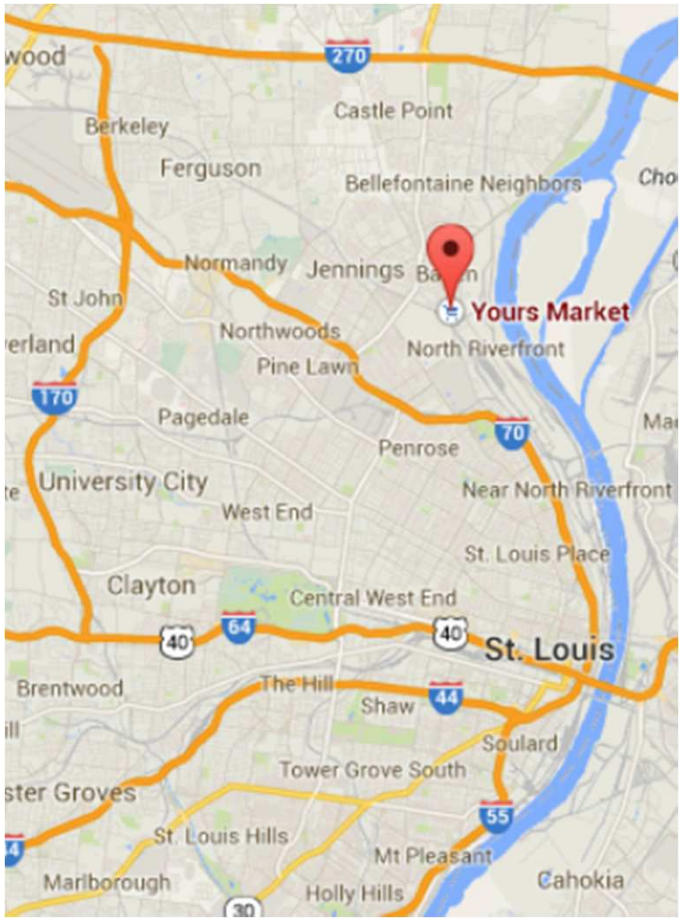
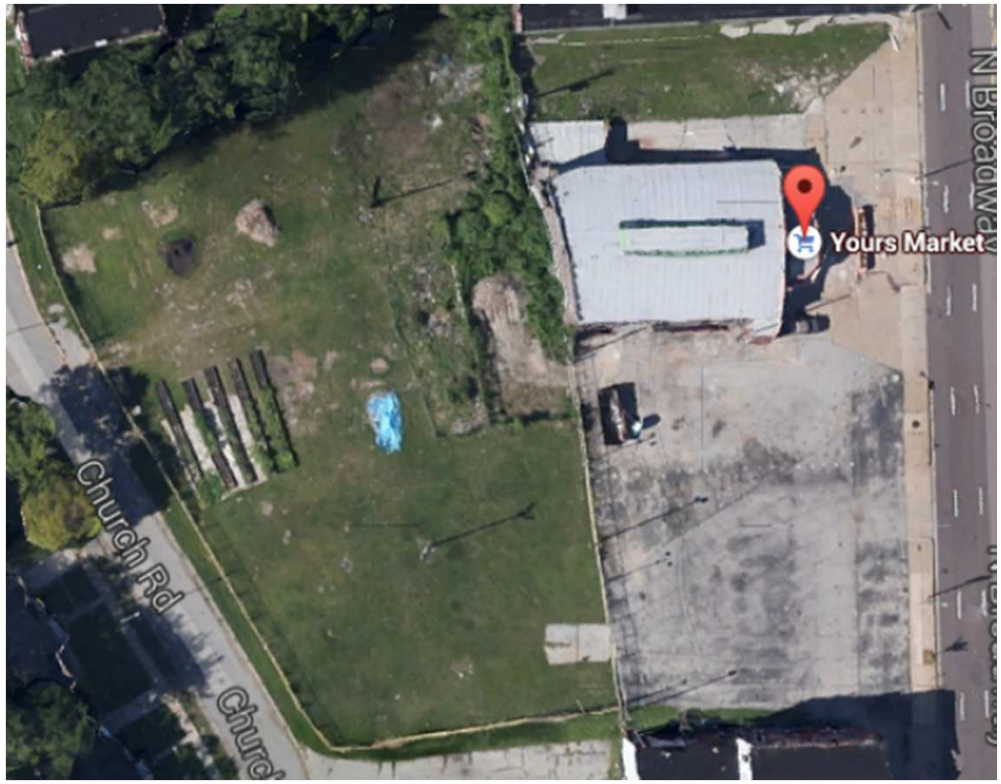

YOURS MARKET
A
Yours
Market

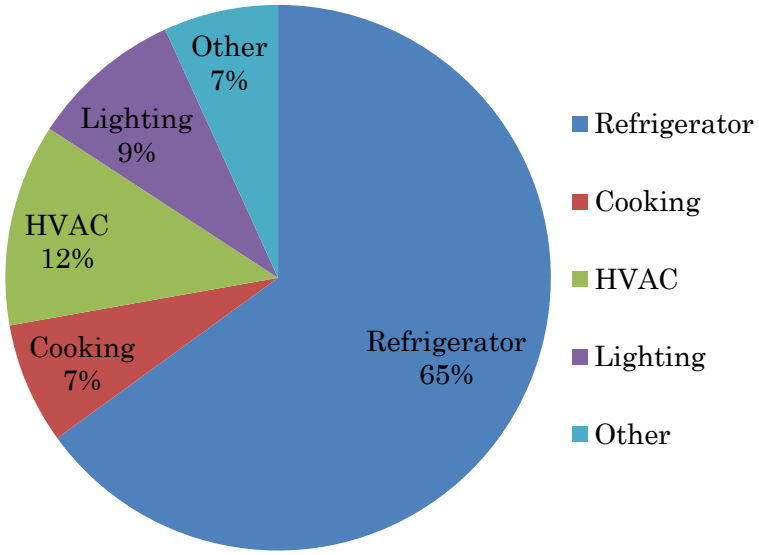




- Located at 8005 North Broadway in St. Louis as a “Food Desert” in the Baden Neighborhood
- A formerly Auto Repair Shop with a Garden Area of 30,000 square feet

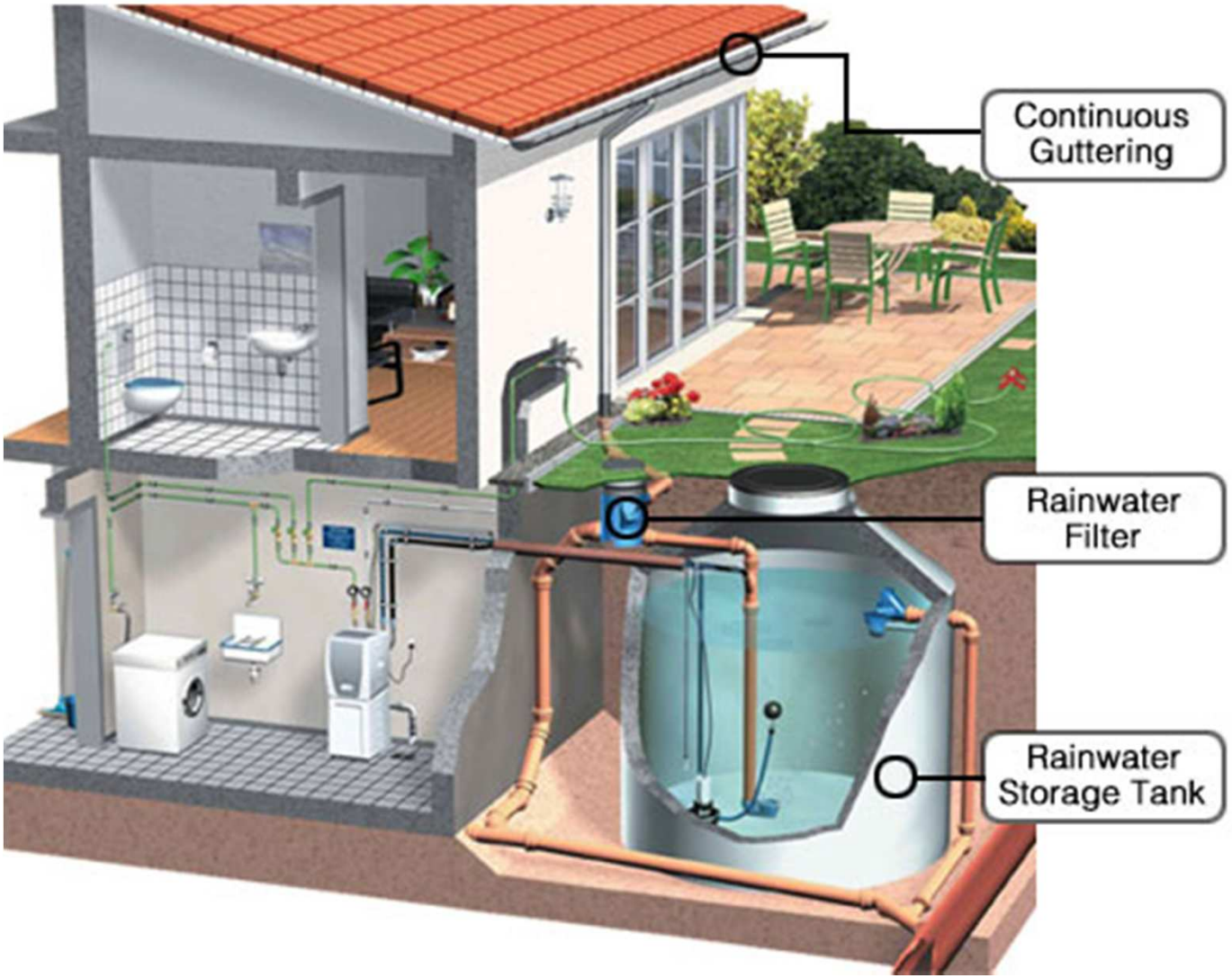
- **Energy Audit on Yours Market Building**
  - Lighting
  - HVAC
  - Refrigeration
  - Cost and Return on Investment
- **Feasibility Study of Rainwater Harvesting System, including**
  - Estimation of Potential Rainfall
  - Estimation of Water Needs
  - Conceptual Design
  - Installation Cost Estimate

Building SF	4,392
kWh Total	158,415
kWh/SF	36.1



1. Clean Coils and Filters Monthly
2. Turn off all equipment not in use: Lights, Hood Fan, Refrigerator, Cooking equipment
3. Install programmable thermostats: Set Different Temp After Work
4. Verify proper Temp set-points on all Old and New refrigeration and freezer units
5. Install a Hood Controller: Cycle Down the Hood Fan When No Activity

6. Install Electronically Commutated Motors(EMC) in all Evaporators and Condensers: Less energy Less Heat
7. Install Econofrost Modules over Produce Display Case: Retractable Curtains
8. Install anti-sweat heater controls on all freezers: Reduce the Heater Runtimes
9. Install insulated garage doors
10. Install insulation on the roof of the market: Min. 2-inches Polystyrene


Continuous Guttering
Rainwater Filter
Rainwater Storage Tank

- Water usage: irrigation of the back garden
- Operational Principle:

http://www.youtube.com/watch?v=Mw0EllKIOVY

1. Collection Area: Roof
2. Conveyance System: Gutters
3. Vortex Filtration
4. Storage Tank: Approx. 3,000 gal in the basement
5. Delivery System: Drip Irrigation

- Used 1999 – 2012 Precipitation Data from St. Louis Area
- Used model developed by Cincinnati Metro Sewer District
- Predicts capture volume based on roof area

ENTER DATA

Roof Area =	4,392	square feet (ft^2)
Cistern Size =	3,000	gallons

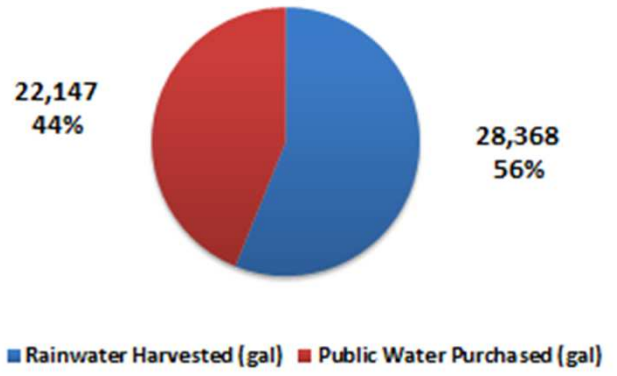
Day of the Week:		Non-Potable Water Needed:	
Monday	☑	100	gallons
Tuesday	☑	100	gallons
Wednesday	☑	500	gallons
Thursday	☑	100	gallons
Friday	☑	100	gallons
Saturday	☑	70	gallons
Sunday	☐		

Months Rainwater System is in Service:

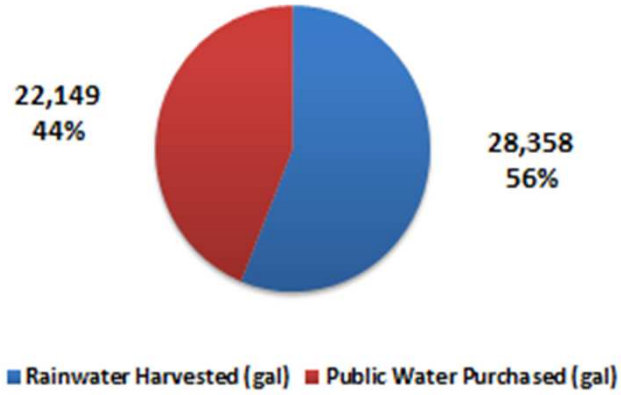
January	☐	July	☑
February	☐	August	☑
March	☑	September	☑
April	☑	October	☑
May	☑	November	☐
June	☑	December	☐

RESULTS

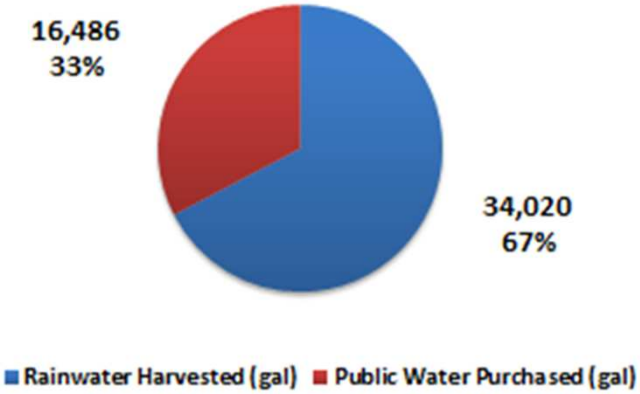
Stormwater Volume Generated by Roof =	54,738	gallons
Total Stormwater Volume Captured =	28,368	gallons
Public Water Purchased =	22,147	gallons
Percent of Non-Potable Water Need Met =	56.2	%
Net Stormwater Captured (Detained) =	20,907	gallons
Net Stormwater Captured (% of total) =	38.2	%



Growing Mar thru Oct

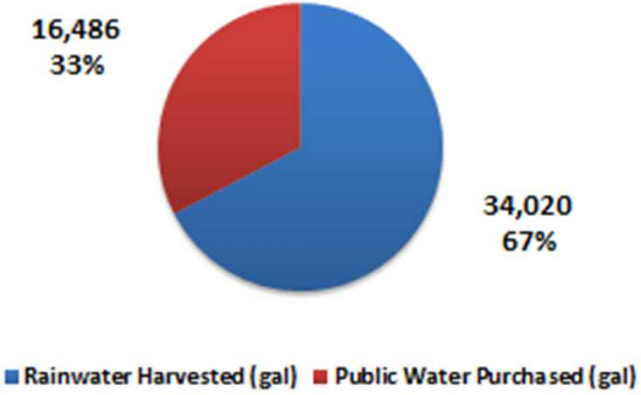


50% of Roof Area Capture



100% of Roof Area Capture

Growing Feb thru Nov (w/Greenhouses)



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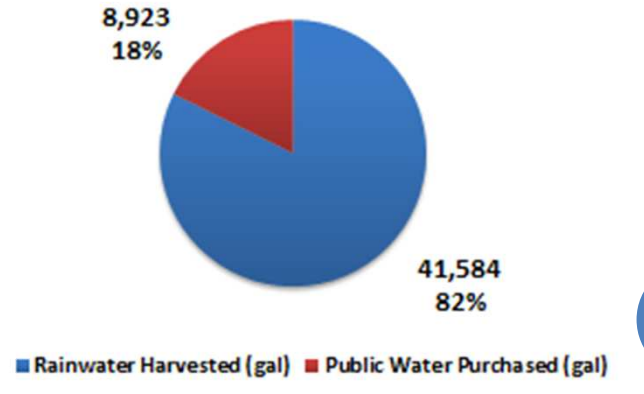

100% of Roof Area Capture

- Volume collected water changes throughout growing season as water is consumed
- Use based on vegetables grown & area cultivated
  - tomatoes, lettuce, cucumbers, peppers
- Assumed drip irrigation, most efficient
- 3,000 gallons selected
- Modular system, additional storage added as needed

Rainwater Harvesting feasibility analysis

A total list of supplies and estimated costs are listed below:

3000 gallon tank	$ 1,800
1 Pump	$ 600
Valves/Regulators	$ 250
Piping	$ 500
1000 ft drip irrigation tubing	$ 250
500 bubblers	$ 300
Electric Line to Pump	$ 1,300

Rainwater Harvesting feasibility analysis

ADVANTAGES:

- Provide a source of water when needed
- Relatively clean and free
- Promote self-sufficiency and conserves water resources
- Offer cost savings
- Owner operated and managed

DISADVANTAGES:

- Initial Capital Cost and Minor Maintenance
- Limited and uncertainty of rainfall.

Future Plans

- Continue collaboration with students & YOURS Market
- Solicit funding for rainwater harvesting system
- Develop plans and specifications for rainwater harvesting & drip irrigation
- Implement energy savings measures
- Assess electric bill
- Assess potential savings from gas energy
- Assist in installing greenhouse hoops