What if integrating urban agriculture with public spaces could increase the viability and sustainability of productive landscapes in a city?
Minneapolis, MN

Site Context

North Loop

Population: 250,000

Jobs: 20,000

Target Field

Population: +5000
Jobs: +9500

5 minute walk

Site (acres)

Target Field

Target Center

North Loop

Highrise District

+1000
+20,000

14.21
01.81
16.02

Ground
Rooftop
Total

Restaurants
Occupations

Site context
The north loop district in downtown Minneapolis is an integrated urban neighborhood. Although previously an undeveloped historic warehouse district, the area is enjoying a burgeoning resurgence as a neighborhood with housing, employment, entertainment, restaurants and retail. The city of Minneapolis has designed a plan for the district that is currently underway.

"North loop village will be among the largest developments in Minneapolis creating unprecedented opportunity to build new neighborhood around public spaces."
Target Field

$390 million

Home to the Minnesota Twins professional baseball team, the stadium draws thousands of visitors every game.

The new transit hub, the Interchange, is currently under construction and is expected to be done by 2014. Once finished it will be the biggest transit hub in Minnesota.


site justification
7 new apartment buildings
over a thousand new units
street vitality

creating walkable streets that meet the energy needs of the village

http://www.minneapolis.org/flickr/set/72157604828852194?format=lightframe
Currently a vast majority of the site is programmed as a parking lot. There are seven buildings on site while another six are directly adjacent. The majority of the building uses are retail and office with several restaurants and 2 parking ramps. At the southwest end of the site is the Target Field Station and Rail Platform. Running alongside that is the Cedar Lake Bike Trail.

issues with site

- vast amount of concrete
- poor access
- surrounded by buildings
- freeway
- drainage
site access
freeway overpass
drainage

site issues

photo by Nathan Thomas
site necessities

agriculture
- sun
- water
- space
- drainage
- soil

public space
- circulation
- access
- comfortable spaces

other
- service road (target field)
Shade study

Latitude: +44° 52' 17.19"
Longitude: -93° 20' 23.43"

Jan. Mar. May

Time:
9 am 10 am 11 am 12 pm 1 pm 2 pm 3 pm 4 pm

Sun/shade study
### Precipitation & Temperature

<table>
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<th>Month</th>
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<tr>
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<td>Nov</td>
<td>1.16</td>
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<tr>
<td>Dec</td>
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### Rainy Months
- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec

### Averages
- Initial soil freeze: Dec 8
- Thaw date: Apr 10

### Buildings
- Building 1 = 14,688 ft²
- Building 2 = 11,000 ft²
- Building 3 = 18,850 ft²
- Building 4 = 18,700 ft²
- Building 5 = 5,250 ft²
- Building 6 = 4,200 ft²
- Building 7 = 4,050 ft²
- Building 8 = 2,000 ft²
- Building 9 = 11,425 ft²
- Building 10 = 12,825 ft²
- Building 11 = 8,000 ft²
- Building 12 = 8,000 ft²
- Building 13 = 29,000 ft²

### Roof Top Collection

- **Volume Calculation**
  - **Site 1:**
    - Footprint: 78,738 ft²
    - Potential Volume: \(0.335 \times 78,738 \times 0.8 \times (7.48/\text{ft}^3) = 947,048 \text{ gal}\)
  - **Site 2:**
    - Footprint: 69,250 ft²
    - Potential Volume: \(0.335 \times 69,250 \times 0.8 \times (7.48/\text{ft}^3) = 832,927 \text{ gal}\)

### Climatology

![Climatology Diagram]
Soil Study

Average initial soil freeze: Dec 8
Average frost free period: 210 days

Parking lot (concrete)

Soil Composition:

- Loamy soil: 1. A fertile soil of clay, silt, and sand containing humus. 2. Soil is considered ideal for gardening and agricultural uses.

- Composting: 1. Decayed organic matter used as plant fertilizer. 2. Compost is a key ingredient in organic farming.

- Concrete: 1. 5-6 inches of concrete leaches into soil below. 2. Leaches into soil below.

Pedology
**Program Elements**

- Food forest
- Gardens
  - City owned (and run)
  - Warm season crops
  - Cold season crops
  - Greenhouses
- Community
- Farmer’s market/Event space
- Open/green space
- Flexible space
- Rainwater harvesting (rooftop)
- Cisterns (above ground)
- Accessible
- Compost

**Conceptual Development**

Programming/conceptual flexible space + open/green space.
sections

plan view

ramp/stair detail

elevation northeast side

elevation southeast side
The city-owned gardens are located on the east side of the site. This area offers the most sun and open area for the plants. The walkways are made of recycled concrete and the planters of limestone.

**Planter benefits:***

- **Soil condition:**
  - Easier to manage drainage
  - Easier to manage heavy soils
  - Easily customize soil

- **Can grow crops more intensely**
- **Soil warms faster in spring**

- **Can be located where light conditions are ideal***
The open green space is ideally located next to Target Field. It is even close enough to catch the sounds of the game. It also offers the opportunity for a public green space in an area that has none.
four bed crop rotation

Rotating crops can be a very effective method of getting the most out of a season. Here is a basic four bed rotation:

- **Plot 1**: Cabbage/Brussels Sprouts - Lettuce/Manure - Peas/Lime Soil - Tomatoes/Onions
- **Plot 2**: Lettuce/Manure - Peas/Lime Soil - Cabbage/Brussels Sprouts - Tomatoes/Onions
- **Plot 3**: Peas/Lime Soil - Cabbage/Brussels Sprouts - Lettuce/Manure - Tomatoes/Onions
- **Plot 4**: Tomatoes/Onions - Lettuce/Manure - Peas/Lime Soil - Cabbage/Brussels Sprouts

The food forest is a good example of flexible space. Like other parts of the site it can be used for a multitude of things. The large amount of flat space can be used for activities such as skateboarding, rollerblading, and running.
questions?

view of food forest facing east