Madison Water Utility

CITY OF MADISON WATER UTILITY

Madison Water Conservation House

Introduction | Project Team

A Qualified Team

Engberg Anderson Architects

- Jim Brown, AIA, Principal in Charge
- Mike Zuehlke, AIA, Project Manager
- Sarah Ponto, NCIDQ, Interior Designer

IBC Engineering (MEP Engineers)

- Scott Beglinger, RD

Ken Saiki Design (Landscape Architect)

- Rebecca de Boer, LA

raSmith

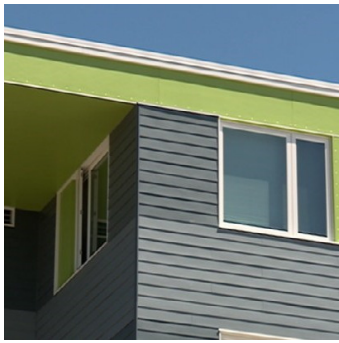
- Structural Engineering
- Civil Engineering

Introduction | Engberg Anderson Architects

A Qualified Team

14
LEED-Certified Projects

1
LEED for Homes Platinum



5
LEED-Certified Madison Projects

60
Madison Projects

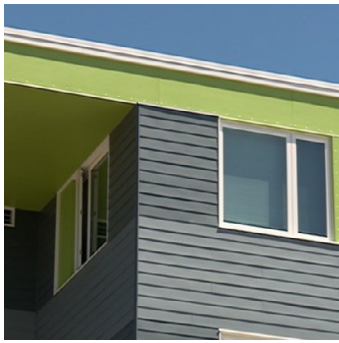
MADISON
MILWAUKEE
TUCSON
CHICAGO

Introduction | IBC Engineering

A Qualified Team

30
LEED-Certified Projects

Inc.
THE GREEN 50



20
Projects with Engberg Anderson

We believe comfort, health and controlling utility costs shouldn't be left up to chance

WISCONSIN
FLORIDA
ILLINOIS
WASHINGTON

Q1. Education + Engagement

This home will initially be used to teach the public about water conservation and sustainability.
What educational opportunities or demonstration elements would you incorporate into the design to engage the public around water conservation?

Educational Opportunities

Q1. Education + Engagement

Live Metering

Dashboard

Sub-meter by End Use

Goals

Project H2O
Smart metering for a sustainable future

Q3. Lot Recommendation

Please refer to the Certified Survey Map available at the project website. Lots 1, 2, and 3 are available for this project. **Which lot would recommend, and why?**

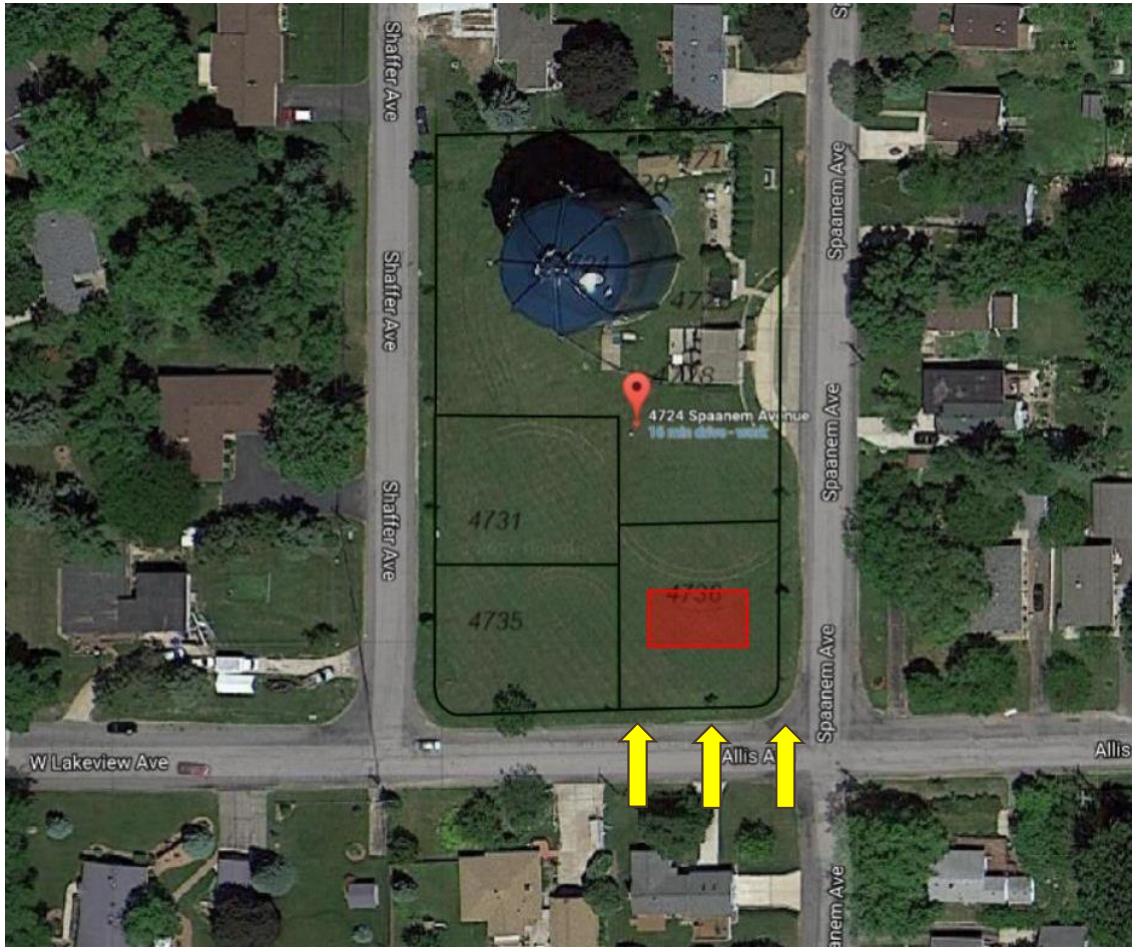
Site Analysis

Q3. Lot Recommendation

Zoning - SR-C1

Orientation

Context



Site Analysis

Q3. Lot Recommendation

Grading Opportunities

Q5. Water Conservation Goal / 30 gpcd

Currently Madison's average per-person daily water use for single-family homes & duplexes is 60.9 gallons. Water conservation studies and efficiency studies suggest we may be able achieve per capita consumption at half of current residential usage levels. **Do you feel we can achieve and demonstrate a 30 gpcd performance standard with this project?**

Water Conservation

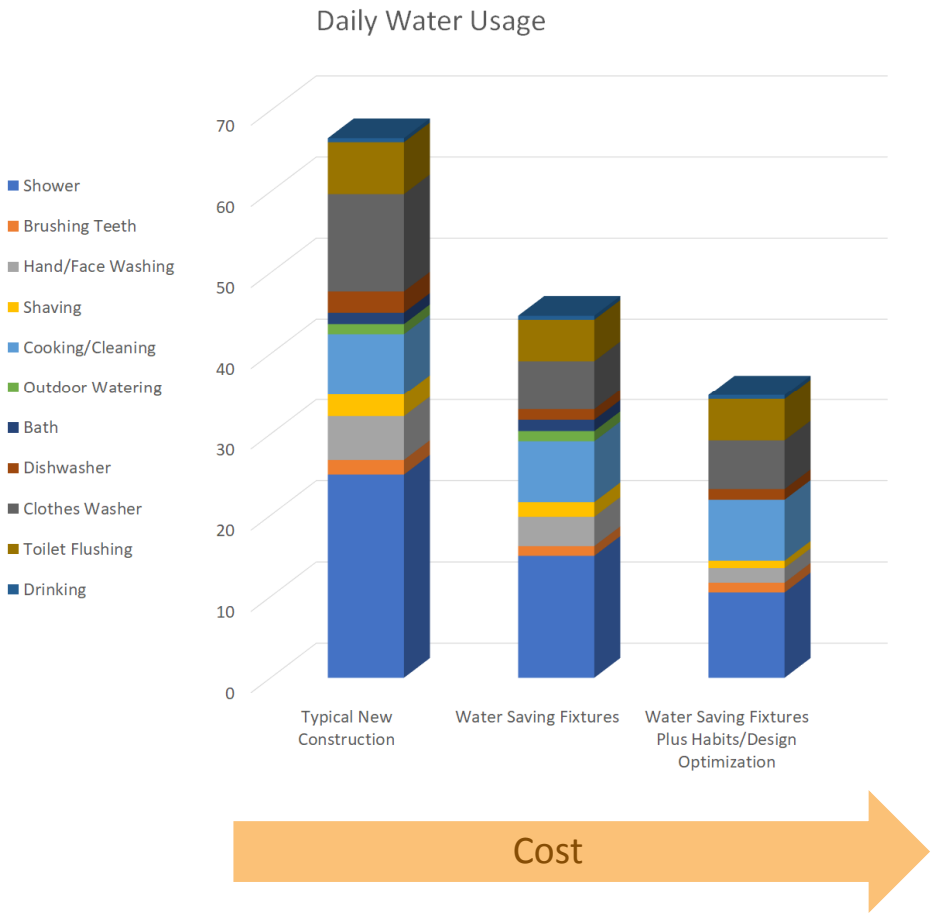
Q5. Water Conservation Goals

City of Madison is already below national averag

- National Average: 80-100 g
- Madison Average: 60.9 g
- Goal: 30 g

Is this goal achievable? Yes

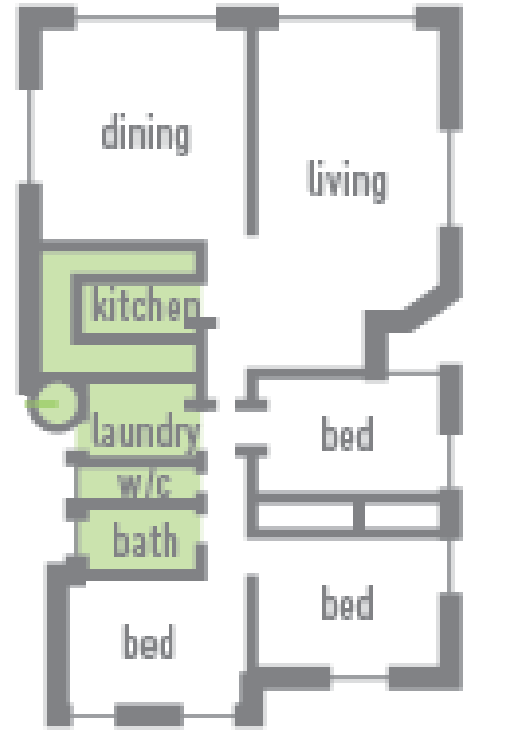
- High-efficiency fixtures and appliances
- Efficient home configuration
- Awareness



Efficient Layout

Configure Home to Reduce Water Use

- Minimize length of piping
- Stacked layout of wet areas
- Plan Wet areas close together



HOUSE PLAN

Design & Construction

Q5. Water Conservation Goals

Form follows Function

- **Roof Design**
- **Limit square footage**

Minimize Exterior Walls

Plan for the future

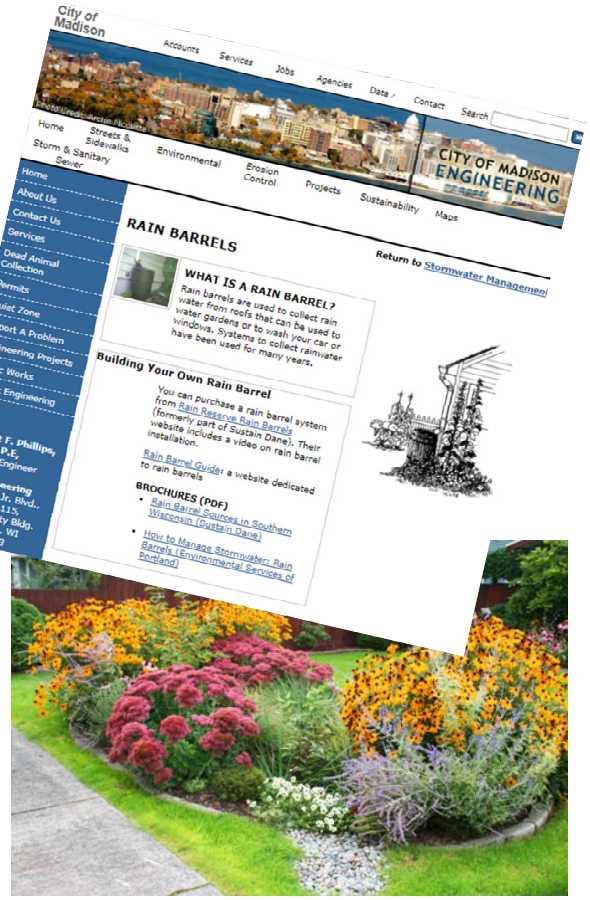
Material selection

Understanding the Site

Q5. Water Conservation Goals

Landscape + Site Opportunities

- Rain Barrels
- Rain Gardens
- Plant Selections
  - Drought tolerant
- Grading for Natural Irrigation



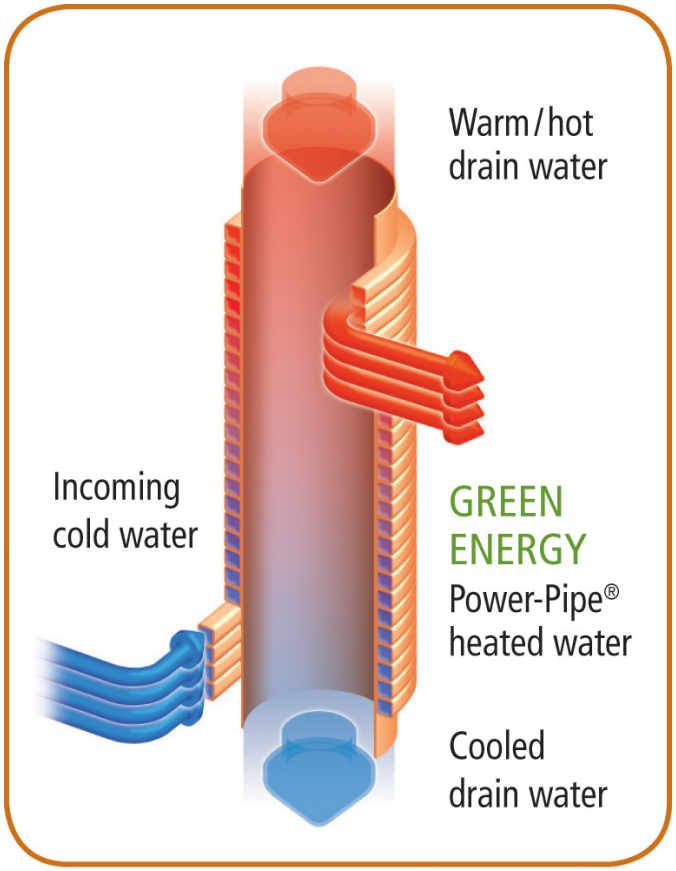
Sustainable Features

Q5. Water Conservation Goals

Waste water heat capture

High-Efficiency Fixtures

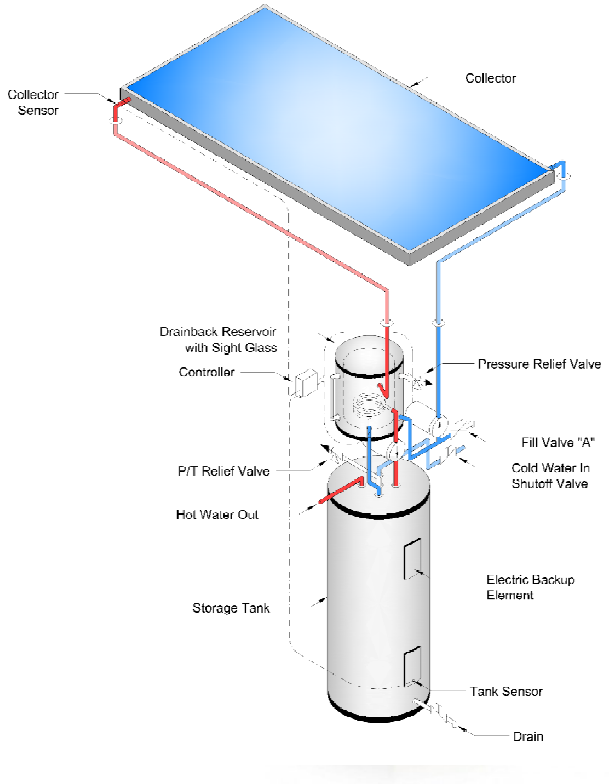
- **Faucets**
- **Showers**
- **Washers**



Alternate Sustainable Features

Energy Saving Water Heaters

Solar Hot Water



Q4. Rainwater Capture

Rainwater capture systems provide many unique opportunities to reduce reliance on domestic water supply. **At what scale do you plan to incorporate rainwater harvesting into the project? Do you foresee any obstacles to incorporating rainwater harvesting into traditionally domestic residential plumbing systems, such as flush toilets?**

Rainwater Harvesting

Q4. Rainwater Capture

Uses:

Toilet Flushing

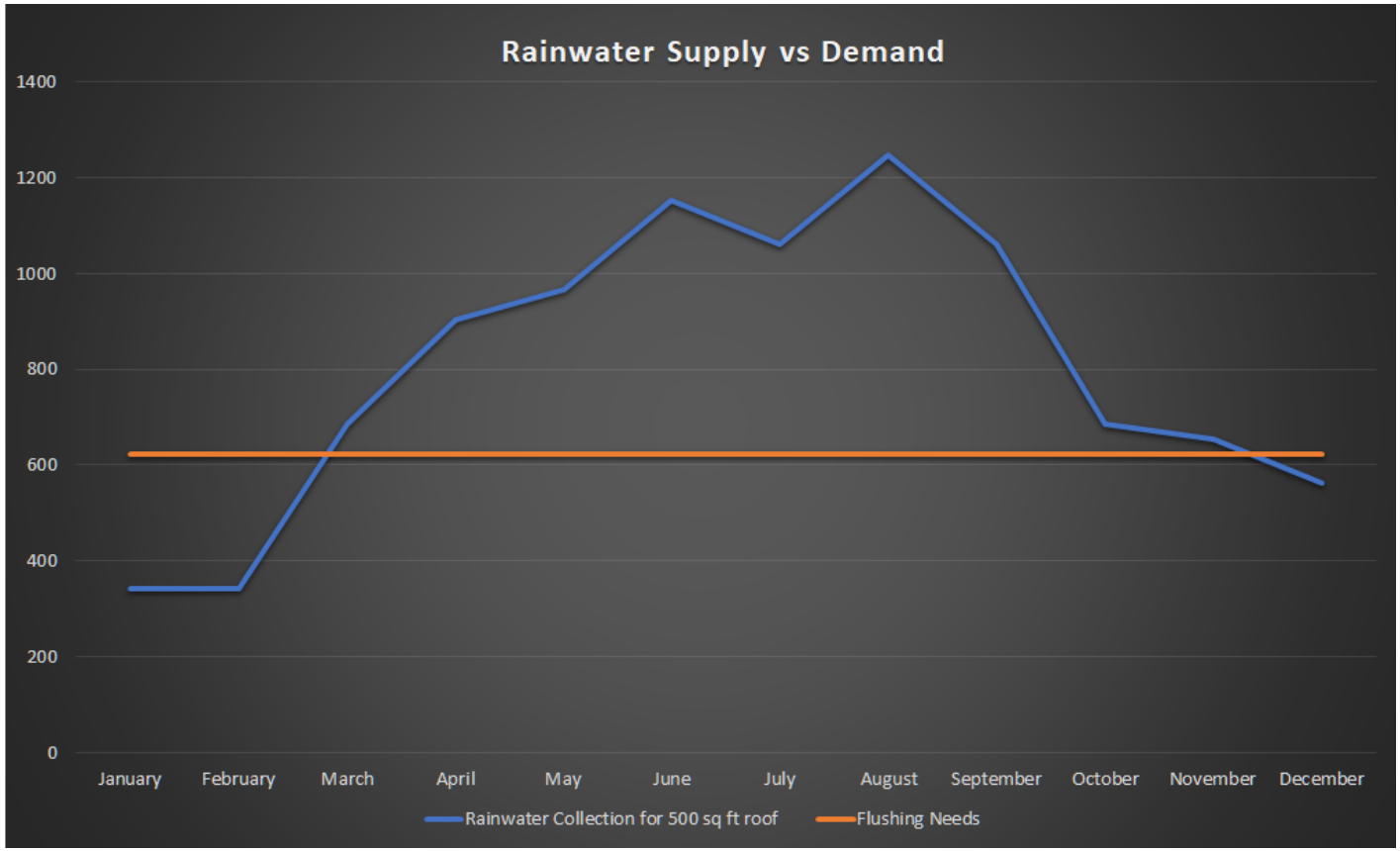
Landscaping

Challenges:

Regulatory

Cost

Maintenance



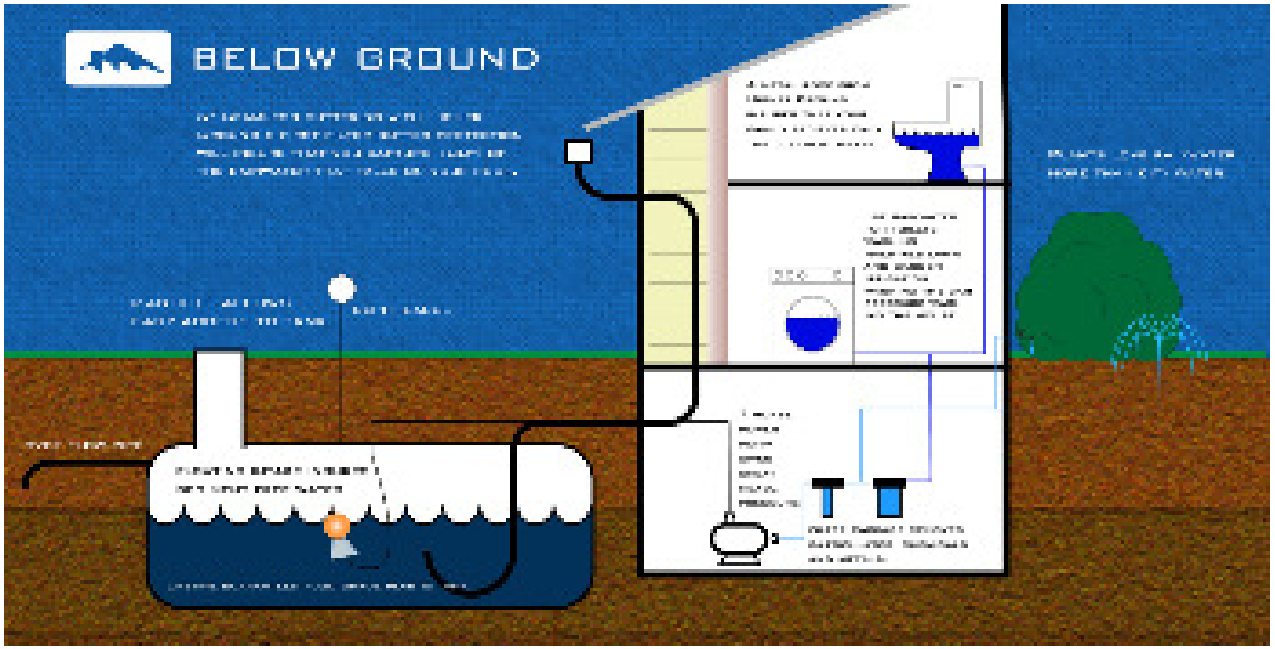
Rainwater Harvesting

Q4. Rainwater Capture

Opportunities:

Additional Water Savings

Education



Q2. Design + Approach

Homes in the Lake Edge neighborhood sell for approximately $180,000 to $220,000 on average. Madison Water Utility would like the Water Conservation House to sell in this price range while fully recovering the cost of construction in the sale. **Please describe what approach you would take in terms of design, materials selection, sizing, etc. to achieve this goal.**

Overall Design Process

Coordination; Owner and Design Team

Pre-design

Schematic Design

Design Development

Construction Documents

Bidding

Construction Administration/Closeout

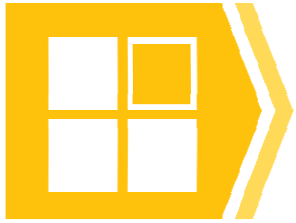
Pre-Design Process [three step approach]

1

Project Planning

- Project Kick-off
- Team Coordination

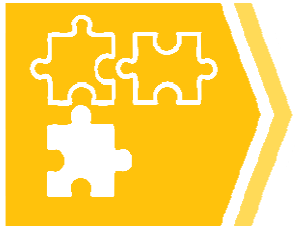
2



Data Collection + Analysis

- Systems evaluation
- Prioritization

3



Concepts

- Provide short-term objectives
- Develop strategies for future implementation
- Scope

Design Process [four step approach]

Q2. Approach

1 

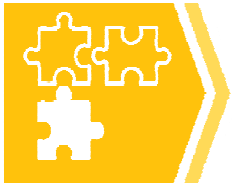
Schematic Design

- Design Alternatives
- Resultant Design

2 

Design Development

- Completion of Design

3 

Construction Documents

- Detailing Final Design
- Construction Documents

4 

Construction Administration

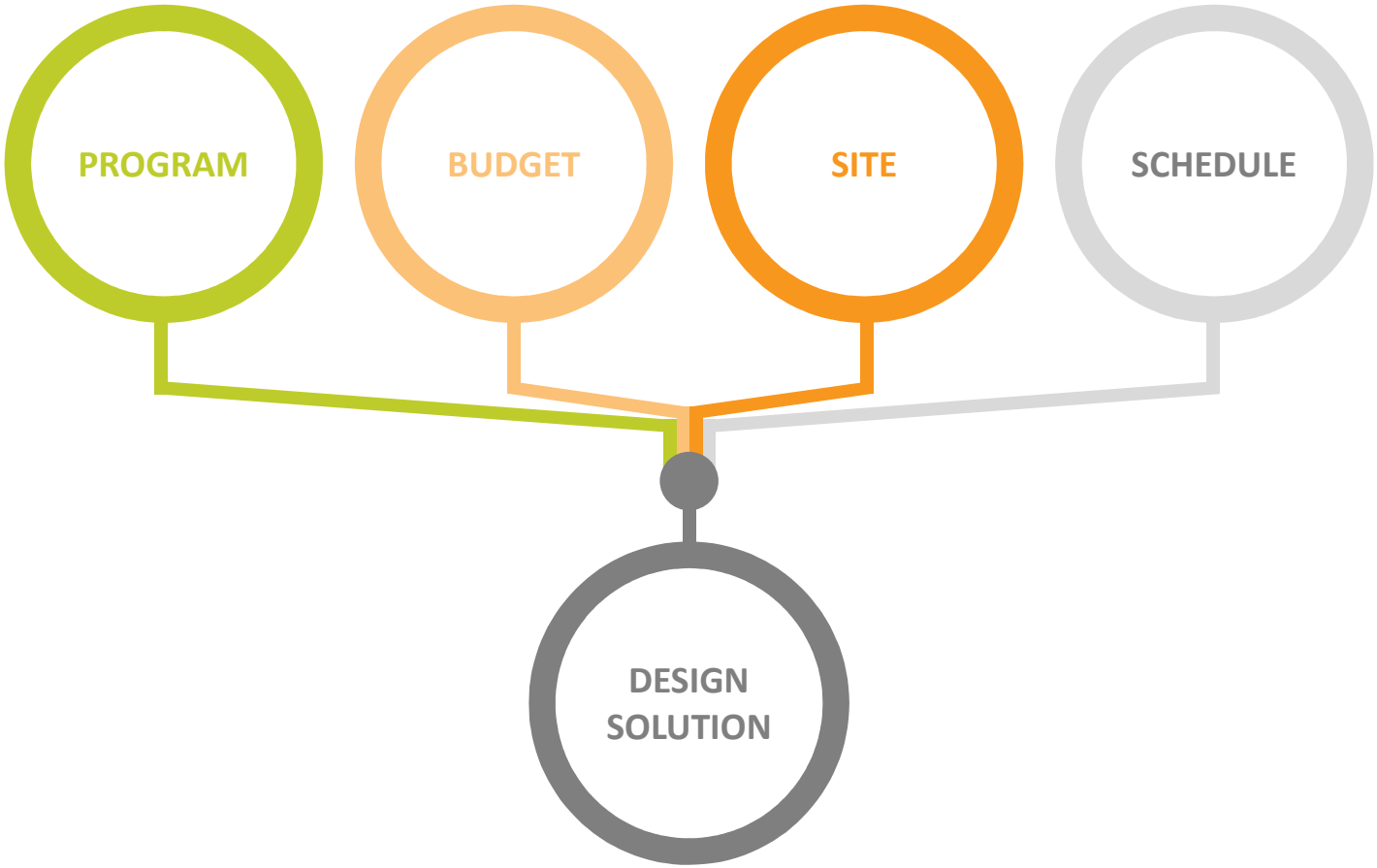
- Ensure Project is as Designed
- Closeout

Design Process [interiors]

Q2. Approach

Finishes…

Project Scope



Design Process [budget]

Q2. Approach

Land Values…

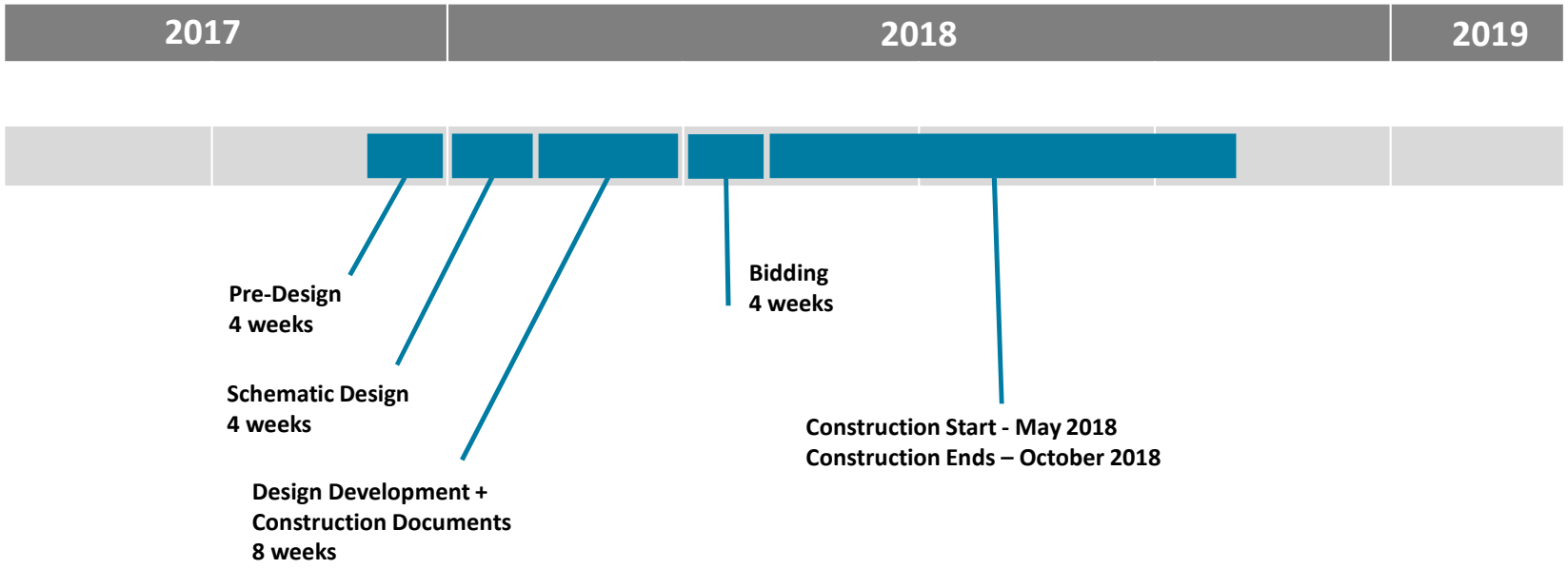
Increased 5% last year

Budget [analysis]

Land Value (2017)	**$60,000**
Building Value (2017)	**$120,000 - $160,000**
Building Square Footage (SF)	**Assume 1,400 SF**
Cost per SF	**$85.71 - $114.29**
Current Neighborhood $/SF	**$55 - $112 on building values of $85,000 – $117,000**
Sale Price	**$180,000 - $220,000**

Project Schedule

Schedule Per AE Request



The Right Team for Your Project

- **Thank You**
- Proven Experienced Team
- Commitment to Success of Your Project
- Staff Available & Ready to Begin
- Experience with the City process and Housing

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