

<http://www.redbubble.com/people/lindart1/works/1357931-corn-field-landscape>

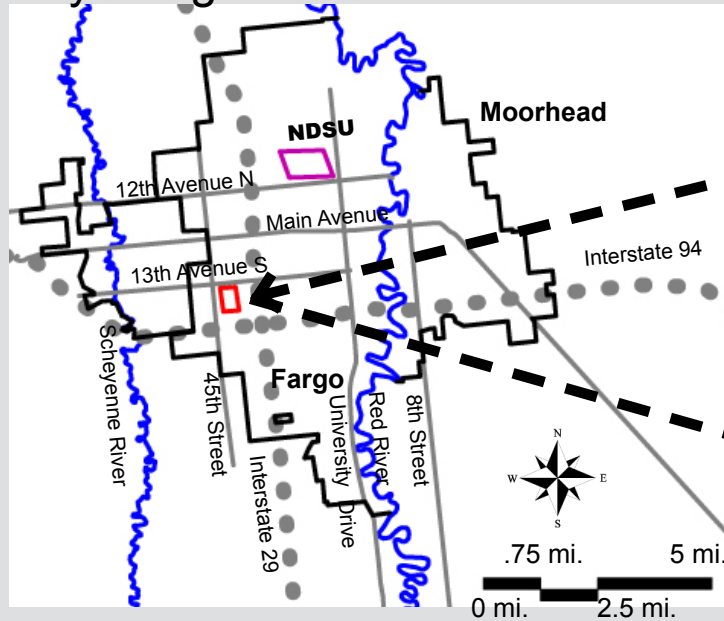
A painting of a cornfield. The background is filled with tall, thin stalks of corn in shades of yellow, orange, and red, suggesting a late autumn or winter scene. In the foreground, a single stalk of corn is in sharp focus, showing its dark green leaves and a developing ear. The overall style is soft and painterly.

# FEEDING A POPULATION & HEALING THE ENVIRONMENT

A design thesis by: Mohan Pai

Using sustainable design practices, how can urban agriculture change the political and social views on sustainability?

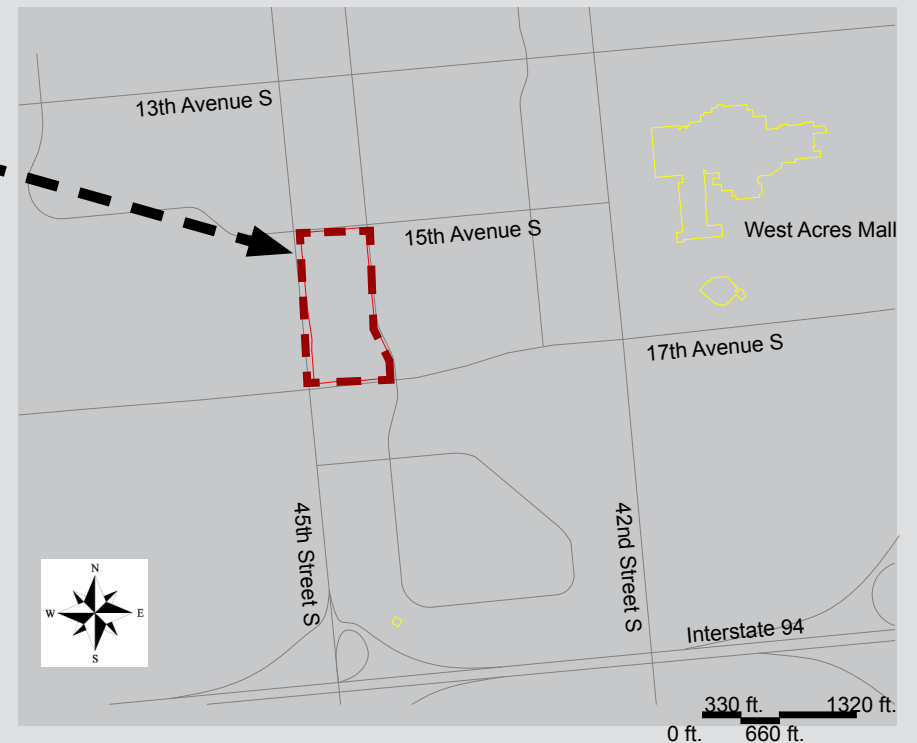
City: Fargo



Regional: Midwest USA



Site: 4400 15th Ave S



This project will examine a design solution that will be usable by all users regardless of ability or prior gardening experience and through the use of sustainable practices.

# Climate:

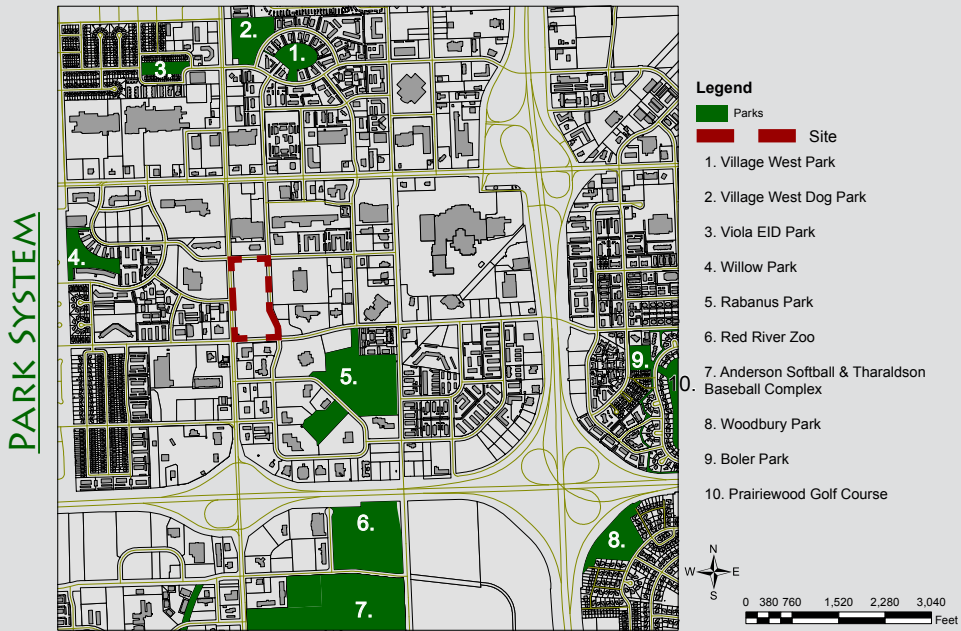
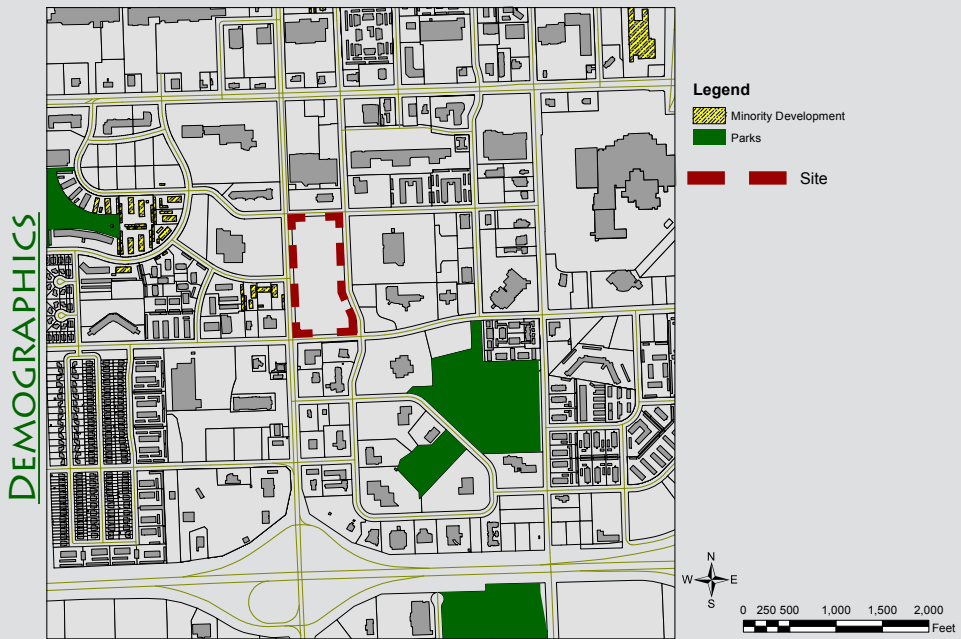
- The growing season in Fargo is optimal for an operating Urban Farm

# Park System:

- A study of the surrounding park system shows that while there is a nearby "park", it actually holds very little recreational value.  
 - Adding this urban farm/ stormwater retention system will provide a recreational location for nearby residents.

# Demographics:

- Apartment complexes surrounding the site can provide the majority of the population that will interact with the site.  
 - A nearby immigrant population will also contribute to the number of people that participate in using the site.



# CLIMATE

Month	Traditional Growing Season												
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly Avg.
Average Temp. (°F)	6	12	26	43	56	66	71	69	58	46	28	13	41
Average High (°F)	15	21	34	54	69	77	83	81	70	57	36	21	52
Average Low (°F)	-3	3	17	32	44	54	59	57	46	35	19	4	31
Record High (°F)	52	66	78	100	98	100	106	106	102	93	74	57	106
Record Low (°F)	-36	-34	-34	-7	20	30	36	33	19	5	-24	-32	-36
Average Precip. (in.)	0.6	0.5	1	1.7	2.3	3.1	3.2	2.4	1.8	1.5	0.8	0.6	19.6
Average Snowfall (in.)	8.6	5.9	6.7	3.1	0.1	---	---	---	---	0.7	5.8	7.1	38
Avg. # of Cloudy Days	17	15	17	15	14	13	8	9	12	14	18	18	168
Avg. # of Clear Days	7	6	5	6	7	6	10	10	9	9	6	6	88
Avg. AM Humidity (%)	75	77	82	79	77	82	50	47	85	80	81	78	81
Avg. PM Humidity (%)	70	71	67	51	45	53	59	56	49	51	65	73	57

<http://www.weatherbase.com/weather>

## Zoning:

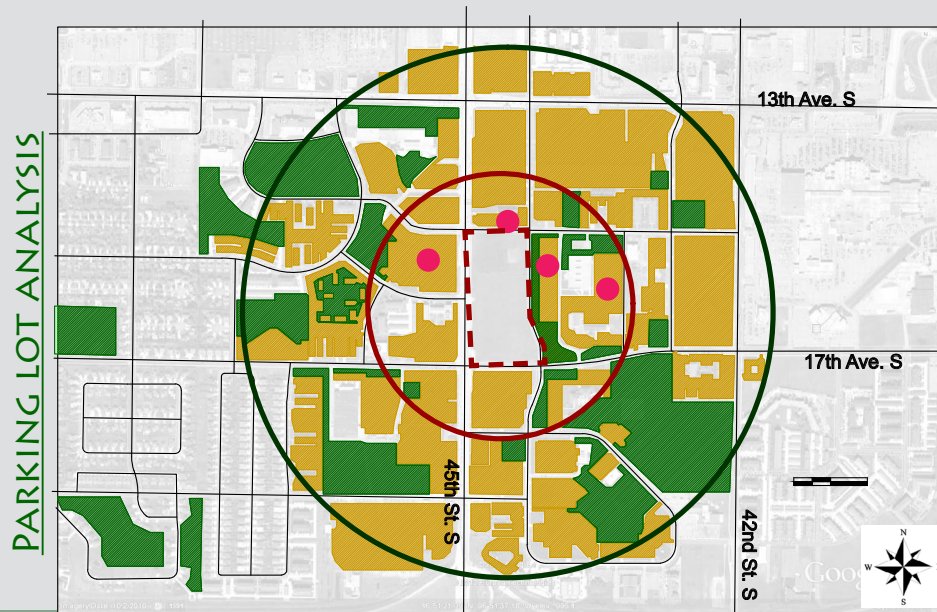
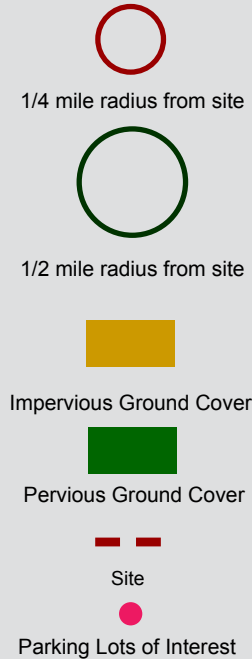
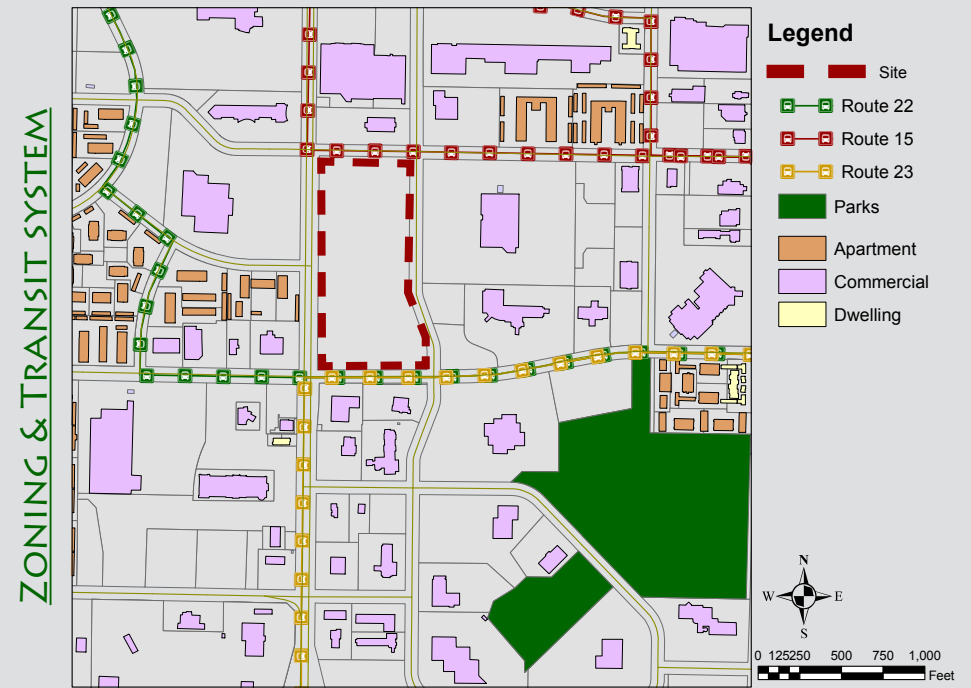
- Studying zoning maps provided insight in to the actual amount of residential properties that are located close to the site.

## Transit System:

- Analyzing the surrounding streetscape provides insight as to where to design sound and viewing barriers as well as where the safest and most convenient location for a vehicular entrance to the site.
- Studying the transit system showed where users can potentially come from/ go to.

## Stormwater:

- Examining the sites surrounding permeable and impermeable surfaces showed that providing an on-site retention area will provide a year-round amenity.



The impervious ground cover totalled 49 acres within a 1/4 mile of the site.

The total impervious ground cover up to a 1/2 mile from the site totalled 219 acres.

The parking lots of interest had a total of 19.09 acres or impervious ground cover

19.09 acres of impervious ground cover is equal to 75,706.65 ft<sup>3</sup> of stormwater following a 1.15" storm event

# Design Goals:

- Community Garden with rentable plots for public use
- Market garden
- Demonstration garden
- Storage for 75,000 ft<sup>3</sup> of stormwater and ability to convert into skating rink during the winter.
- Shelter with restroom facilities and gathering area
- Pumpkin Patch
- Composting area



<http://www.kenmarkturf.com>



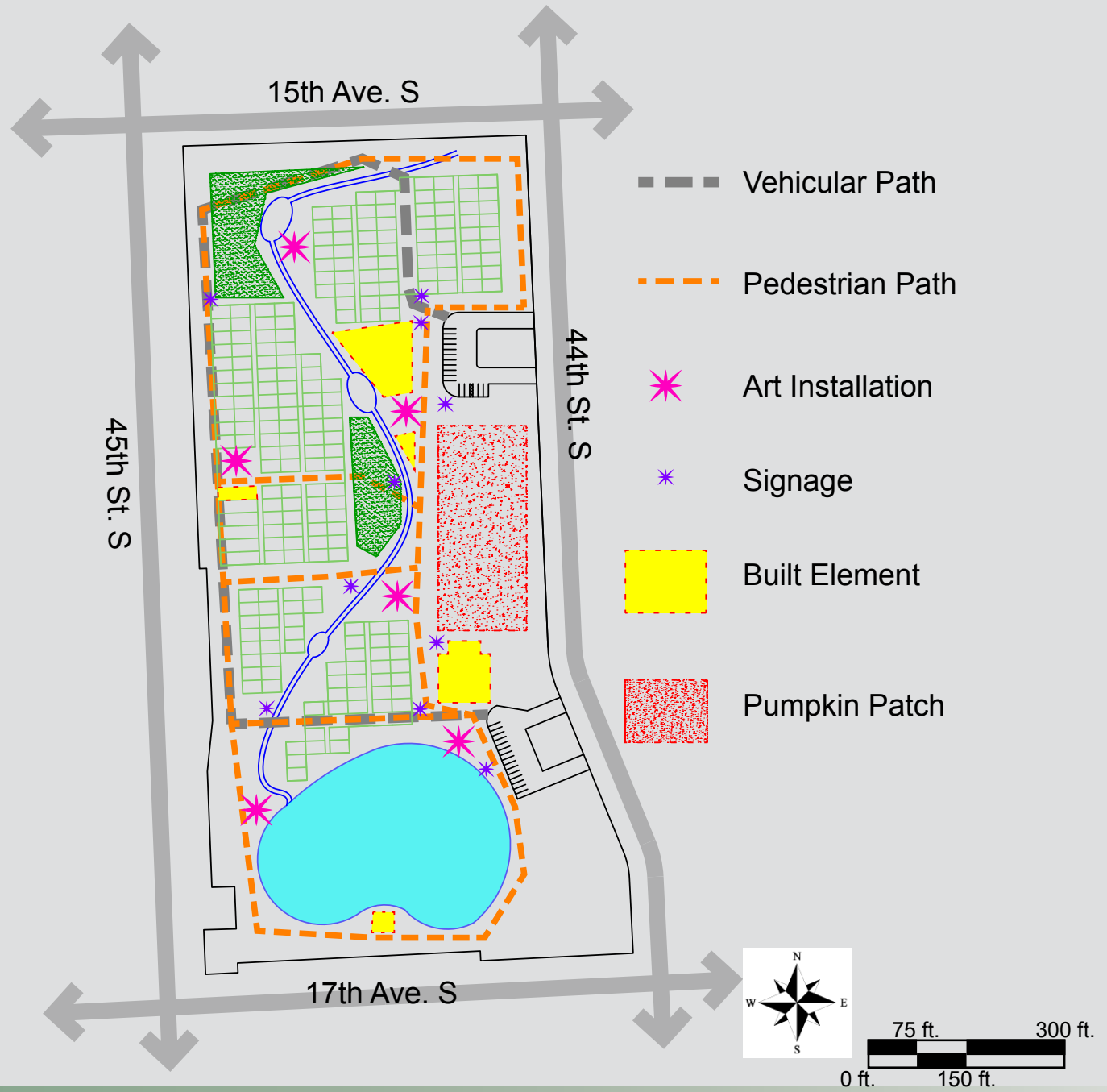
<http://www.cityfarmer.info>

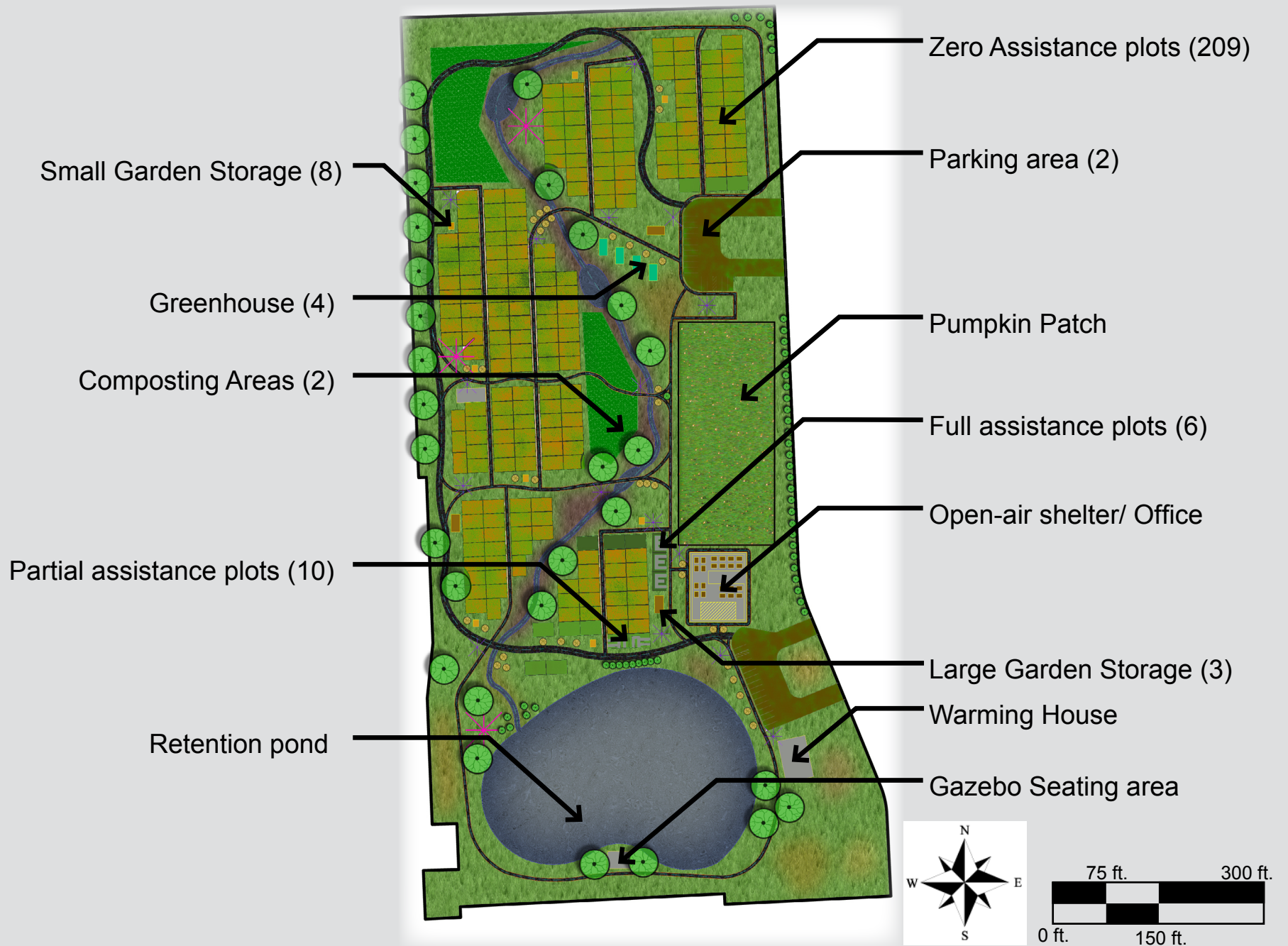


<http://mcmg.umd.edu>

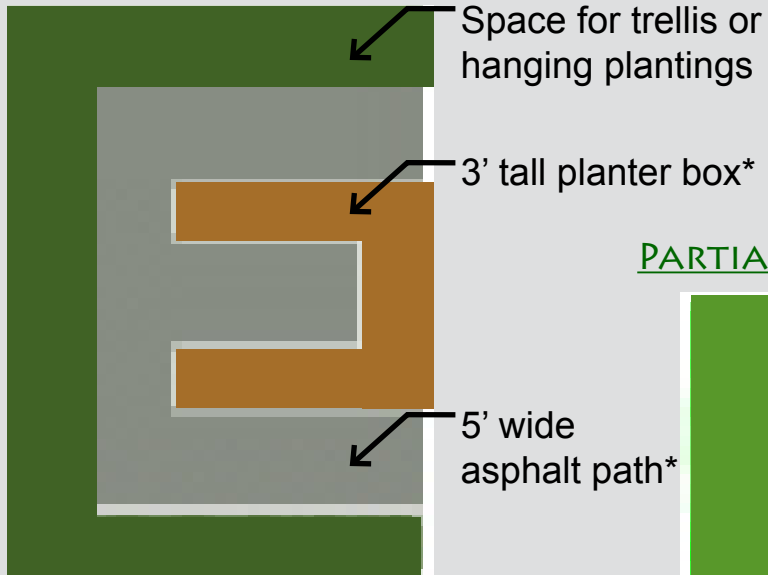


Della M. Huff via. <http://www.pbase.com>

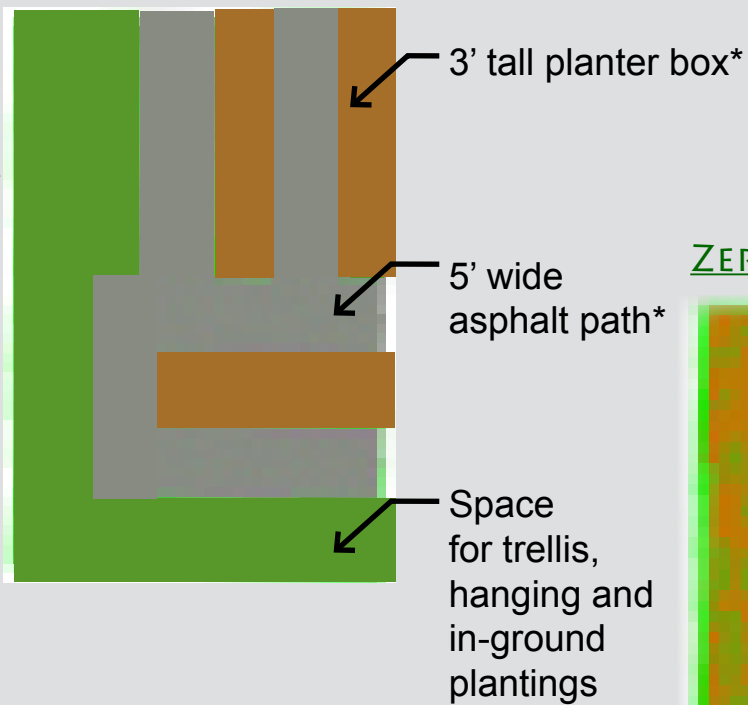




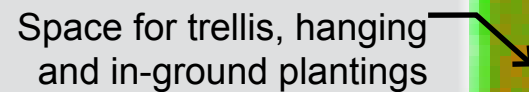
### FULL ASSISTANCE PLOT



### PARTIAL ASSISTANCE PLOT

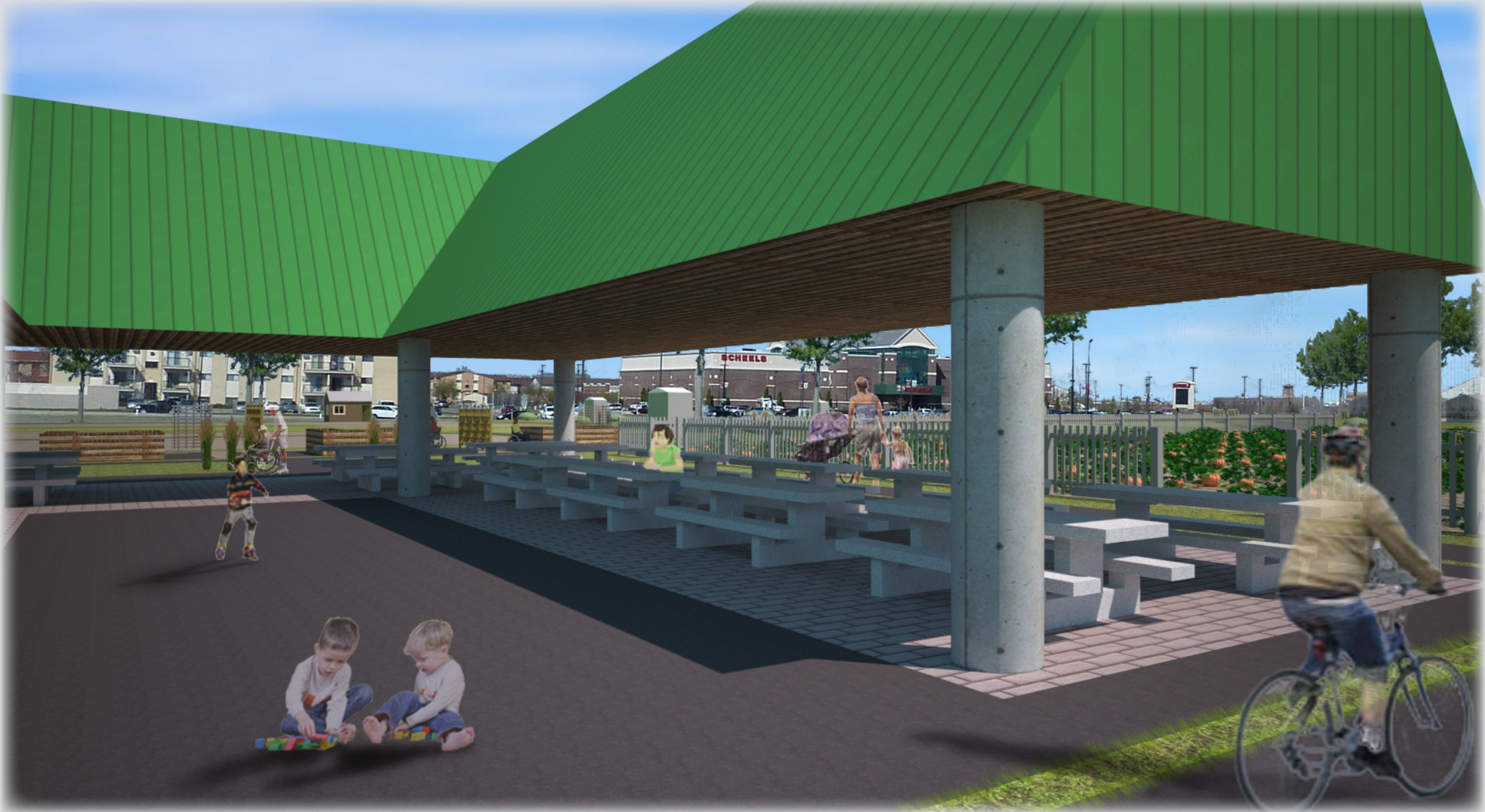


### ZERO ASSISTANCE PLOT

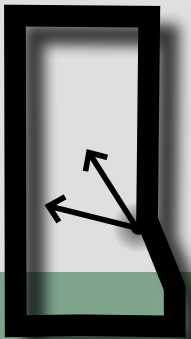


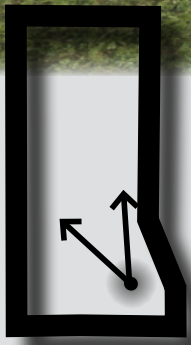
\* meets ADA requirements





Mult-use open air shelter with "horseshoe" cut-out.

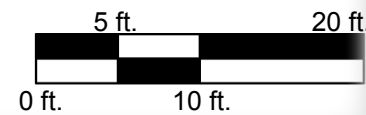


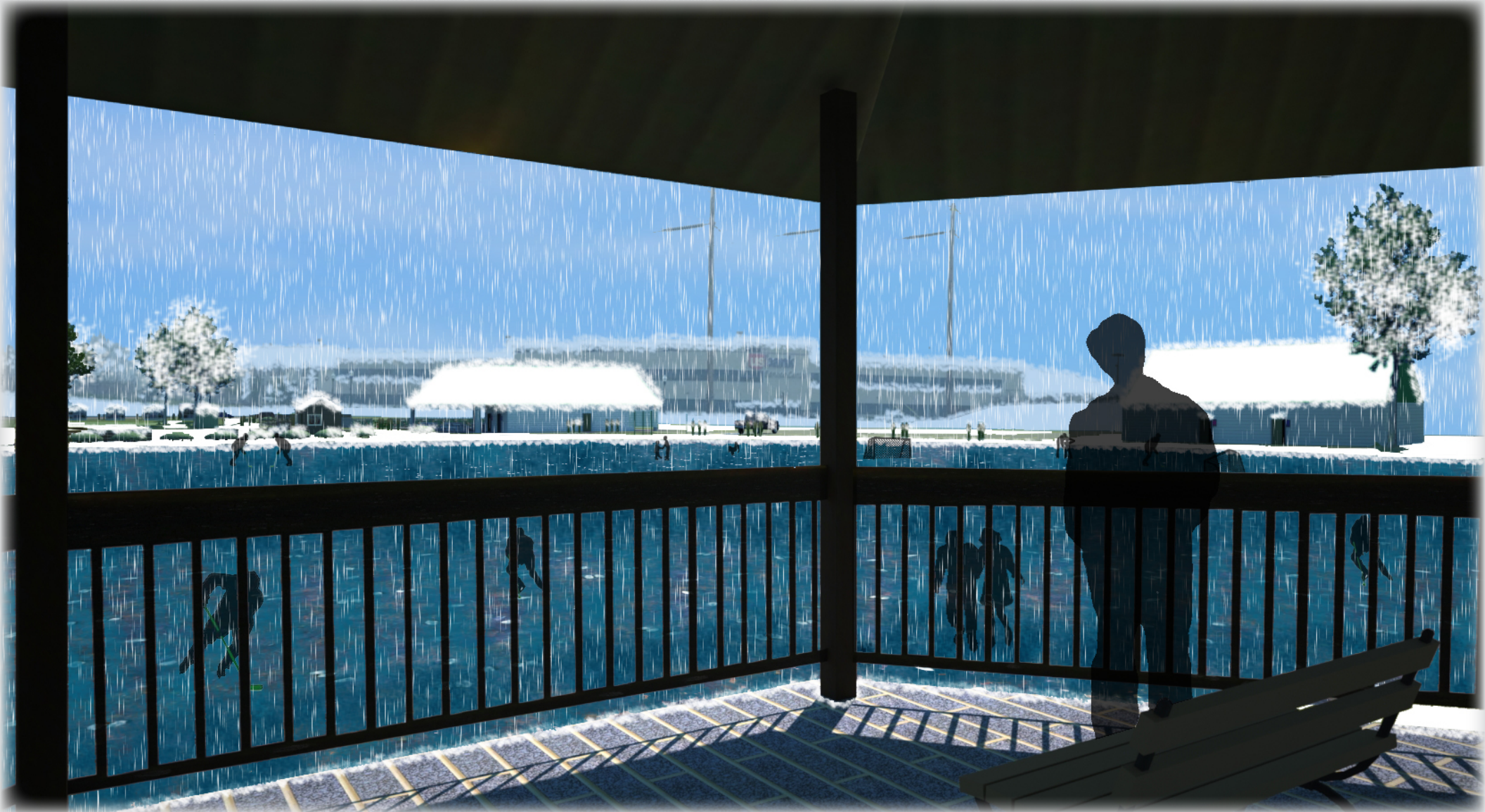


Large garden storage, assisted use garden & shelter

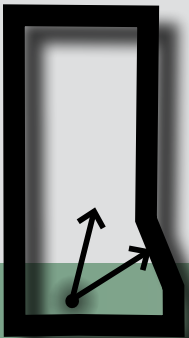


A  
Zero assistance garden plot  
Open space  
5' wide path  
Full assistance garden plot  
5' wide path  
Open space  
6.5' tall sign  
5' wide path  
Covered portion of shelter  
Uncovered area of shelter  
A'



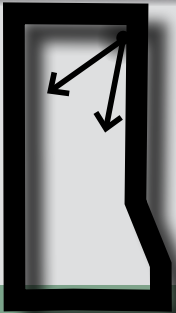


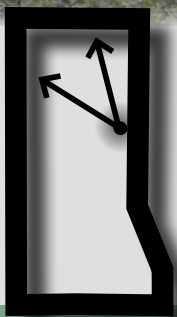
Winter view of retention pond



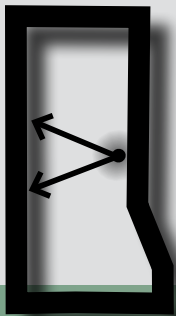
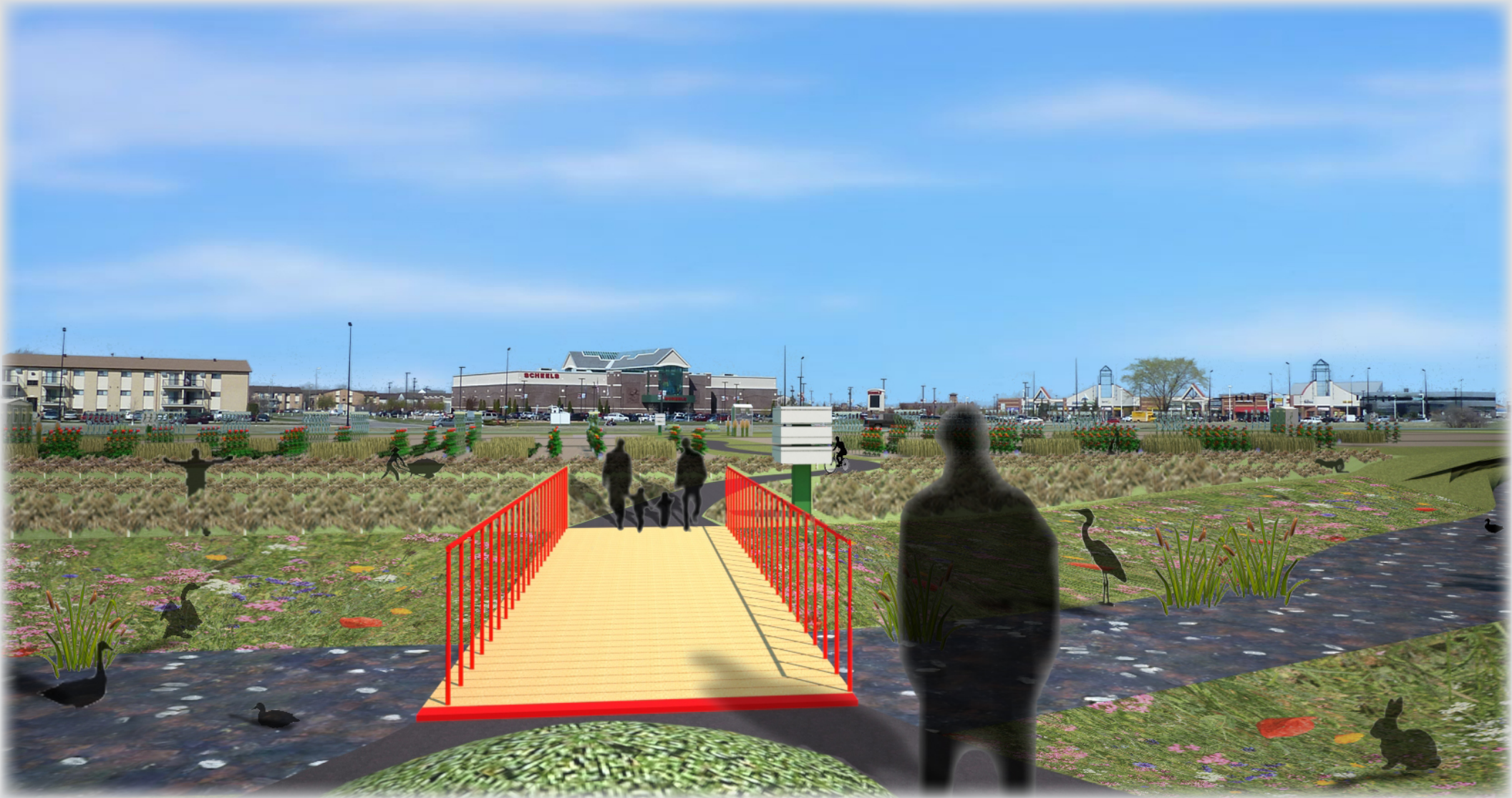


North zero assistance garden plots

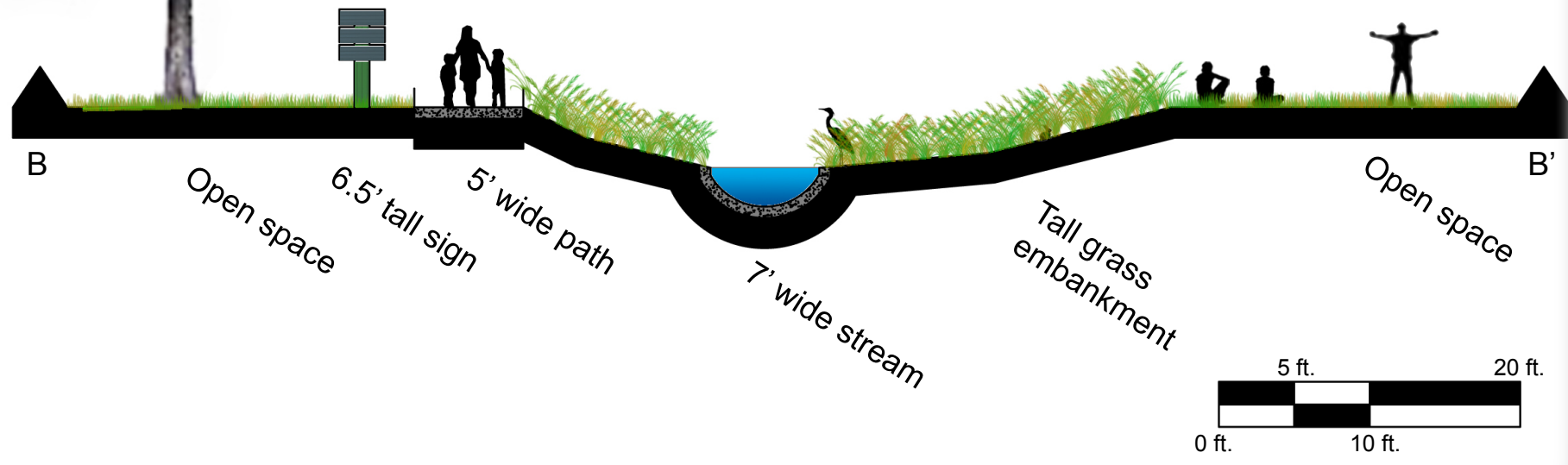
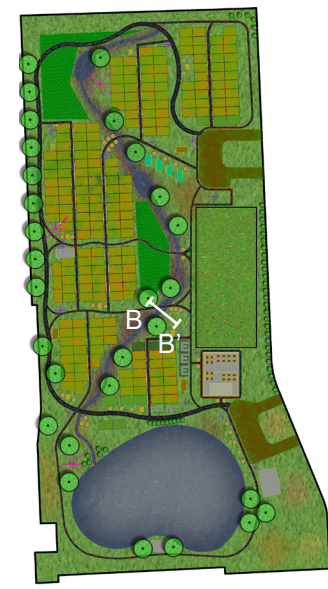




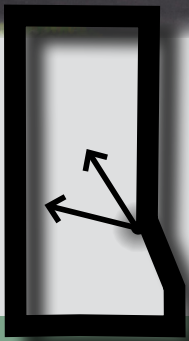
Parking lot, greenhouses, large storage structure



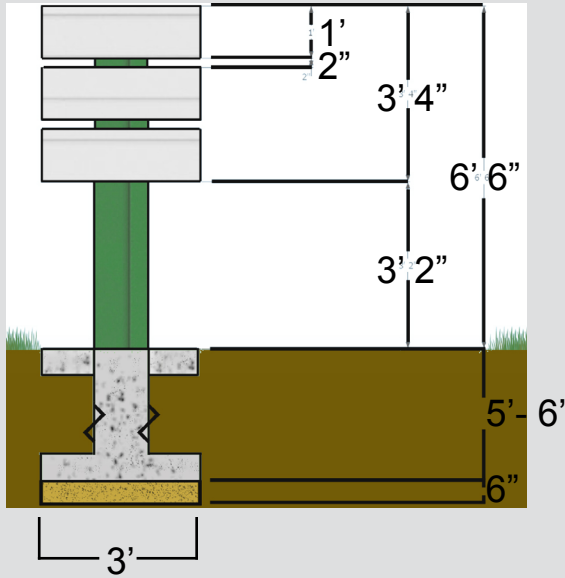
Bridge crossing stream







Pumpkin patch



Typical Sign

<http://edenmakersblog.com>



A-Frame Trellis

<http://www.simplyplanters.com>



Wooden Planter Box

<http://www.tiletechpavers.com>

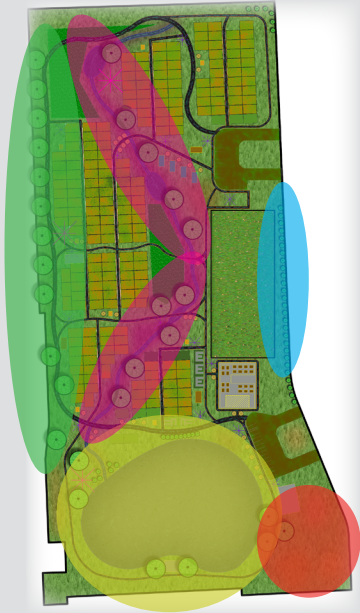


Permeable Pavement

<http://www.virtualtourist.com>



Fargo- Moorhead Visitor's Center



**Zone 1 (around lake):**

- Golden Weeping Willow, *Salix alba* 'Tristis'
- Quaking Aspen, *Populus tremuloides*
- + Grass: Shoreline Wildflower Mix\*



Pagoda Dogwood

**Zone 2 (Along stream):**

- Pagoda Dogwood, *Cornus alternifolia* 'Argentea'
- Eastern Cottonwood, *Populus deltoides*
- Cricket Bat Willow, *Salix alba* 'Caerulea'
- + Grass: Tall/wet wildflower mix\*



Shoreline Wildflower Mix

<http://www.prairieresto.com>

**Zone 3 (Along 45<sup>th</sup> St.):**

- Autumn Blaze Maple, *Acer X freemanii*
- Greenspire Linden, *Tilia cordata* 'Greenspire'
- + Grass: Mixed Height/Mesic Wildflower Mix\*



**Zone 4 (Along 44<sup>th</sup> St.):**

- Almey Crabtree, *Malus X 'Almey'*
- Boxelder, *Acer negundo*
- + Grass Mixed Height/Mesic Wildflower Mix



**Zone 5 (Southeastern Corner of Site):**

- + Grass : Mixed Height/ Mesic Wildflower Mix



Cricket Bat Willow

<http://bioweb.uwlax.edu>



Golden Weeping Willow

<http://www.treesdirect.co.uk>



Almey Crabapple

<http://www.ontarioplants.ca>



Mixed Height/ Mesic Wildflower Mix

<http://www.prairieresto.com>

\* Seed mixes provided by <http://www.prairieresto.com>

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