Breaking Down Silos:
Integrating Water into Land Use Planning

INTEGRATING WATER INTO THE COMPREHENSIVE PLAN

Presented by:

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Why We Are Here

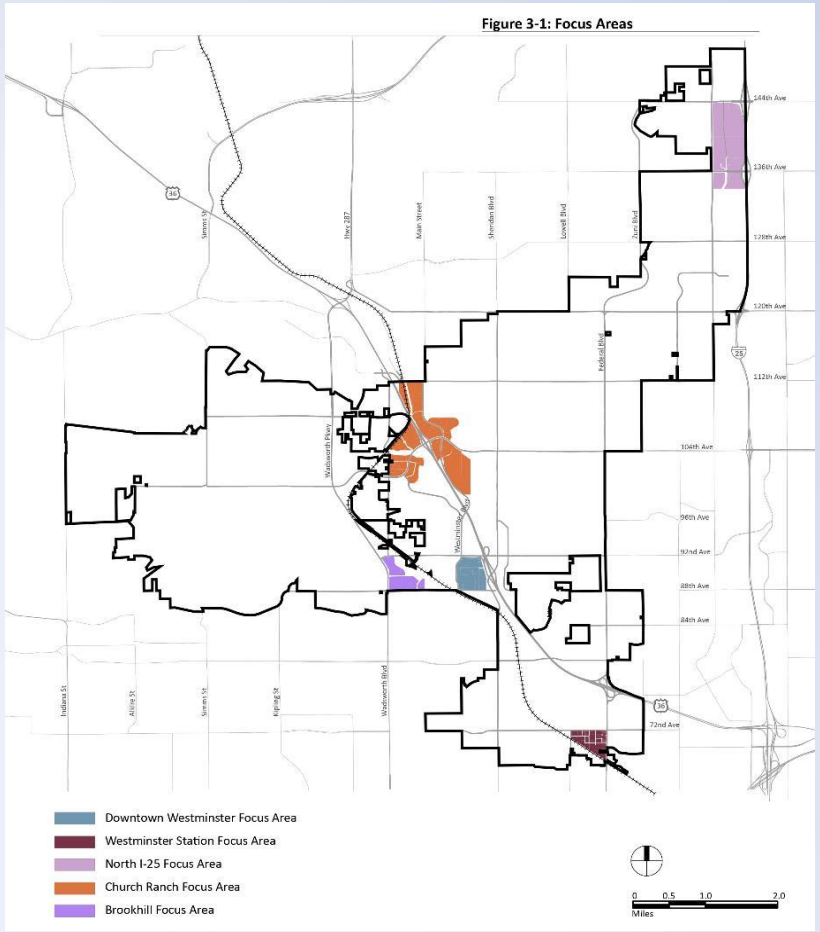
Takeaways: Leave here knowing…

1. The importance of the comprehensive plan.
2. The relationship between water conservation and the comprehensive plan.
3. The process of changing the plan and the boards responsible: how water planners can be involved.
4. Options for amending the plan to include water conservation.
5. Many of the best practices for water conservation that can go in the comprehensive plan.

AGENDA

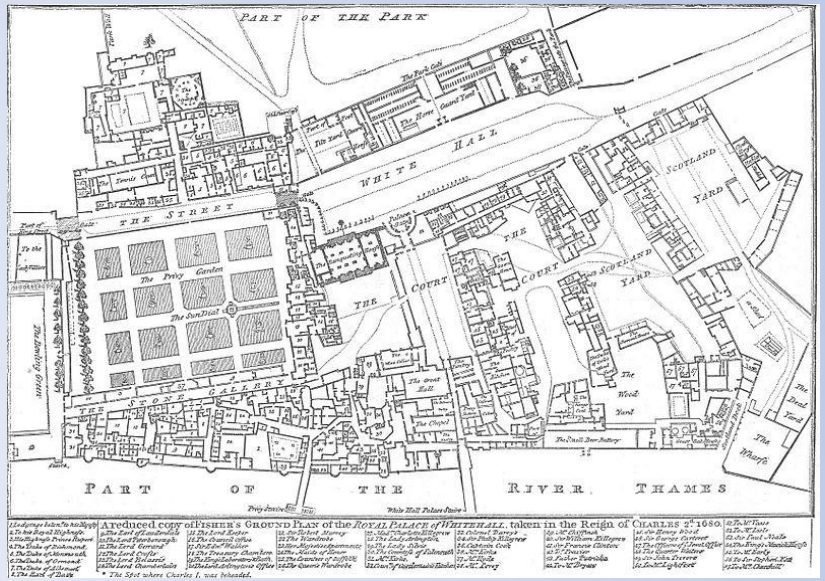
12:00 – 12:05	Welcome
12:05 -12:25	Introduction to Comprehensive Planning and Water Conservation
12:25 – 12:45	Best Practices for Water Conservation Planning
12:45 – 1:00	Question & Answers

THE LAND USE SYSTEM



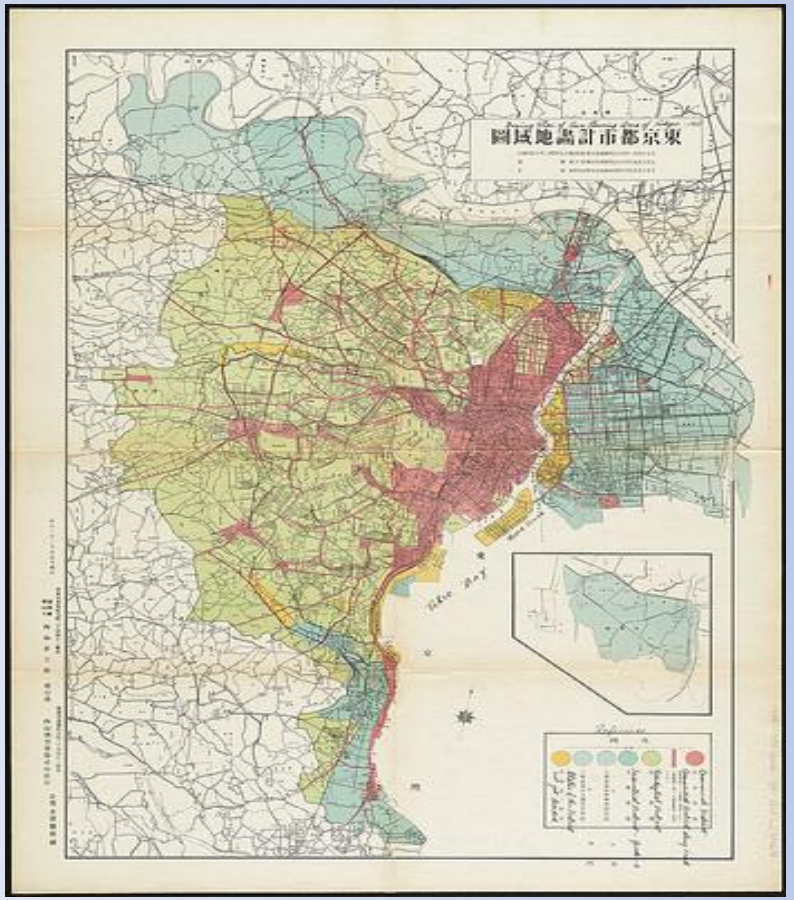
The Land Use System

- State Delegation of Powers
- Comprehensive Plan establishes community's vision
- Zoning must conform to comprehensive plan
- Comprehensive plan can focus on water conservation



Overview of Comprehensive Planning

- Plans contain long term goals, short term objectives, strategies, implementation techniques (or best practices)
- They are adopted by local planning commissions; most Colorado communities are required to adopt a plan
- Plans are visionary and advisory. In most cases they do not regulate directly
- Since zoning, which determines land use types and densities, has to conform to the plan, the plan will have a critical effect on future water use



Central Point

- For the Comp Plan to support water conservation, it must contain water conserving objectives
- The Comp Plan should contain zoning and land use strategies to achieve those objectives
- Water providers and experts are a necessary component of comprehensive planning

Coordinating Water and Land Planning

- Step-by-step Understanding of the Process of Amending the Comprehensive Land Use Plan
- Identifying the Land Planning Staff and Stakeholders
- Identifying the Water Planning Staff and Stakeholders
- Integrating Inputs Throughout the Process of Amending the Comprehensive Plan

INFRASTRUCTURE

- Comprehensive Plans include future infrastructure plans
- Need to know from water planners what the water infrastructure needs to be

How to Include Water Provisions

1. Adopt a comprehensive water element
   - This approach has the advantage of giving you the opportunity to involve the relevant stakeholders in a non-ideological process of water conservation, broadly, or

2. Add water conservation provisions throughout the plan, or

3. Do both

Water Conservation Overlay Zones

- With the input of water planners and stakeholders, the Comp Plan can designate overlay areas where water conservation is critical

- The plan can call for the adoption of a Water Conservation Overlay Zone, with specific regulations that limit water consumption and water pollution

Case Study: San Jose, CA

- Plan clearly defines growth areas and areas for conservation. This strategy emphasizes land use types that are more water conserving
- New development is emphasized in growth areas and is to create mixed-use, walkable places
- Clustering development and other techniques avoid environmental impacts in conservation areas
- New development in conservation areas is not to require significant increases in infrastructure

Case Study: San Jose, CA

- San Jose plan is a hybrid
- It contains a stand alone water component: Water Supply, Conservation, Recycling, and Quality
- It also incorporates water conservation methods in other chapters of the plan

Case Study: Take Away

Land use plans can follow one of three patterns:

1. Incorporate water efficient land use patterns into the land use chapter

2. Contain a discrete and separate water conservation element

3. A combination of 1 and 2: Hybrid

Goals and Objectives

Water conservation goals and objectives:

- The plan should contain data indicating what the per-capita water consumption is
- It should then create a goal of reducing that per-capita number significantly, such as by 50%
- One objective is to plan for new development in defined growth areas to accomplish this goal
- Another is to call for water conservation through the landscaping practices and fixtures that are less water consumptive

Best Practices

Three different best practice categories:

1. Those that affect land use patterns

2. Those that affect landscaping practices, including exterior fixtures

3. Those that affect interior fixtures

Best Practices Affecting Land Use Patterns

Identify land uses that create patterns that are water conserving.

- Compact, mixed-use development
- Higher density development
- Single-family homes with smaller lots
- Clustered residential subdivisions
- Multi-family housing
- In-fill development

Best Practices

Additional Practices that Affect Land Patterns

- Innovative zoning techniques, such as floating or overlay zoning or bonus density zoning
- Green infrastructure

Example: Higher Density, Sustainable Buildings

Castle Rock's plan calls for high-density development in interchange districts… "to integrate water conservation and water quality design into proposed land use plans."

Aurora's plan integrates water conservation in its Building Urban Activity Centers section: sustainable buildings "require less water and energy."

EXAMPLE: CLUSTERING

Chico, California general plan includes a goal "to conserve water resources and improve water quality." As an action to support this goal it calls for "avoiding impacts to groundwater recharge areas through…clustering of development."

Larimer County's plan calls for smaller lot sizes by requiring 80% open space preservation achieved through clustering.

Best Practices: Infill Development

Colorado Spring's land use chapter calls for infill development projects acknowledging their efficient use of public infrastructure including water and wastewater.

Aurora's plan calls for infill development to create neighborhood livability and allowing the phased extension of existing water lines in the most cost-affective manner.

FURTHER EXAMPLES

- **The Southern California Association of Government's** model plan calls for "greater *emphasis on multi-family housing* to help reduce per-capita water consumption."

- **Aurora's** plan calls for *green infrastructure* including tree planting, xeriscaping, community gardens.

Landscaping Best Practices

Identify landscaping practices that are water conserving as strategies and implementation techniques.

- Xeriscaping
- Soil quality and turf requirements
- Allowable plants
- Tree size requirements
- Irrigation system efficiency requirements
- Water loss limits

LANDSCAPING FIXTURE BEST PRACTICES

Identify landscaping fixture practices that are water conserving as strategies and implementation techniques.

- Irrigation system efficiency requirements
- Rain sensors
- Water harvesting
- Fixture efficiency standards
- Positive shut offs

Water Conserving Fixture Best Practices

Identify interior fixtures that can be made more water conserving:

- Green plumbing
- Water reuse
- Low-flush toilets
- Low-volume interior faucets
- Smart meters

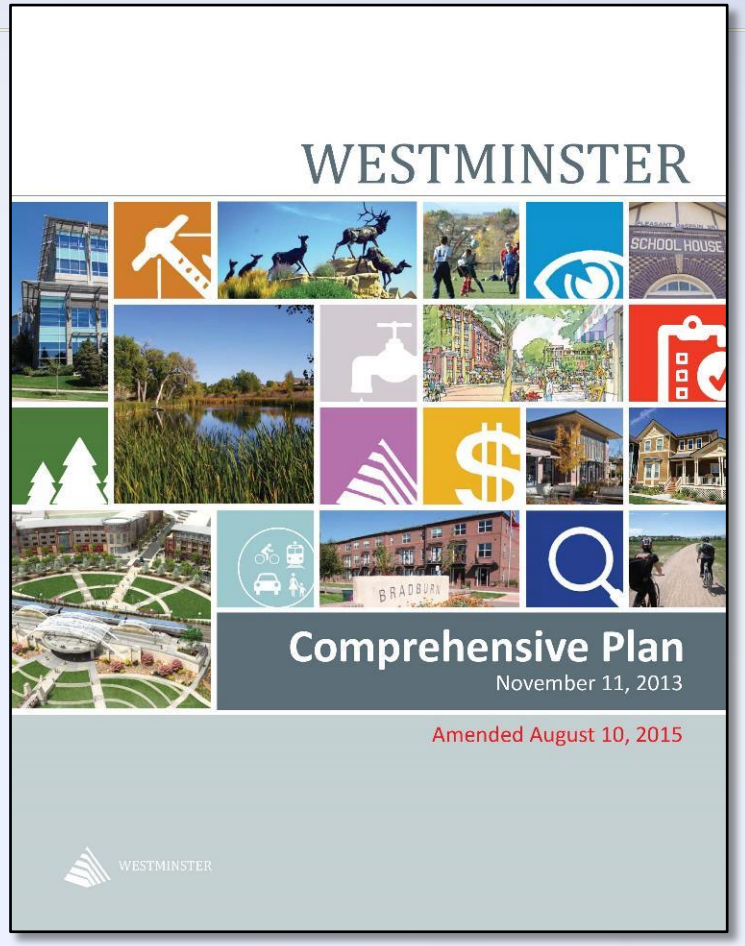
Water Conservation -Best Practices

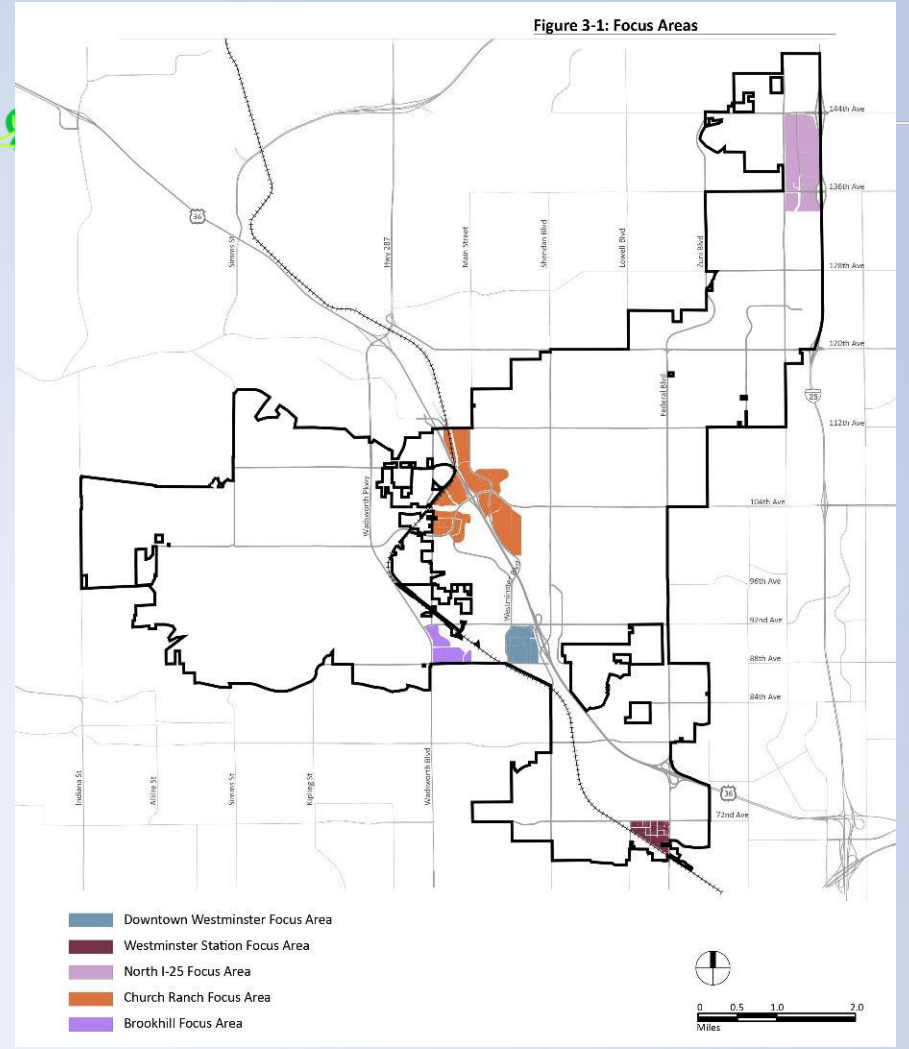
WATER CONSERVATION IN THE LAND USE SYSTEM						
Water Conservation Measures	**Comp Plan**	**Zoning Regulations**	**Subdivision Regulations**	**Site Plan**	**Building Code**	**Plumbing Code**
LANDUSE						
Urban growth boundary	✓					
Denser development(more homes/acre)	✓	✓	✓	✓		
Cluster development (reduce lot size)	✓	✓	✓	✓		
Mixed-use development	✓	✓	✓	✓		
Mixed housing types	✓	✓	✓	✓		
Compact mixed use	✓	✓	✓	✓		
EQUIPMENT						
Green plumbing code	✓		✓	✓		✓
Indoor fixture efficiency standards	✓				✓	✓
Reuse of water	✓				✓	✓
Smart meters	✓				✓	✓
Sub metering multifamily units	✓				✓	✓
Incentives	✓					
LANDSCAPE						
Landscape codes matched to land use type	✓		✓	✓		
Landscape plan requirements(xeriscaping)	✓	✓	✓	✓		
Soil quality requirements	✓		✓	✓		
Plant list/Allowable plants	✓		✓	✓		
Tree size requirement	✓		✓	✓		

Westminster City Council Strategic Plan Objective:

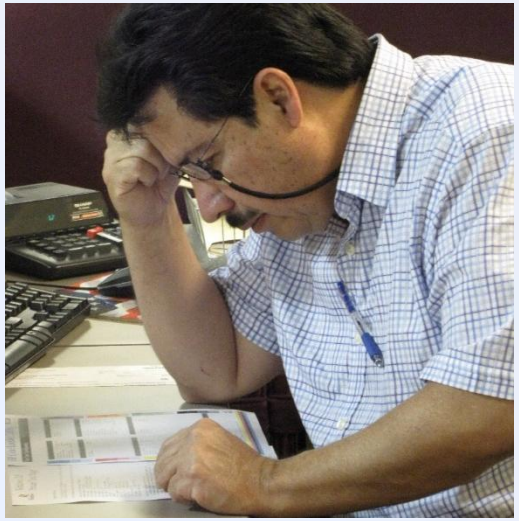
"Westminster is the next Urban Center of the Colorado Front Range"

City of Westminster 2013 Comprehensive Plan



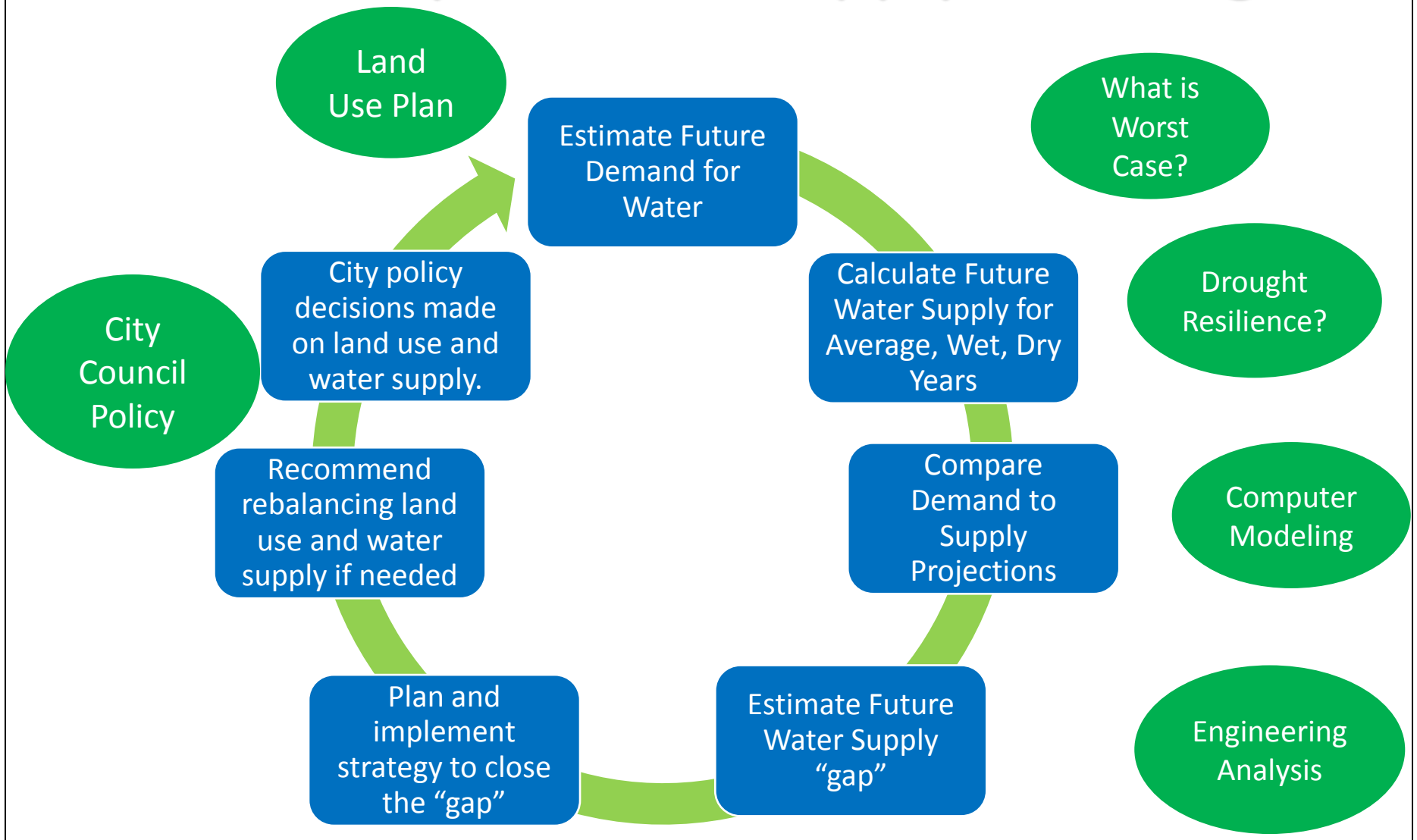


Relationship between Land Use Planning and Water Planning

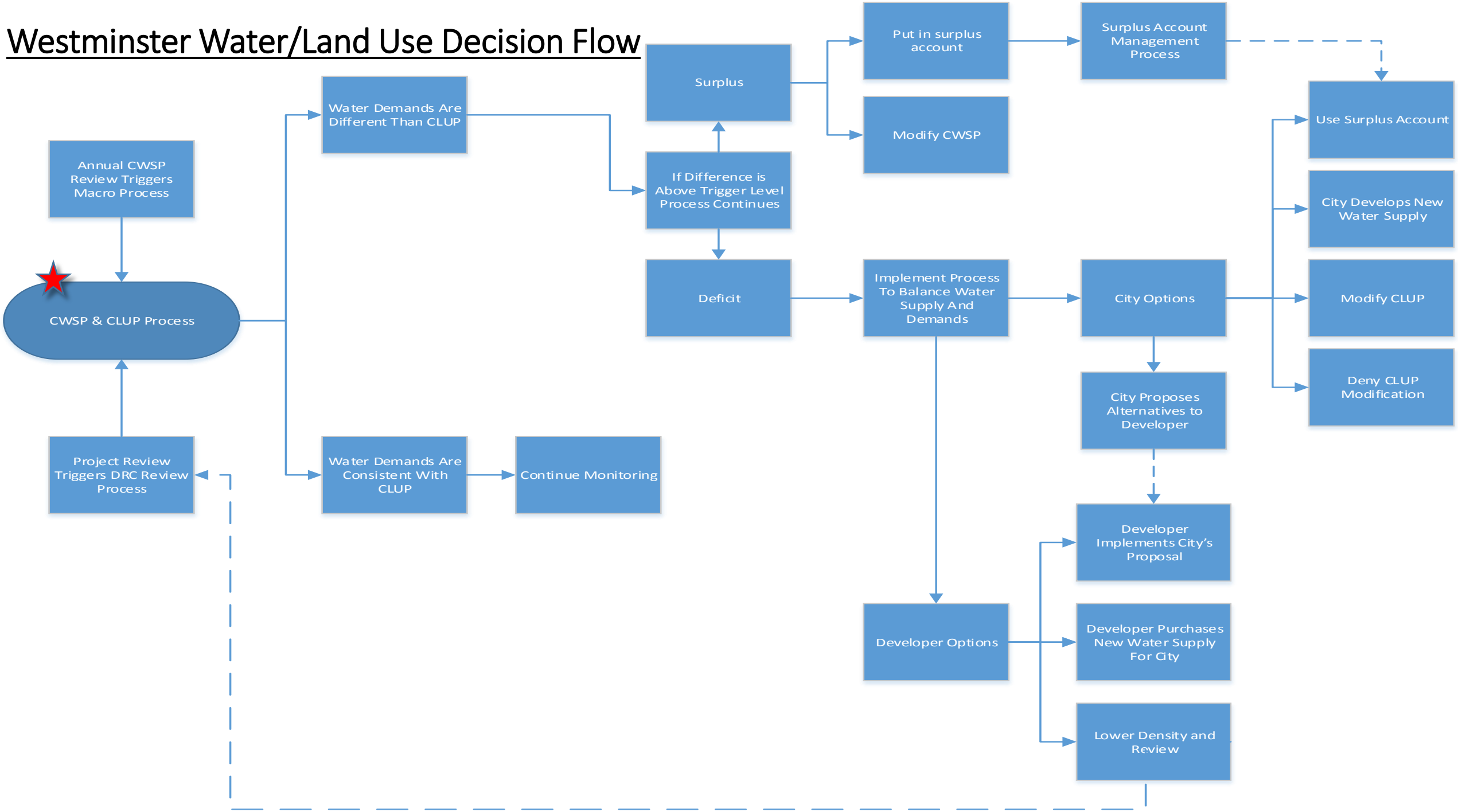


1. Consistent Coordination & Communication
2. Landscape Code
3. Inspections Process
4. Post Occupancy Permit Inspections
5. Audits
6. Right Pricing of Utilities
7. Comprehensive Plan & Comprehensive Water Supply Plan updates

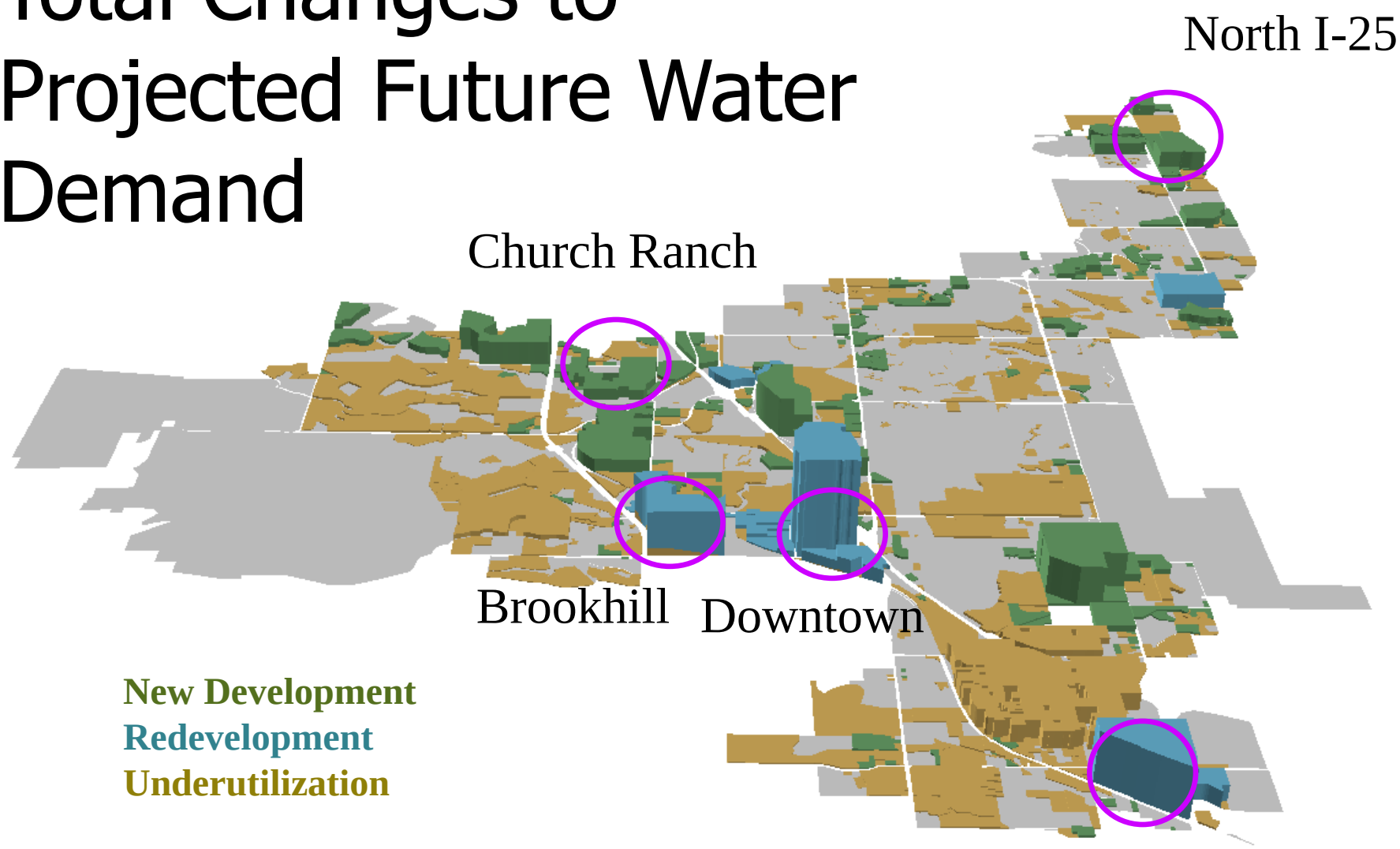
Municipal Water Supply Planning



Westminster Water/Land Use Decision Flow



Total Changes to Projected Future Water Demand



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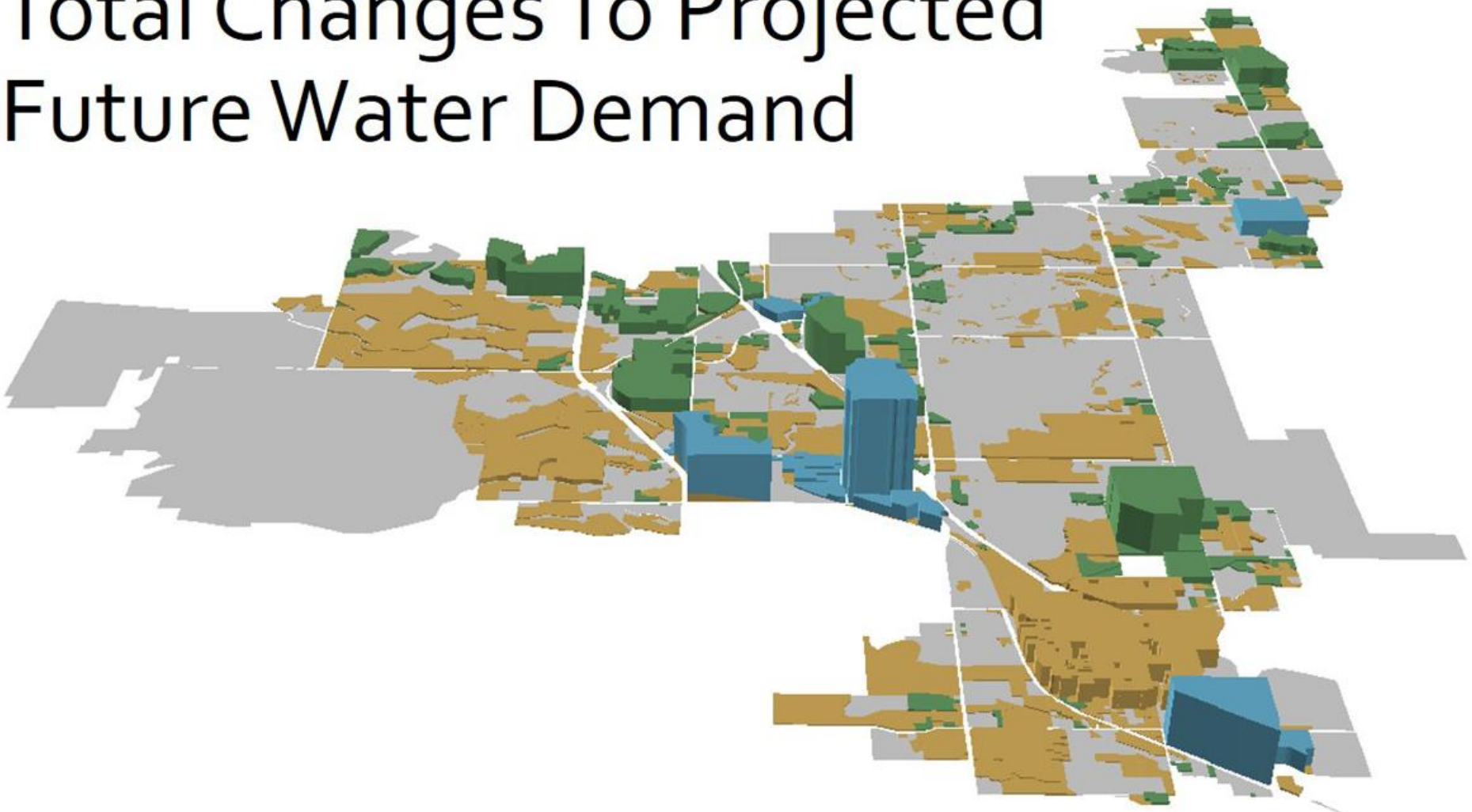
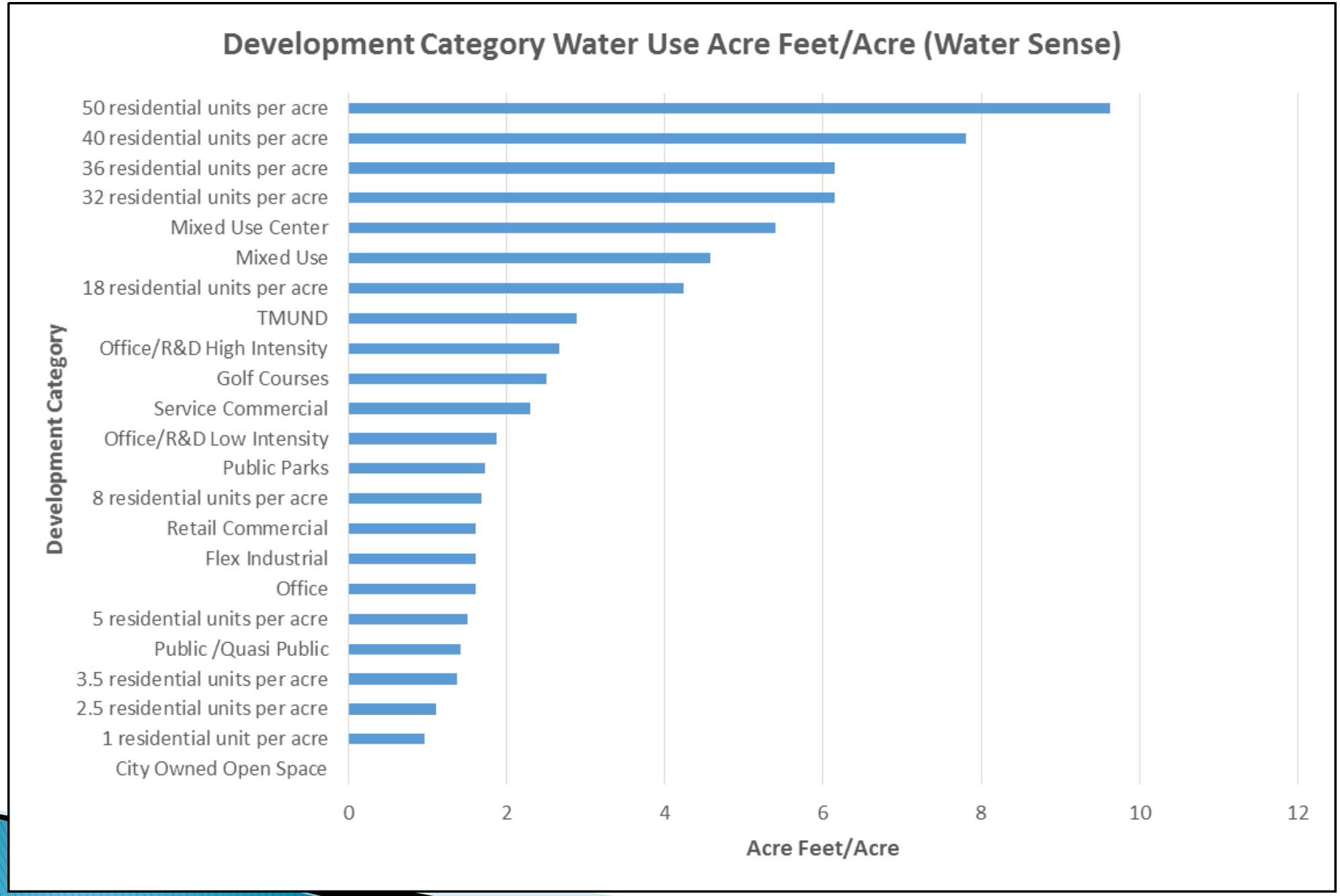
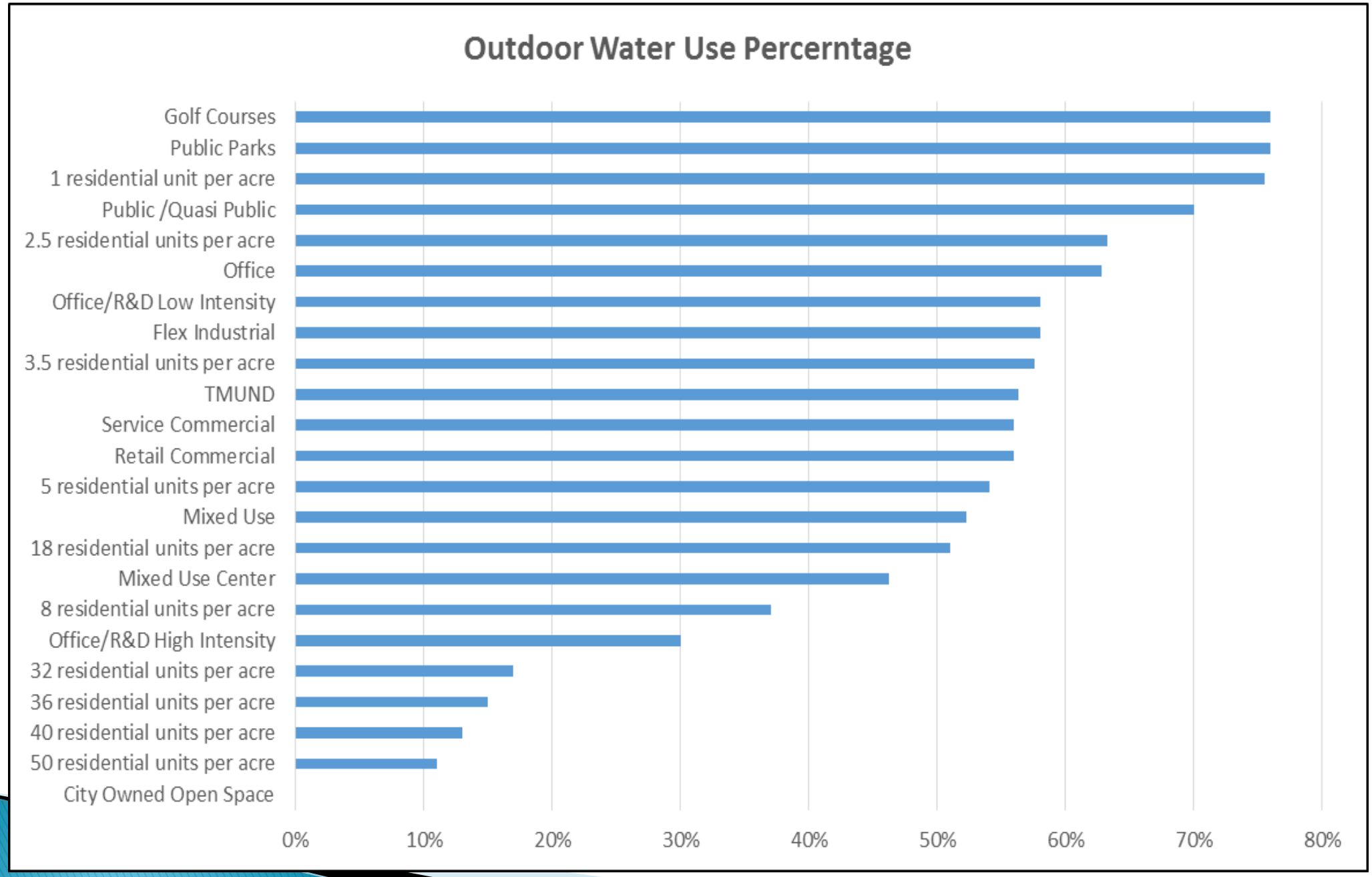


By implementing the Comprehensive Water Supply Plan, we can support this vision of the future of the city.


Development Category Water Use Acre Feet/Acre (Water Sense)
50 residential units per acre
40 residential units per acre
36 residential units per acre
32 residential units per acre
Mixed Use Center
Mixed Use
18 residential units per acre
TMUND
Office/R&D High Intensity
Golf Courses
Service Commercial
Office/R&D Low Intensity
Public Parks
8 residential units per acre
Retail Commercial
Flex Industrial
Office
5 residential units per acre
Public /Quasi Public
3.5 residential units per acre
2.5 residential units per acre
1 residential unit per acre
City Owned Open Space
Development Category
0
2
4
6
8
10
12
Acre Feet/Acre


Outdoor Water Use Percerntage
Golf Courses
Public Parks
1 residential unit per acre
Public /Quasi Public
2.5 residential units per acre
Office
Office/R&D Low Intensity
Flex Industrial
3.5 residential units per acre
TMUND
Service Commercial
Retail Commercial
5 residential units per acre
Mixed Use
18 residential units per acre
Mixed Use Center
8 residential units per acre
Office/R&D High Intensity
32 residential units per acre
36 residential units per acre
40 residential units per acre
50 residential units per acre
City Owned Open Space
0%
10%
20%
30%
40%
50%
60%
70%
80%

Density of Development Drives Water Use
Traditional Single Family vs. Current

Weatherstone

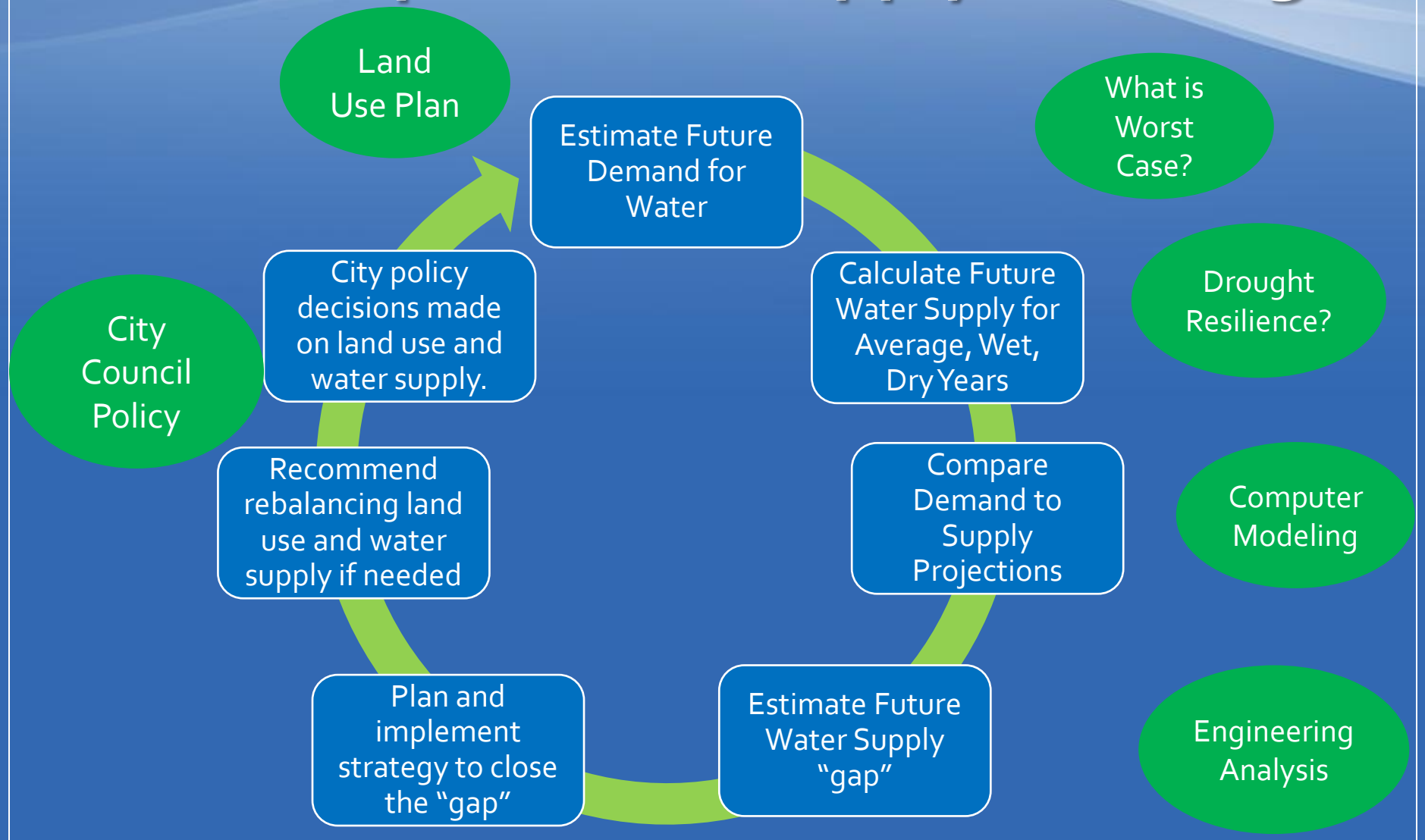
- 2.20 AF/acre
- 0.18 AF/Person

Bradburn

- 3.10 AF/acre
- 0.09 AF/Person

More dense = higher water use per acre, less per person

Municipal Water Supply Planning



Questions?

Next Steps & Upcoming Trainings

Visit: http://cwcb.state.co.us/WATER-MANAGEMENT

Contact: kevin.reidy@state.co.us

Upcoming Webinars

November 1, 2016(changed from Oct. 25th) *Integrating Water Efficiency into the Zoning Code*