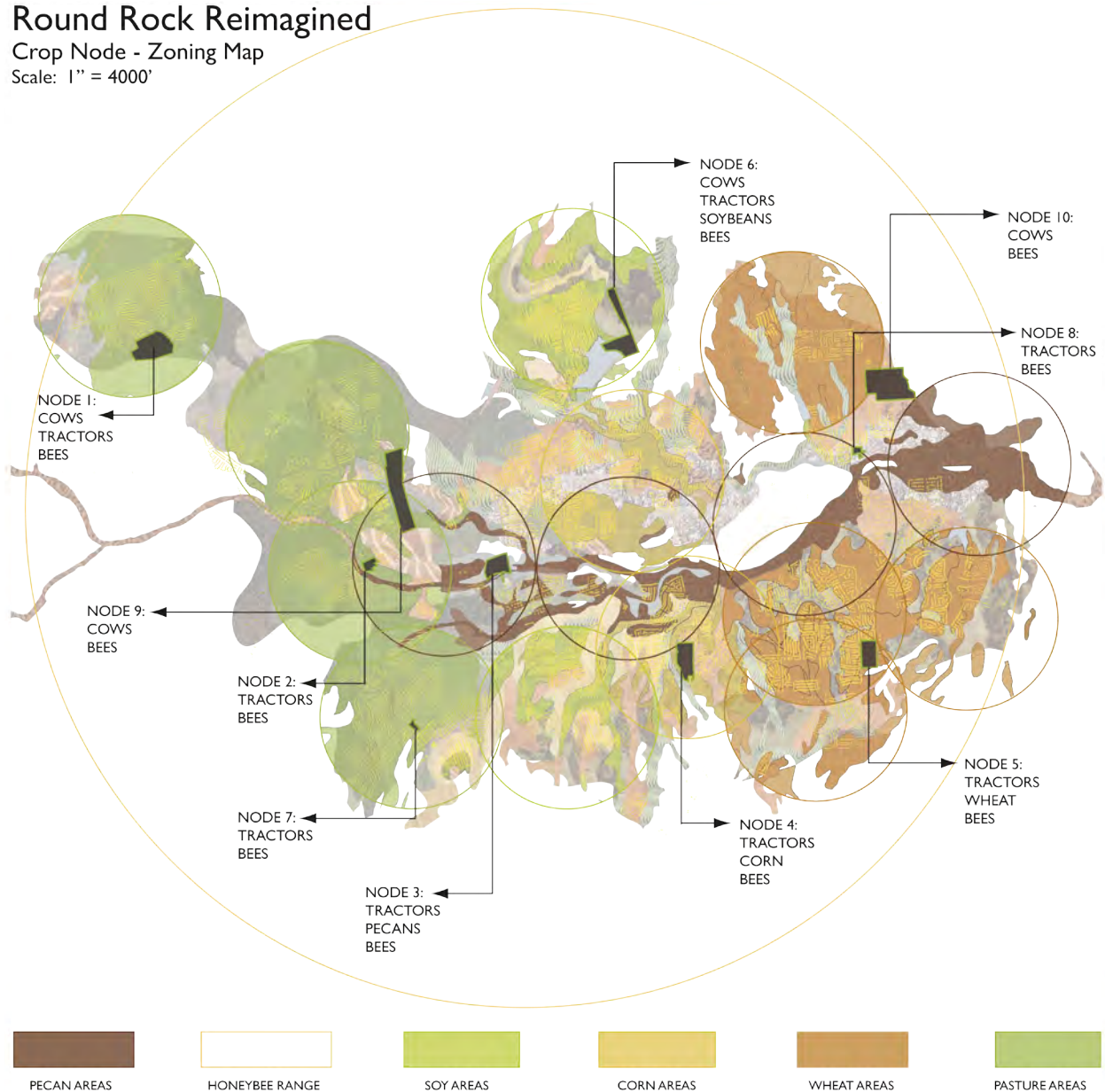


In order to maximize economic growth, crop yield, and land use efficiency, we charted the typical growing seeds of local crops. We found that a winter planting of nitrogen-fixing clover would replenish nutrients in the soil and open potentials for beekeeping and dairy cow grazing.

To support the new agricultural economy, we located a number of crop infrastructure nodes on vacant parcels throughout the city at areas of highest crop concentration.

Round Rock Reimagined

Crop Node - Zoning Map
Scale: 1" = 4000'



Crop Infrastructure Node

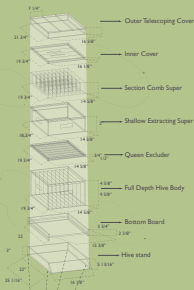
Building Diagram: Tower + Base

TOWER

- Functions:
- 30m tall tower for bee accessibility
 - Houses 9,000 beehives (maximum) for beekeeping functions
 - 10'x10' core for dumping and filtering of unprocessed raw honey
 - Grain storage silos centrally located within tower for cattle feed
 - 8'x6' human elevator

Box Hives Area

- 9 ft² of space needed for each hive
- Total Hives per tower = $80,000 \text{ ft}^2 / 9 \text{ ft}^2 = 9,000$ per tower max



Perforated metal mesh walls to allow bees access in and out of building

Max. bee flying height

30m

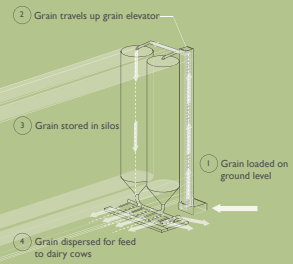
Honey Processing Area Requirements:

- 10x10 tower for dumping cultivated honey
- 2 Filtering Tanks

Honey sent to filtering tanks from 12 floors

Grain Storage & Elevator:

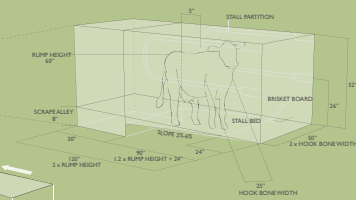
- Volume of Silos = 56,250 ft³ each (x 3)
- Each silo holds 19 days of feed, or 55 days total



TRACTOR & COW STORAGE

- Functions:
- Houses 600+ dairy cows
 - Automated milking area for 100+ cows & milk storage facilities
 - Storage for 7 tractors
 - 6% sloped ramps required for cattle accessibility

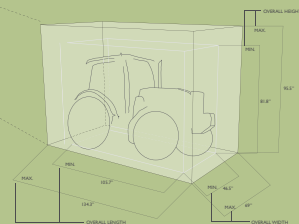
Total Dairy Cow Stalls = 650
Stalls house cows and integrate systems for more effective waste remediation



Ramp slope = 6% maximum for cow access in and out

Tractor turning radius = 9.8

Total Tractor Storage Spaces = 7
Tractor storage areas are based on overall dimensions and turning radius



Tractor Protocols

- Turning radius of 9.8'
- Speed = X miles per hour in 1 minute
- Storage spaces needed: 7 for x 42 area of plowable land
- Width of tractor path = 7'-10" (varies based on type of crop and attachment)

As Round Rock continues to grow, we found that appropriating the space of the suburban lawn for a new agricultural economy creates added value resources loops in the city for both local food production and cash crop distribution. In addition to economic gain, the repatterning of Round Rock based on soil type, land use, and tractor protocols, as well as new crop production infrastructure, produces new types of community public space for the residential neighborhoods of the city.

