slide title

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Re-title the slide and the section above


UrbForM
Urban Forest Management

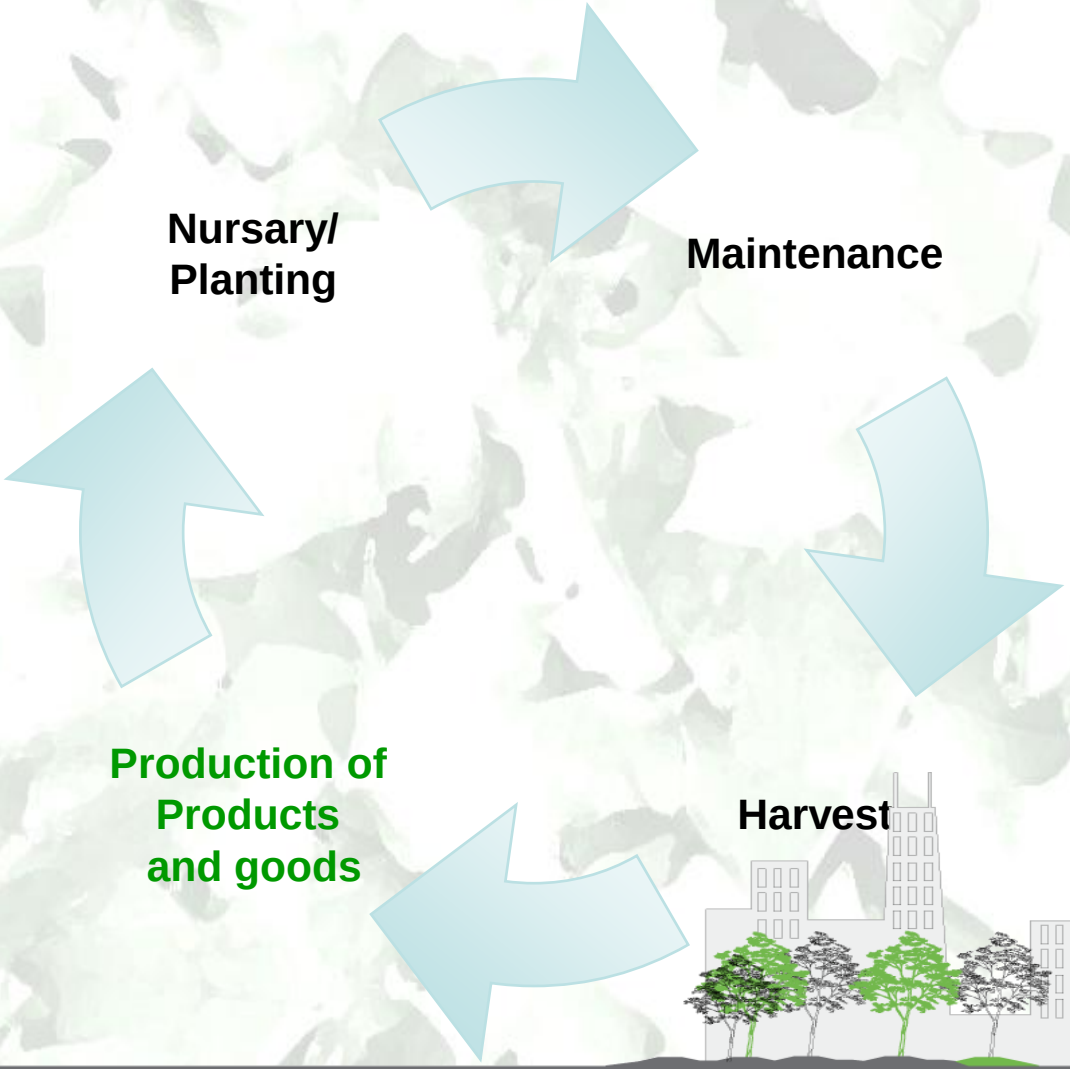
Purpose

UrbForM creates a comprehensive business model for the management of urban forests with a focus on environmental integrity, community enhancement and job opportunities.

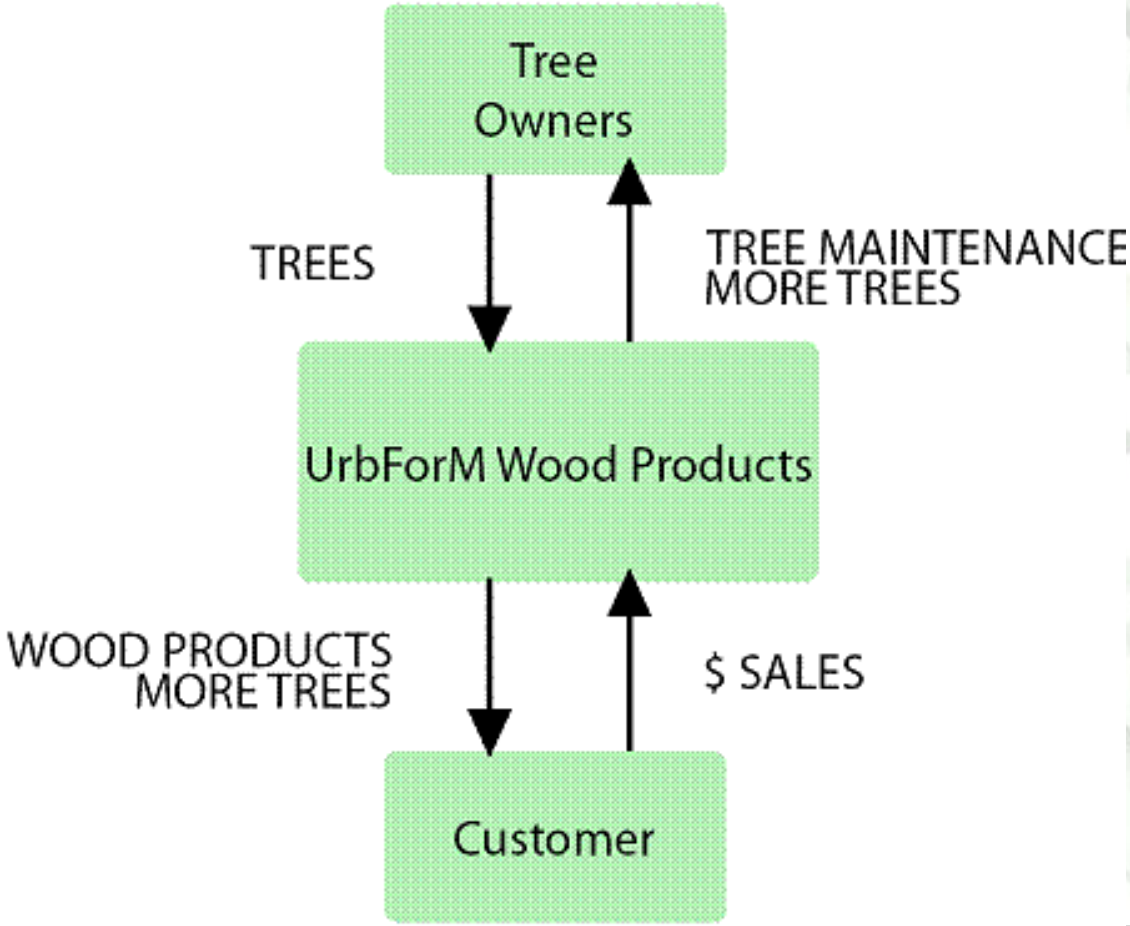
Primary Functions

- Enhances the urban tree canopy
- Creates job opportunities
- Reduce city-wide expenses
- Promotes urban aesthetics
- Promotes higher tree maintenance
- Augments urban environmental conditions
- Plants maintain and harvests forests

Why is it better than pre-existing condition?



Simplified Business Model



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Business Model

Fast facts

- Only 68 cubic feet of wood per acre per year comprises a commercial woodlot
- Per 100,000 seedlings produced in a forest, only 50 reach maturity
- 25% of US tree canopy are in developed areas
- The growth rate of a properly maintained tree is 40% greater than unmanaged

What is wrong with current operations

- The **departments** responsible for urban trees **do not have forestry agenda**
- **Parks and Recreation** is about **providing open space** and playgrounds, **Streets and Sanitation** are about **utilities, pavement, and garbage.**

What is wrong with current operations

- these **agendas** are often promoting **fewer rather than more trees**
- the **parks** department is **not maintaining** a quality canopy, and **Streets and Sanitation** is **not maintaining** street trees

What are Current Operations

Current Citywide operations maintain 20% of canopy

- **500,000 trees total** in city streets.
- **10,000 street trees removed and replaced** each year from city by streets and sanitation which is **2% of total cover**
- **9,420,000 board feet** of wood Ground up into chips each year.
- **117 city employees** (Division of Forestry) to do this task.
- **$1,170,000 paid** each year in salaries

What is the potential

- **$12,436,200** of Potential Profit each year through sawn wood, firewood, and chips/mulch.
- City currently makes **$176,000** each year

Module Definition

- **125 people** would create revenue of **$100,000** each year.
- **23 Modules** in the city with **5 employees each**.
- A **main warehouse** would have **7 employees**.
- **6087 acres** for each **module**.

3 Responsibilities

- **Harvesting** of trees and converting them into viable products
- **Maintenance** of trees in zone
- **Planting** of new trees and transplanting from tree farms

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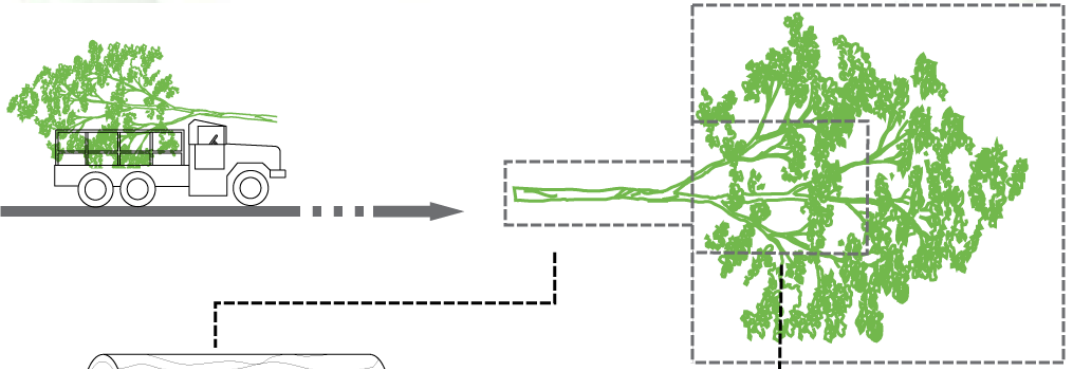
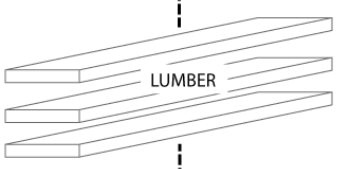
Urban Sawmill

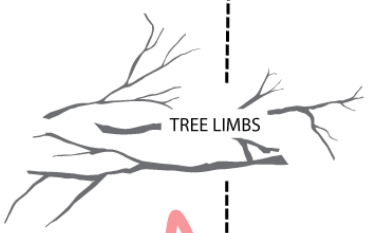
Harvesting

The anatomy and end-products of a tree

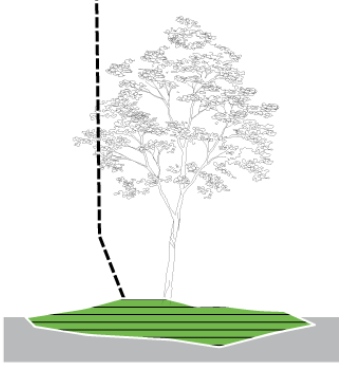




FURNITURE:
HARD WOOD PRODUCTS



FIRE WOOD



MULTCH.
FOR PLANTED TREES

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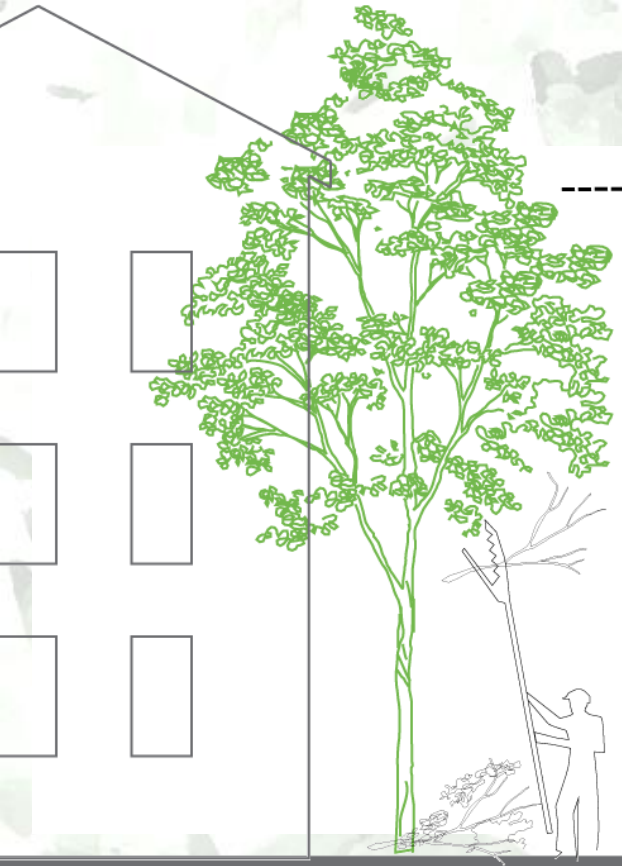
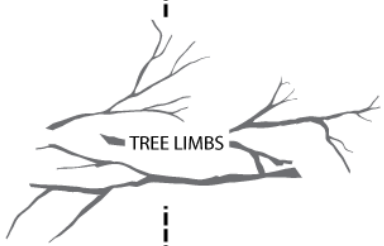
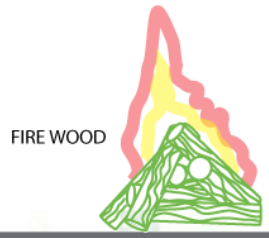
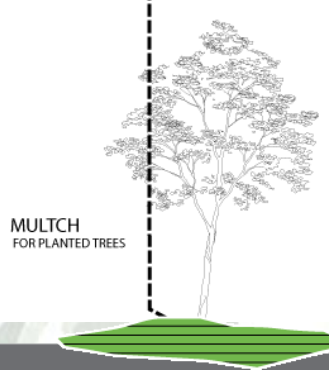
Pruning and Maintenance

The overall health and beauty of the trees will be the responsibility of the each module. A Healthier tree gives a better yield to the harvester as well as improves the quality of the urban tree canopy.









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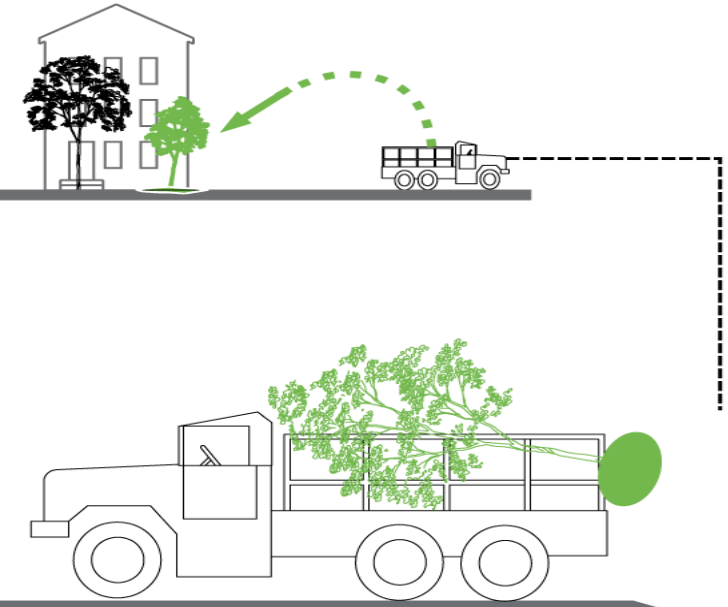
Urban Sawmill

Tree Planting

Tree farms are set up in abandoned lots to supply the foresters with a resource of new trees.
The trees are grown to a proper size and then transplanted into to the city.
This process cycle allows for expansion of the urban canopy and increase of potential product for harvesting



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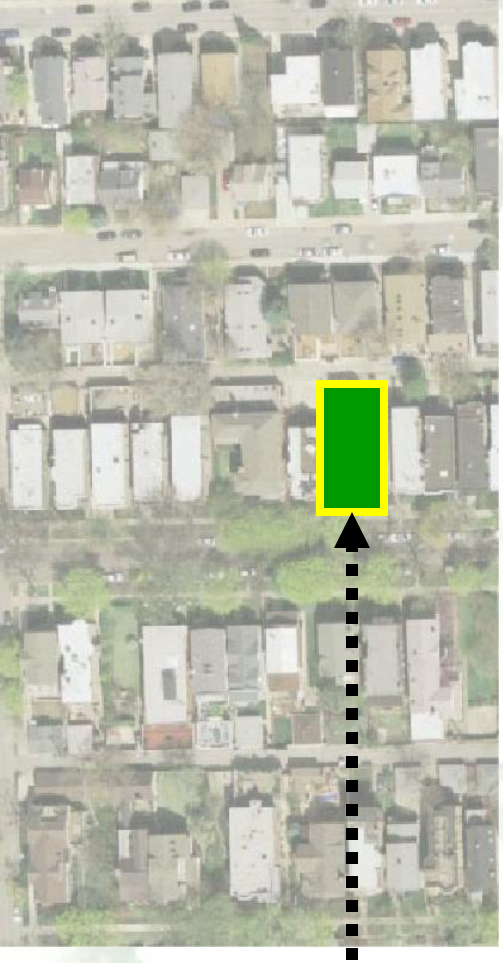
The Mill Module:

Space Requirements



Operational Space Required:

Wood storage uncut	=2500 square ft
Wood storage milled	=900 square ft
Kilns	=900 square ft
Sawmill	=270 square ft
Fork truck	=38 square ft
Truck dual axel	=180 square ft
Truck with Flatbed	=270 square ft
Office	=500 square ft
Equipment storage	=900 square ft

Total Area Need
6458 square feet

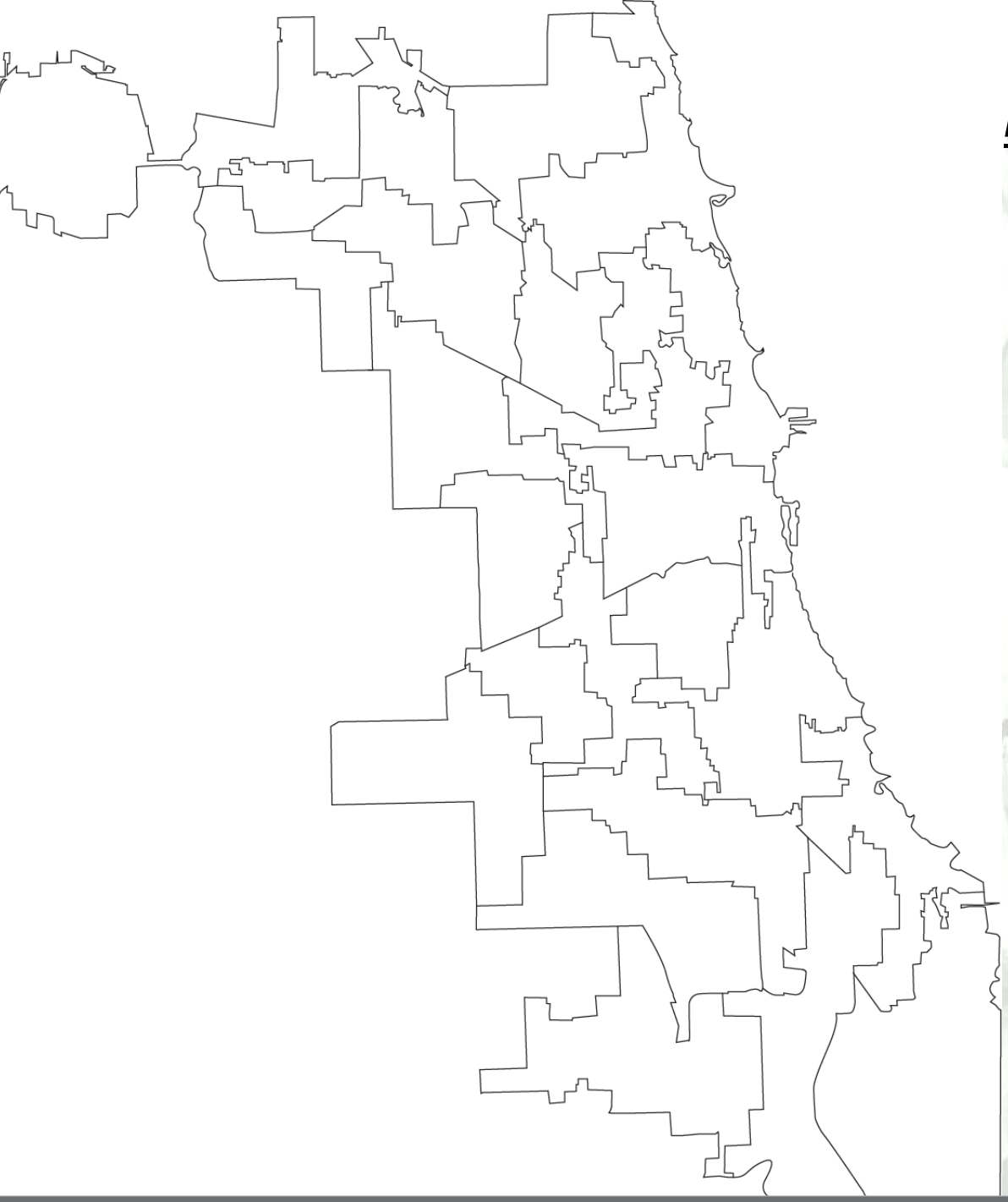
A SAWMILL OF THIS SCALE would only require square footage equal to that of a typical **CHICAGO DOUBLE LOT.**

START-UP COST

Initial Investment $278,000

Income Per Module Annually $540,000

Projected Income Per Employee $38,000



Module Mapping

Scope

City of Chicago

How much acres per module?

6087

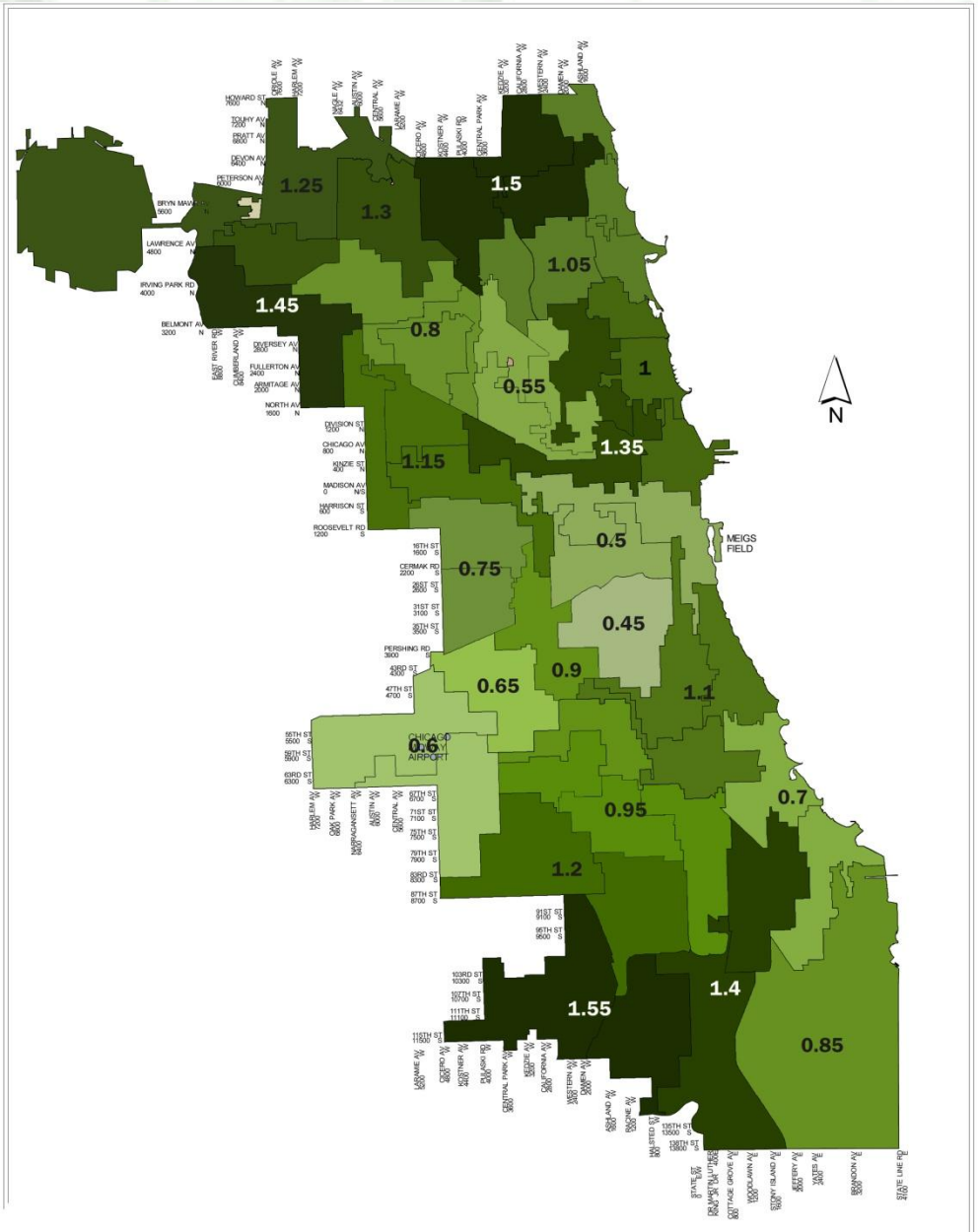
How to divide?

2 or 3 wards are combined.

How many Modules?

23

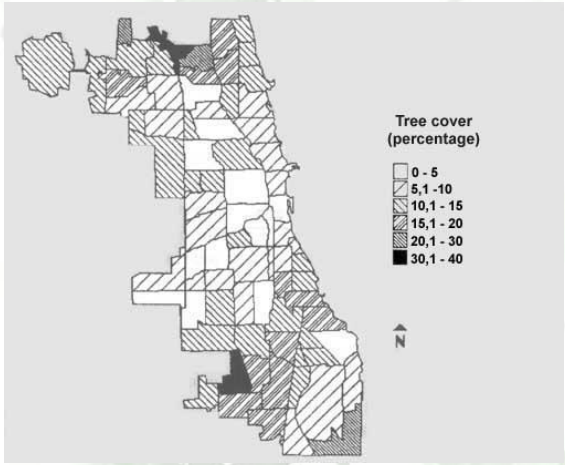
R-factor (Revenue Factor)



R-factor

is based on

Tree coverage rate.



R-factor(Tree coverage) **1** is

- 10~15 % Tree coverage
- 435 trees/year are removed on 6087arces.
- $540626 revenue can be earned.

(Average Module Definition Value)

Sample Development

Before

R-factor - 1.1 (435 x 1.1= 478.5 trees)

Revenue = (540626.09) x (1.1)

= **594,688** $

After

R-factor – 1.7 (435 x 1.7 = 739.5 trees)

Revenue = (540,626.09) x (1.7)

= **919,064** $

Sample Development

Site – State St. / 52th

Illinois vs Chicago Urban Forest

Urban Trees	Urban tree cover (%)	Portion of state tree cover (%)	Urban Area (km2)	Portion of state that is Urban (%)	Compensatory value (millions $)
155,544,000	33.7	5.5	9,165	6.1	98,310

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Market Research

Unit Land Area Chart

Domestic value of woods

$6.3 billion*

Number of modules to create

23

Cost per module ($1.40/board feet)

$573,391.30

Value of woods (in Chicago)

$38 million

Number of Board Feet per Module

409,565.21

Revenue generated per module

$540,626.09

U.S. Wood Products

Imports
(in Millions $)

- NAFTA: 8,128
- Latin America: 541
- Western Europe: 234
- Japan/Chinese Economic Areas: 35
- Other Asia: 458
- Rest of the World: 150
- World Total: **9,554**

Percentage Distribution

Consumption of Industry Outputs

- Construction: 45.7%
- Manufacturing: 47.6%
- Other: 6.7%

Housing Market Indicators (1997)

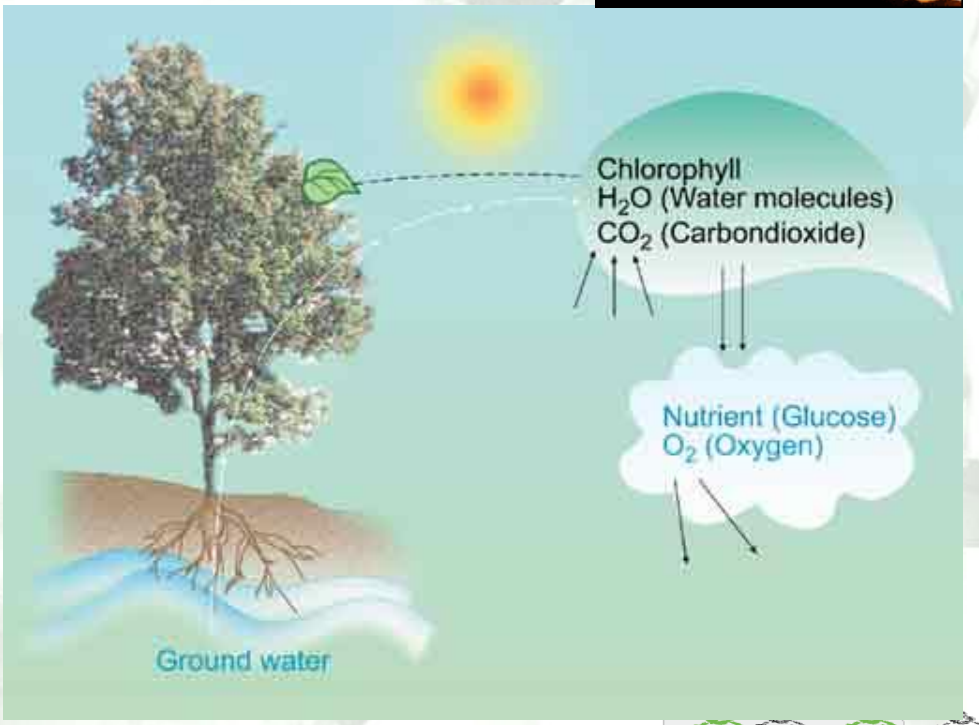
- New Housing Units (Millions): 1. 8
- Renovation and Remodeling Expenditures (Billions $): 118

CO^2 Scrubbers

A mature tree removes 330 lbs of CO_2 per year.

Chicago trees currently removes 412,500 tons of CO_2 per year.

With this plan an estimate of 600,000 tons of CO_2 would be removed per year.



Source: http://www.coloradotrees.org/benefits.htm

Reduction in “Urban Heat Island Effect

Shaded walls or pavement can be reduced 9° to 36°F. Which cause less frequent repaving.

Source: http://www.epa.gov/hiri/strategies/vegetation.html
http://www.homedepotfoundation.org/pdfs/hd_treeresourceguide_a.pdf

Reduction in Cooling Costs

Shaded walls and roofs can reduce air conditioner costs by 12%

Source: http://www.fs.fed.us/psw/programs/cufr/products/3/cufr_149.pdf

Storm Water Management

Trees reduce major runoff by 7% to 12% during flooding

Source: **Dwyer, J.F., E.G. McPherson, H.W. Schroeder and R.A. Rowntree.** 1992. Assessing the benefits and costs of the urban forest. Journal of Arboriculture. 18(5) :227-234

How can **UrbForM** develop **Local Communities**?

Establish Nurseries

throughout different communities on vacant land to grow trees.

Green and Healthy

communities begin to form adding value and prestige.

Create Jobs

within these communities for the care and maintenance of the nursery.

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Local community supporting studies!

Abandoned Lot Project

70,000 to 80,000 vacant lots in the City of Chicago.

Parks and Gardens for local communities are created.

Works of Art are created on abandon buildings.

City Farm

Mobile Farms these farms are used until site is ready for development.

Composted Soil is created by restaurant trimmings from around the city.

Jobs and Green Space are created throughout local communities.

How can **UrbForM** impact the **Entire Metropolis**?

Scalability

This system has the ability to operate at any size and any place!

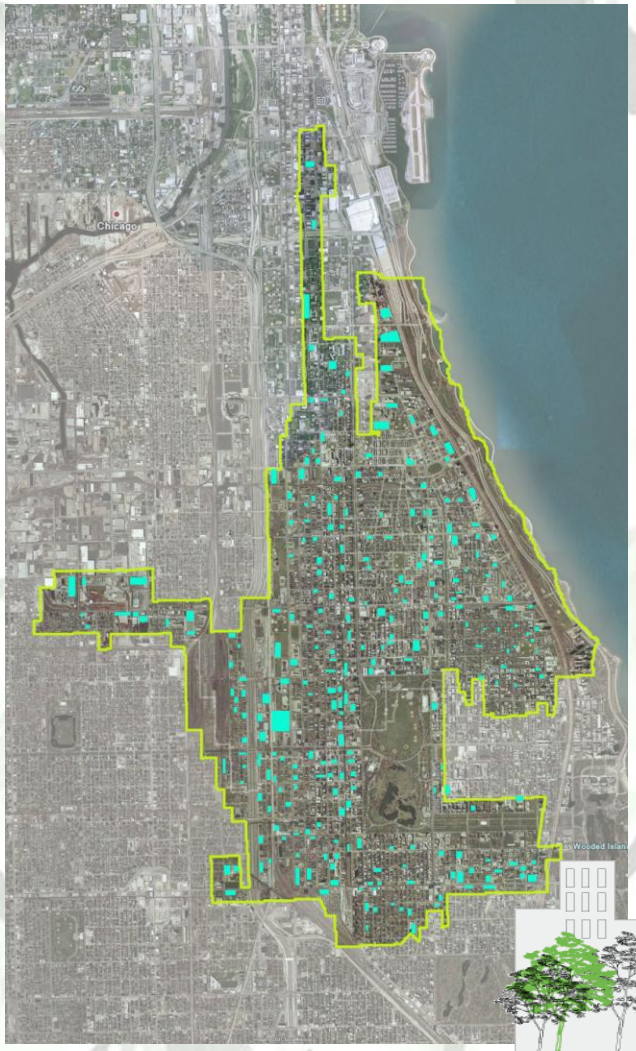
City Operations savings

$1,170,000.00 of salary savings annually.

Franchise Value

Projected payment of $385,000.00 to the city per module operator

ONE Module of Land!



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City wide supporting studies!

JC Decaux

2,000 Pieces of street furniture are supplied and maintained by JC Decaux.

$0 Total Chicago costs.

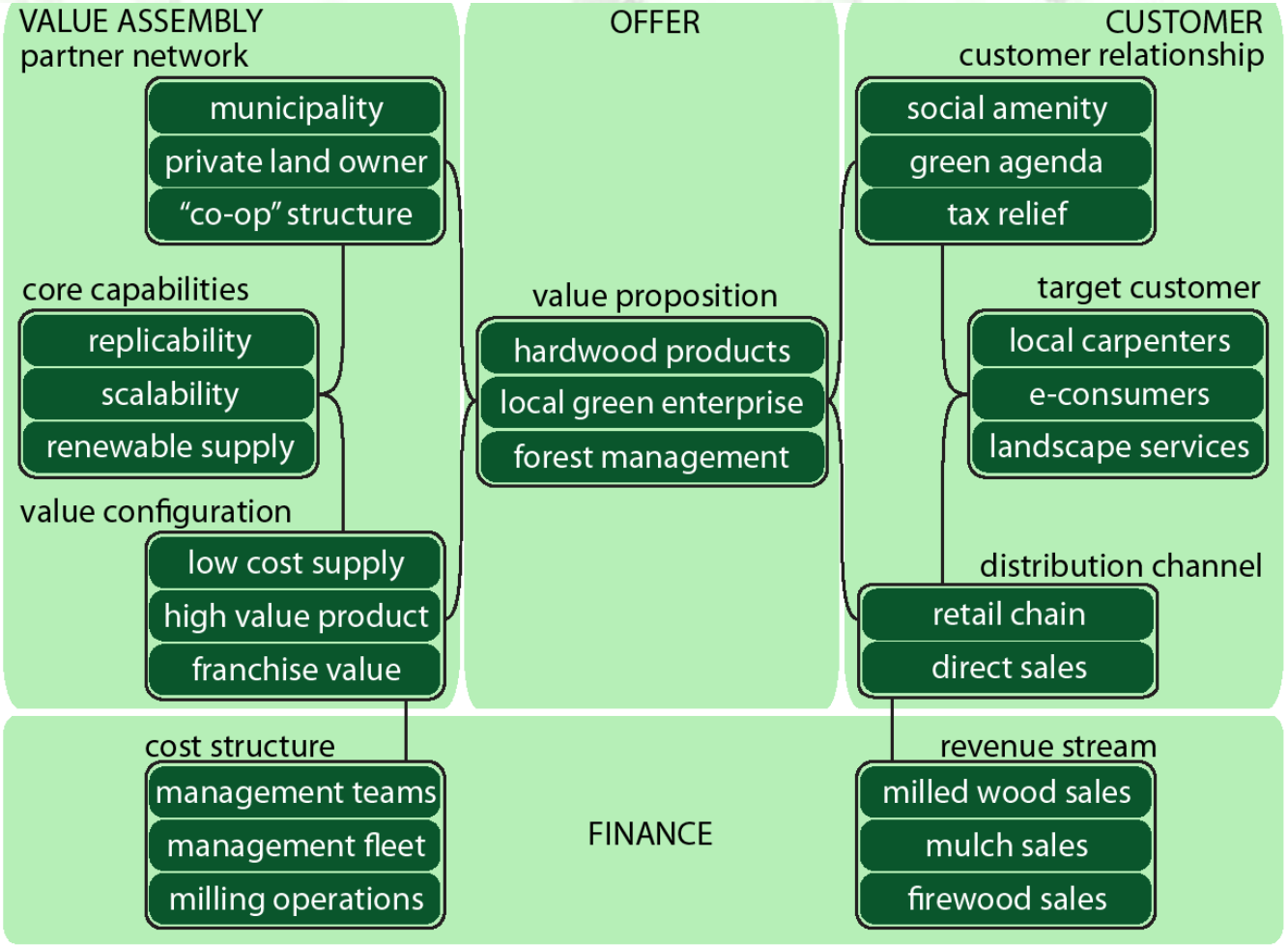
$307,500,000 Total Chicago revenue.

Taxi Medallion

Scalable This medallion system is used in a variety of cities: Chicago, New York, Boston, Newark, Philadelphia, and Baltimore.

$189,000 Is the minimum bid for a medallion being sold at auction by The Taxi and Limousine Commission in New York.

"Nine Element" Business Model



acknowledgement: Brief Outline of Business Models / Nov 06 / Alex Osterwalder / alex@arvetica.com

Urban Public School

- ‘Alternative recycle program’ – Keep kids engaged in constructive extra-curricular activities