



**Pima County Regional Wastewater  
Reclamation Department**

# **Pima County Regional Optimization Master Plan (ROMP)**



**December 2009**



# Regulatory Implementation Requirements to Reduce Total Nitrogen Concentrations

**Ina Road WRF**

**Roger Road WRF**



<ul style="list-style-type: none"> <li>✓ <b>Complete initial engineering study</b></li> <li>✓ <b>Recommendation for upgrading treatment plants</b></li> <li>✓ <b>Submit recommended plan letter to ADEQ</b></li> </ul>	<p><b>February 1, 2007</b></p>	<p><b>January 30, 2007</b></p>
<p><b>Award contract for construction</b></p>	<p><b>December 31, 2010</b></p>	<p><b>January 30, 2011</b></p>
<p><b>Treatment of effluent to non-toxic nitrogen levels</b></p>	<p><b>January 30, 2014</b></p>	<p><b>January 30, 2015</b></p>

## **Program Goal**

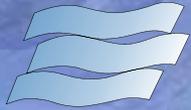
**Develop the optimal treatment process and plan to comply with regulatory requirements to reduce total nitrogen concentrations in discharged effluent**

## **Program Opportunities**

- ✓ **Develop a coordinated capital improvement plan for the regulatory compliance requirements and the long-term capacity needs of the County**
- ✓ **Develop a regional plan for the treatment, handling and reuse of system biosolids and bio-gas, and for modernization of energy facilities**
- ✓ **Develop a financial plan to support the system's regulatory, rehabilitation and expansion needs for the next twenty years**
- ✓ **Utilize state-of-the-art technology/automation**
- ✓ **Design facilities as showcase for County sustainability goals**
- ✓ **Obtain stakeholder and community input and acceptance**

## **Regional Optimization Master Plan**

**A master plan to integrate goals and opportunities into a long-term strategic plan for the Department**

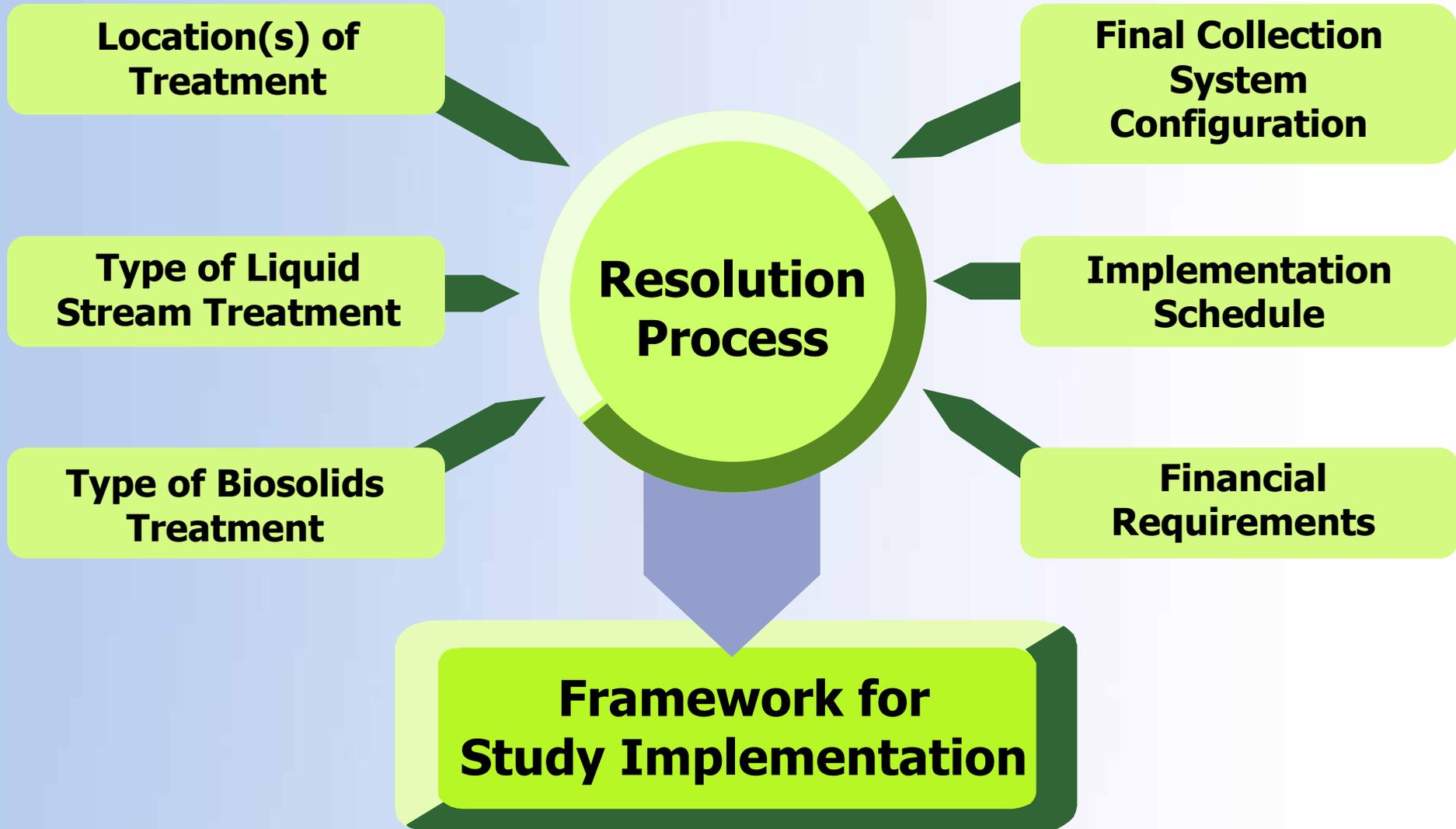


# Pima County Regional Optimization Master Plan

## **ROMP Program** **Key Planning** **Strategies**



# What to Decide



# Stakeholders

**Pima County Regional Wastewater Reclamation Department**

**Other Pima County departments**

**Tucson Water**

**Metro Water**

**Oro Valley Water**

**Marana**

**South Tucson**

**ADEQ**

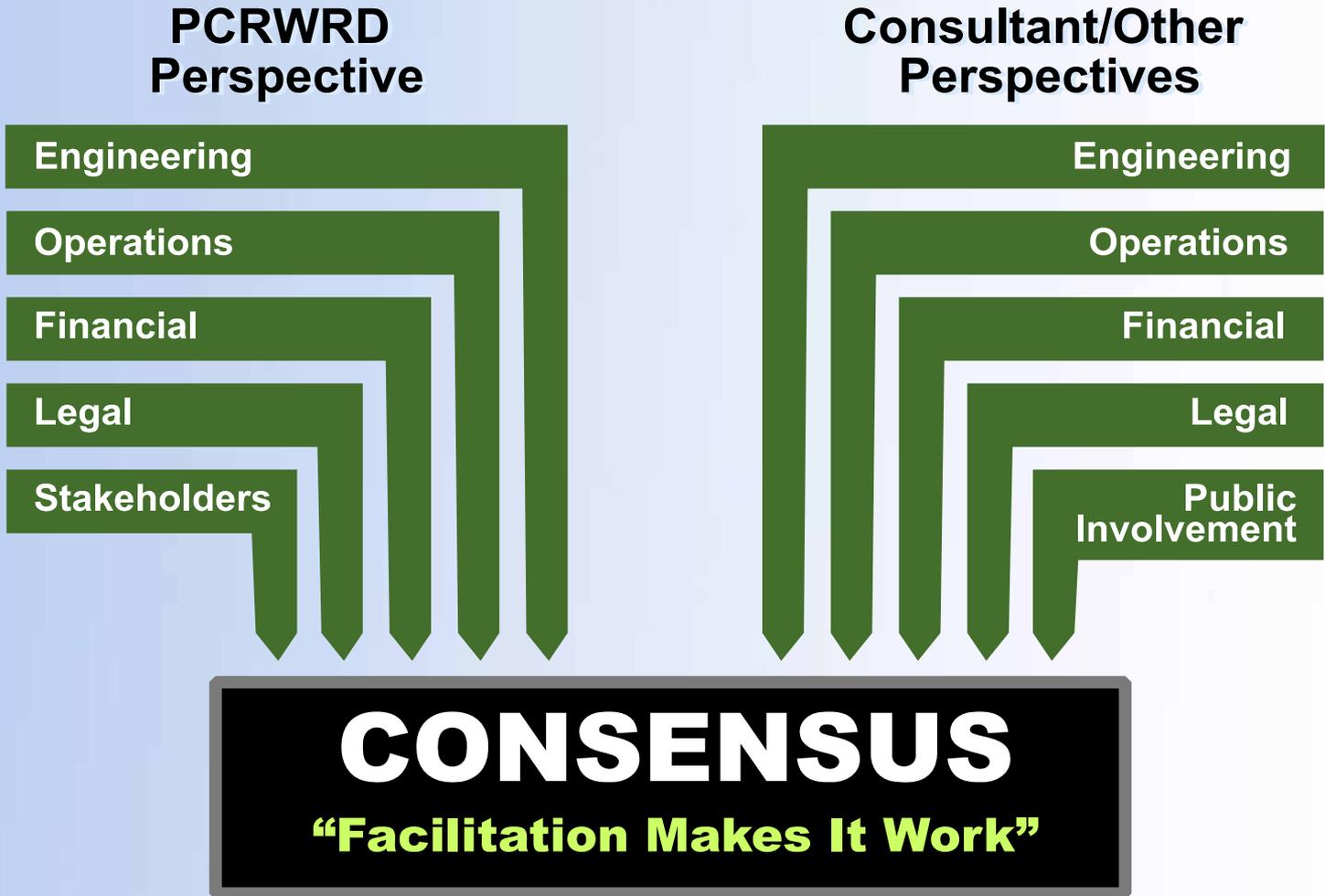
**Others**



Pima County Regional  
**FLOOD CONTROL**  
DISTRICT



# Teamwork

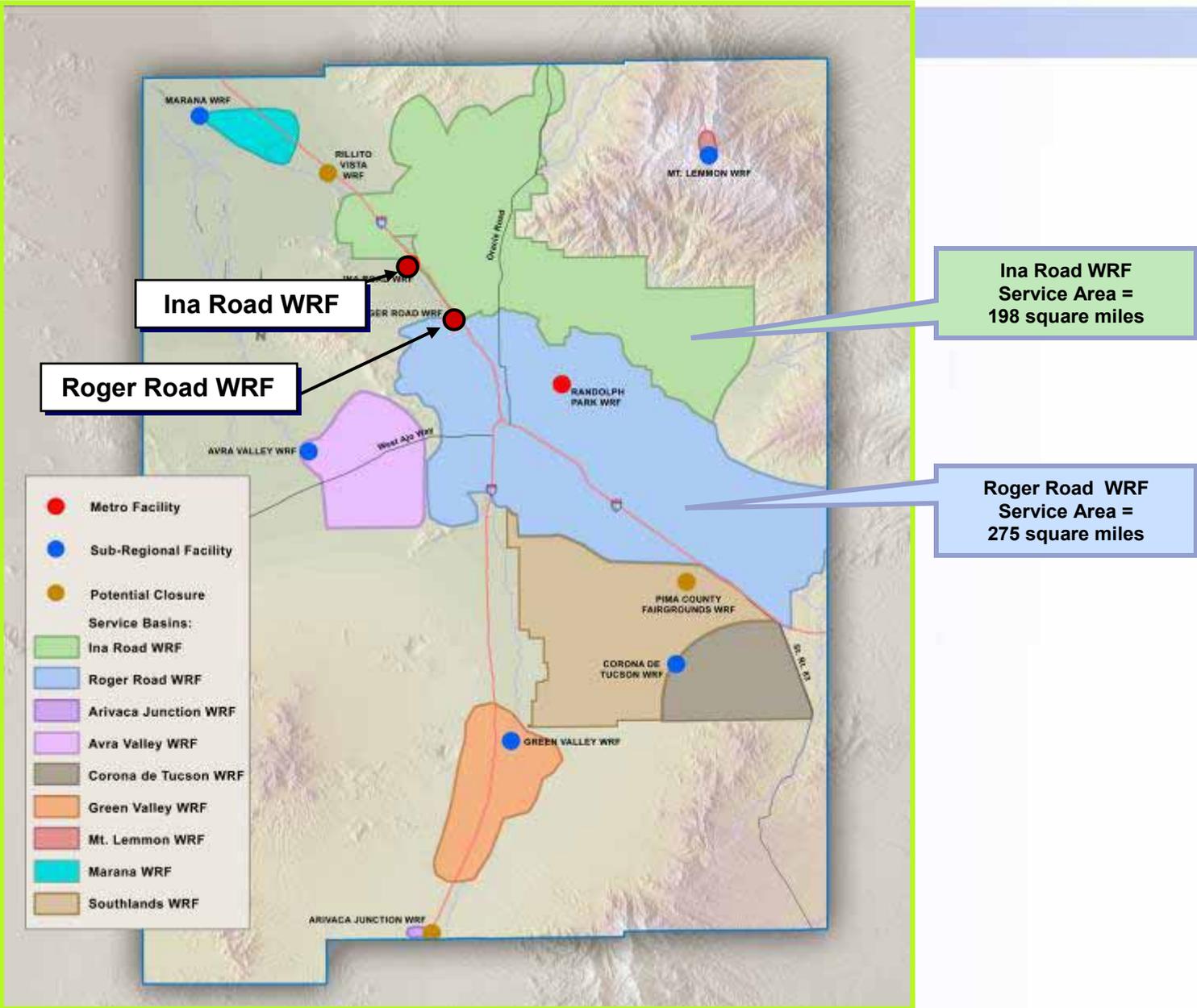


# Collaborative Workshop Process



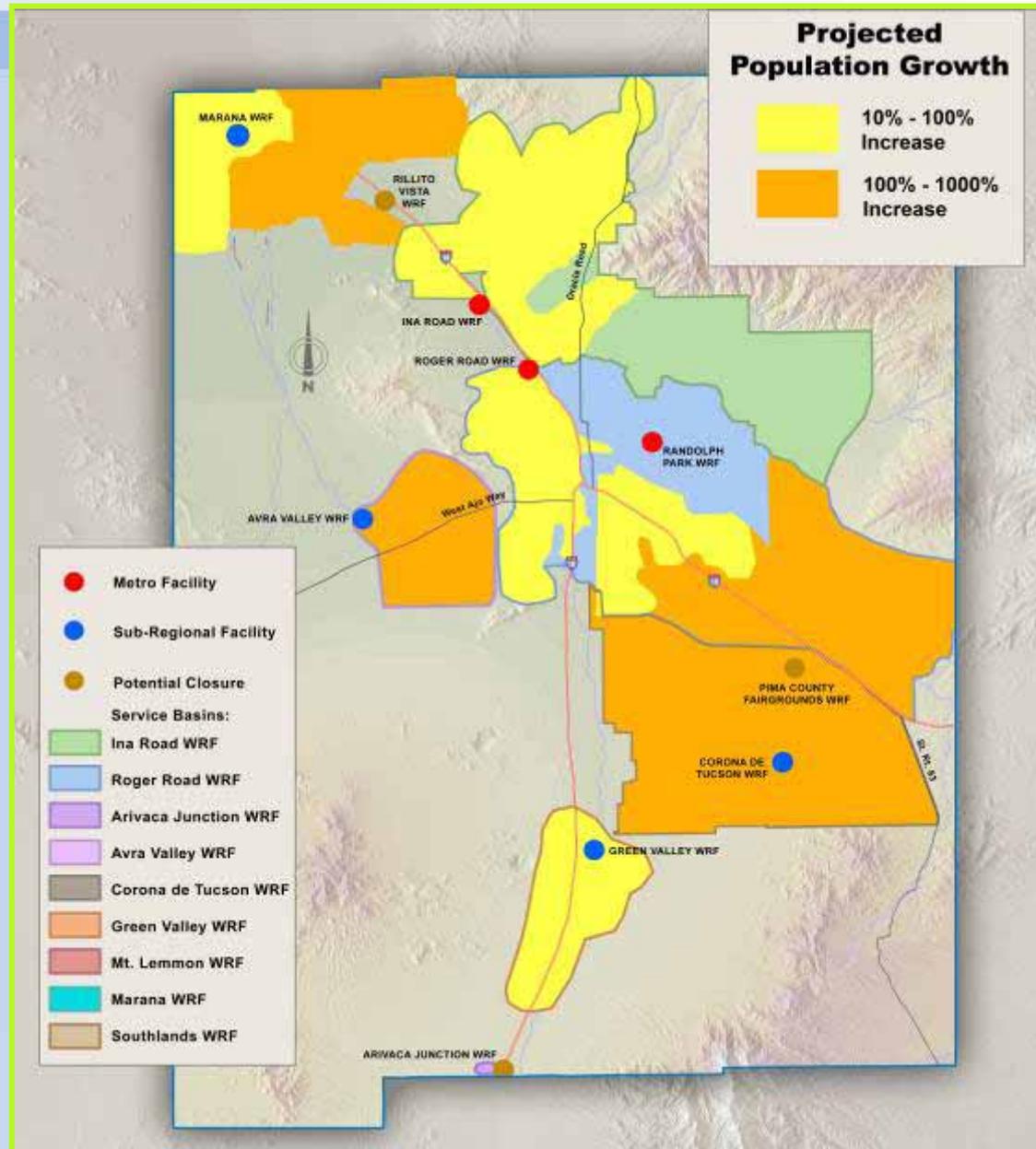
# Gather Critical Information

## Pima County Metropolitan Wastewater Service Area

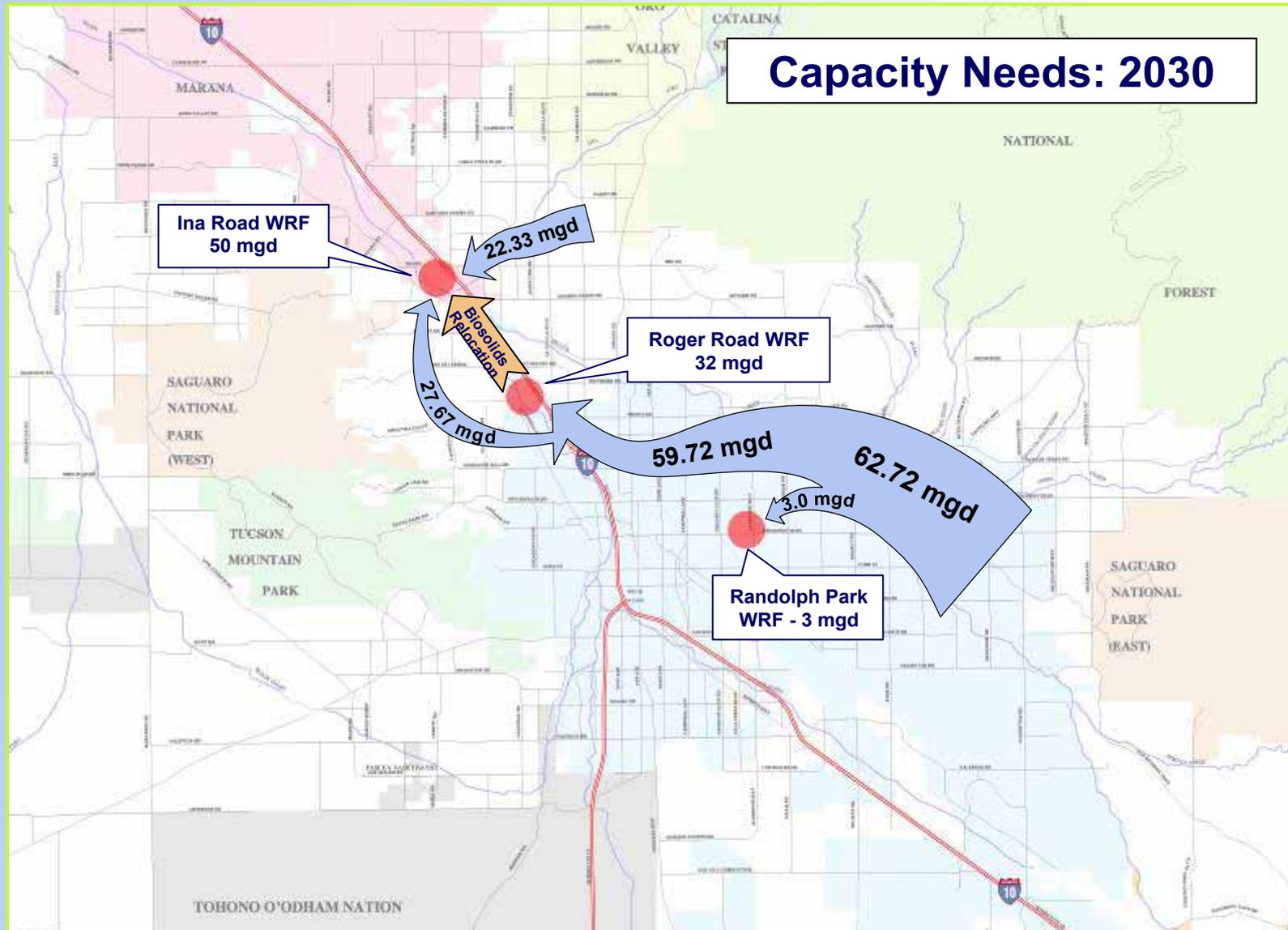


# Gather Critical Information

## County Projected Population Growth



# Evaluate Long-term Capacity Needs



# Evaluate Treatment and Collection System Issues



# Evaluate Project Delivery Alternatives



**Design-Bid-Build  
(Bid-Build)**

**Construction-Manager-  
at-Risk (CM@R)**

**Design-Build (DB)**

**Design-Build-Operate  
(DBO)**

**Design-Build-Finance-  
Operate (DBFO)**

# Evaluate Risk Considerations

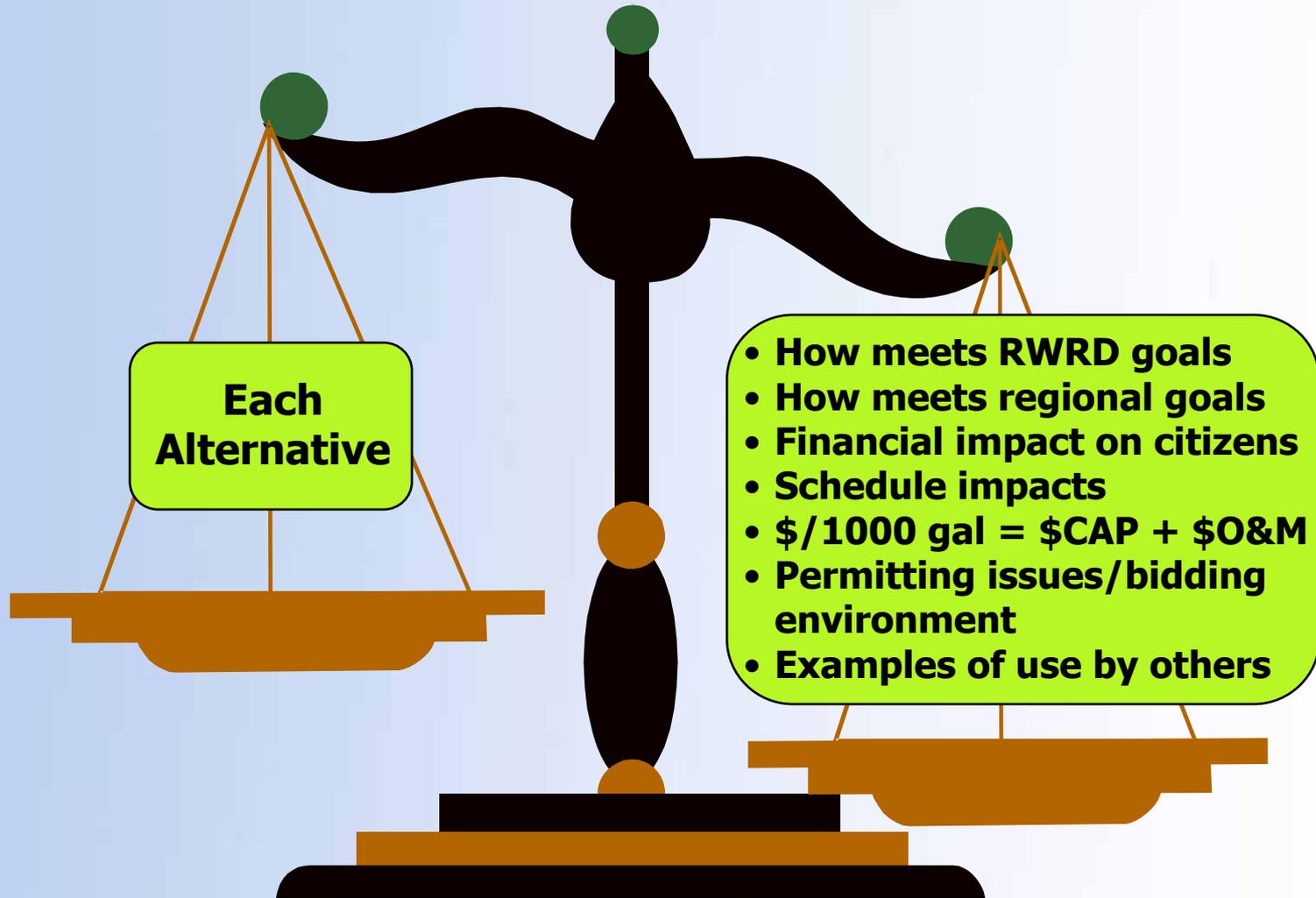


- **Risks retained by County**
  - ▶ **"As Is"**
- **Transferrable risk**
  - ▶ **Permitting**
  - ▶ **Design**
  - ▶ **Operations and maintenance**
- **Shared risk**

# Evaluate Financial Planning Considerations



# Evaluate Alternatives and Sub-alternatives



# Final Decision Process

**Tolerance  
of Risk**

**Ease of  
Operation**

**Cost/Financial  
Impacts**

**Technical  
Viability**

**History of  
Performance**

**Schedule  
Impacts**

**Stakeholder/  
Customer Attitudes**

**Philosophical  
Issues**

**Membranes  
Now or Later**



**DECISION**





# Pima County Regional Optimization Master Plan

## **ROMP Program Master Plan Elements**



# ROMP Plan at a Glance

- ✓ **Upgrade and Expand Ina Road WRF to 50 mgd**

Centralized solids handling and bio-gas power generation

- ✓ **Construct new 32 mgd Water Reclamation Campus  
(in vicinity of existing Roger Road WRF)**

Regional laboratory and staff facilities

- ✓ **Plant Interconnect – 36 mgd average, 81 mgd peak flow**

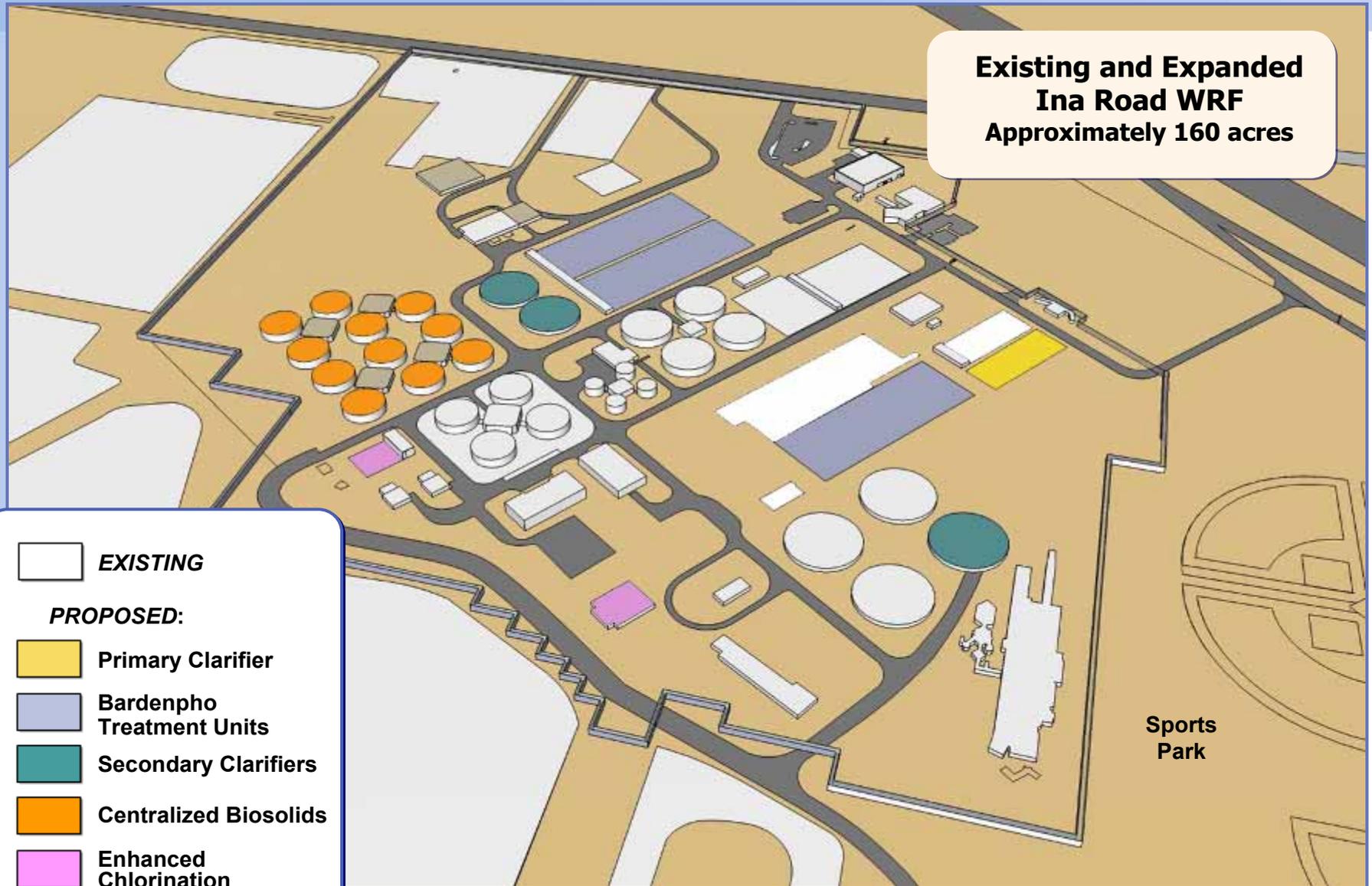
Major wash crossings and odor control structures

- ✓ **Good neighbor facilities**

Odor control, architecturally compatible to local area

- ✓ **Decommission existing 41 mgd Roger Road WRF**

# Ina Road WRF Expansion and Upgrade



Existing and Expanded  
Ina Road WRF  
Approximately 160 acres

-  **EXISTING**
- PROPOSED:**
-  **Primary Clarifier**
-  **Bardenpho Treatment Units**
-  **Secondary Clarifiers**
-  **Centralized Biosolids**
-  **Enhanced Chlorination**

Sports Park

# New Water Reclamation Campus

**Solar  
Energy  
Facility**

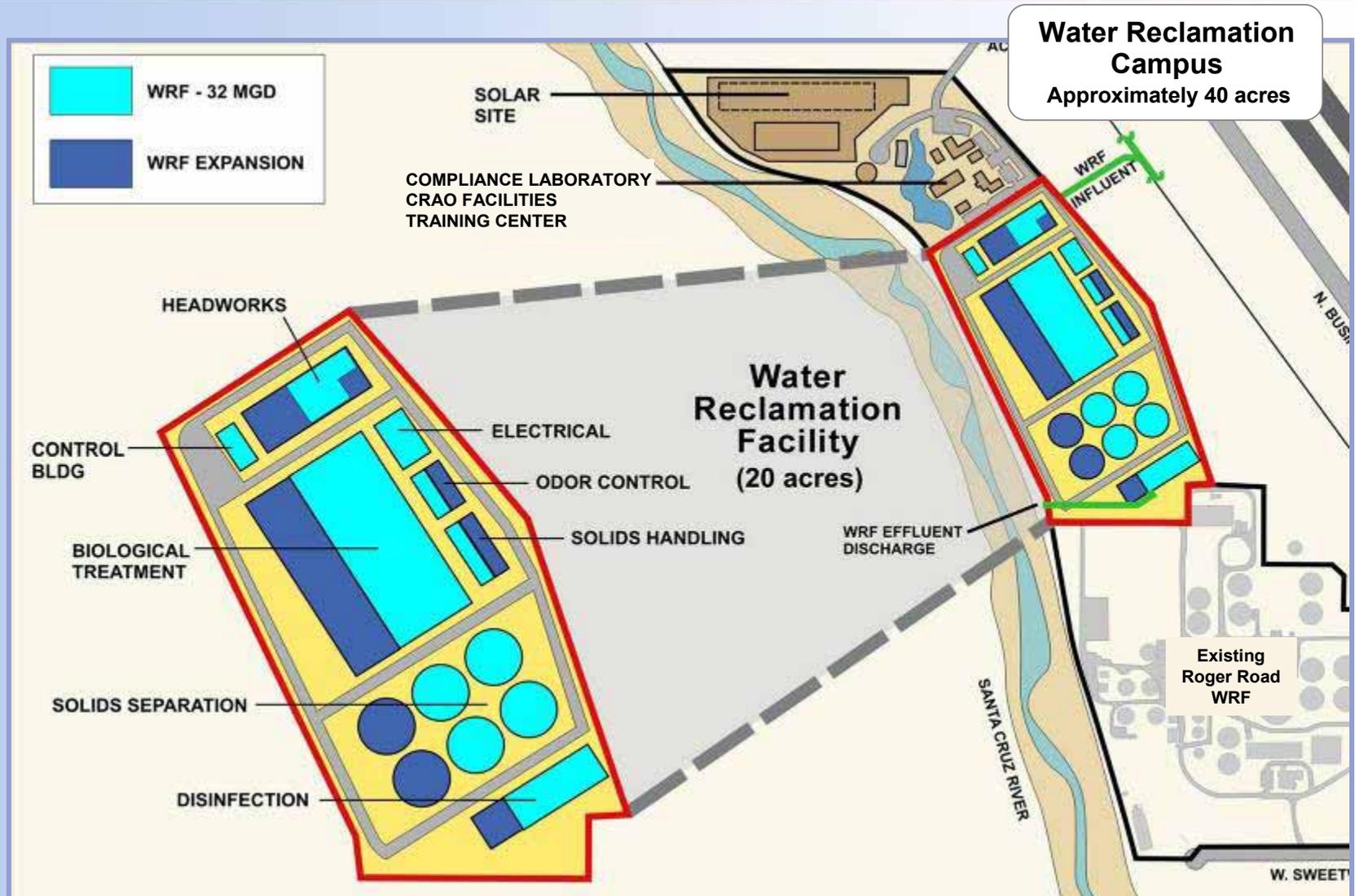
**Compliance laboratory,  
Compliance and  
Regulatory Affairs Office  
facilities, Training center**

**32 MGD  
Water  
Reclamation  
Facility**

**Future  
Sustainability  
Research and  
Development  
Campus**



# New Water Reclamation Campus



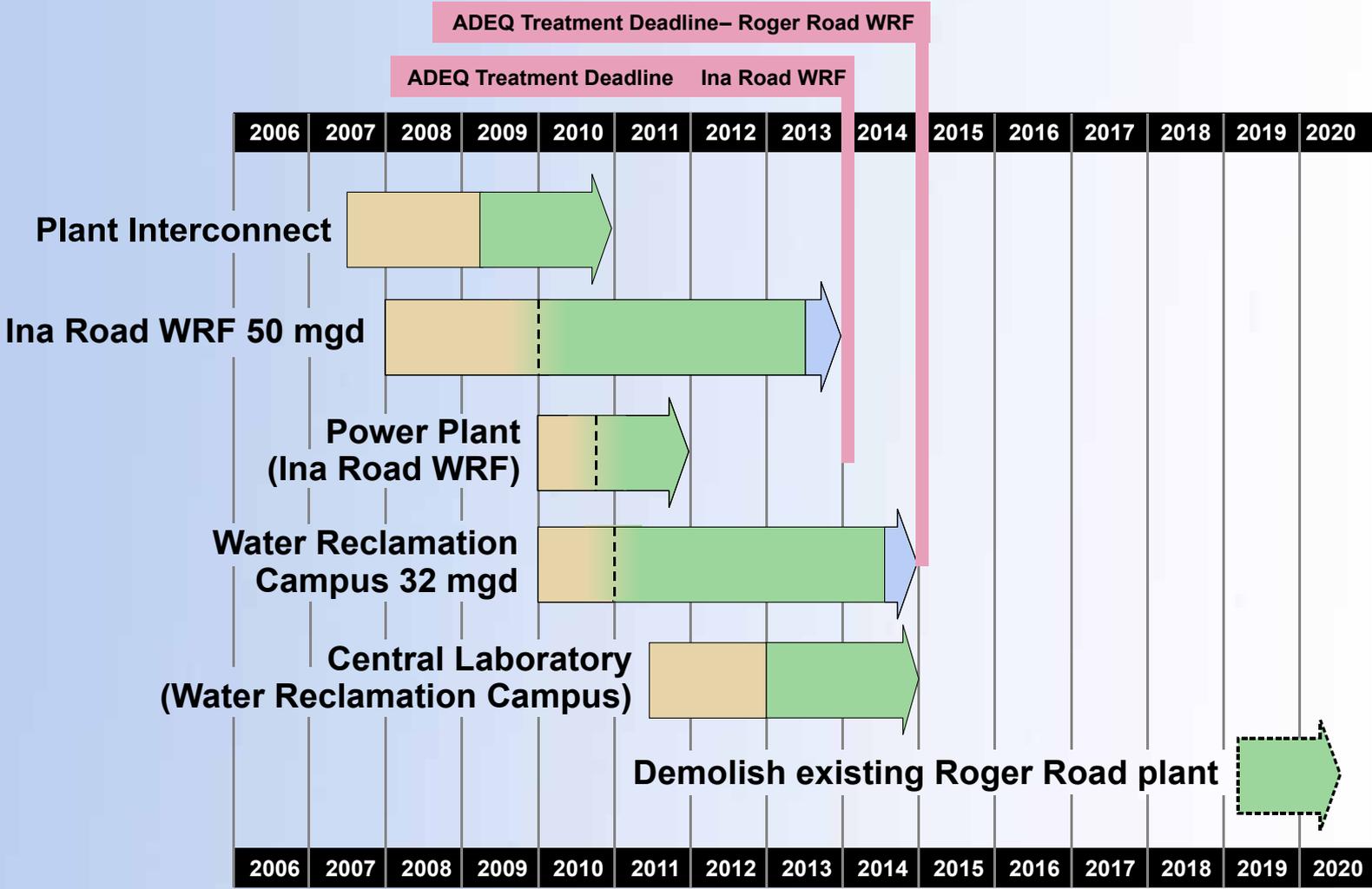
# Plant Interconnect Pipeline

- **Five miles of 60" to 72" line connecting two metropolitan facilities**
- **Flow management and capacity management between the facilities**
  - ▶ **36 mgd average, 81 mgd peak flow**

The Plant Interconnect Pipeline is being constructed with the help of ARRA stimulus funds



# ROMP Implementation Schedule



# ROMP Implementation Costs

**ROMP planning level estimated cost  
(2006 dollars):**

**\$536 million**

**ROMP budget including  
cost inflation (assuming an  
inflation rate of 5%):**

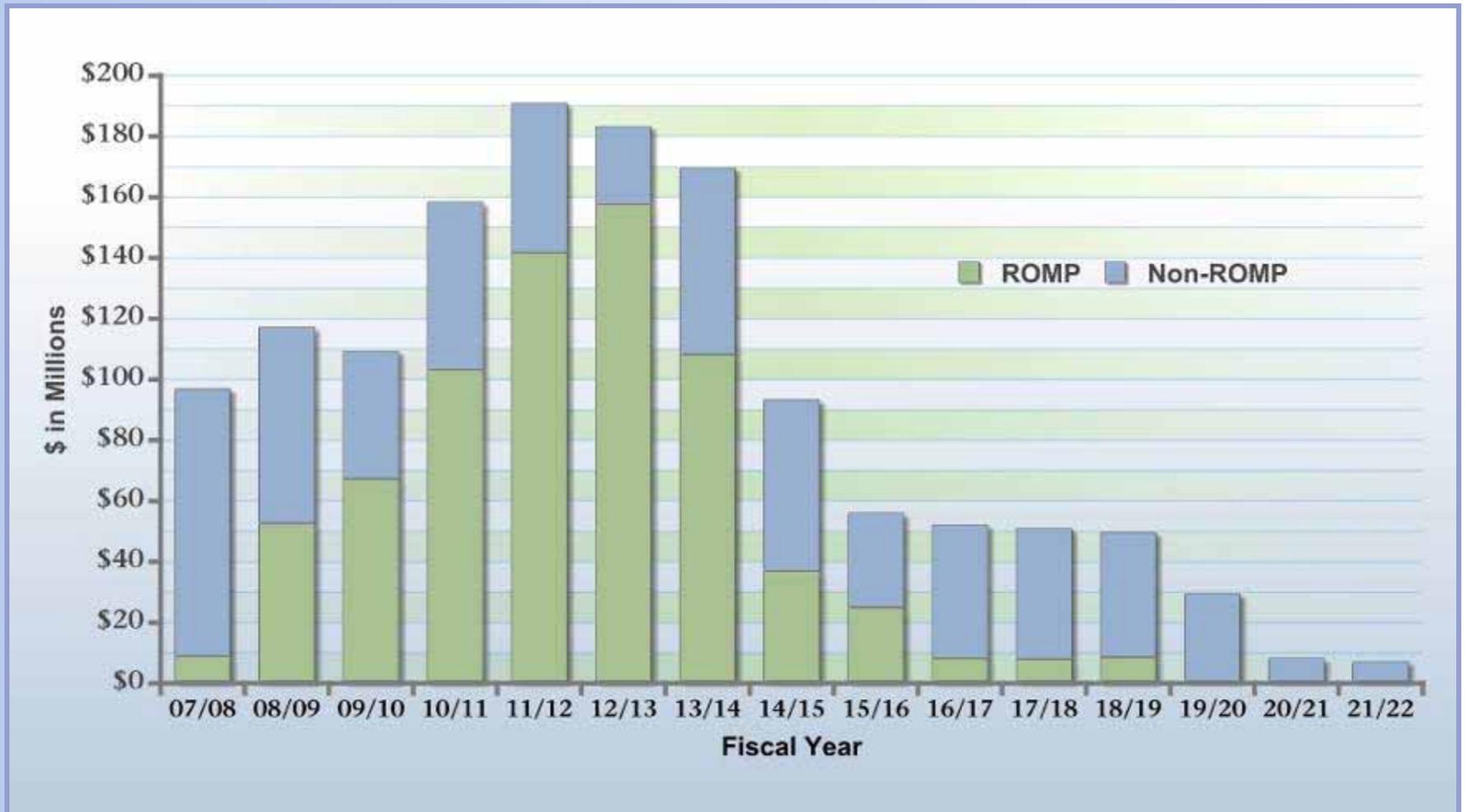
**\$720 million**

**Bonding/debt service:**

**\$1+ billion**

***Note: Largest capital improvement program  
in Pima County to date***

# 15-Year Capital Improvement Program (Actual/Projected)



# Multiple Benefits of the Regional Optimization Master Plan

- **Improved effluent quality**
- **Bio-gas utilization and solar energy project for improved energy efficiency**
- **State-of-the-art odor/noise control**

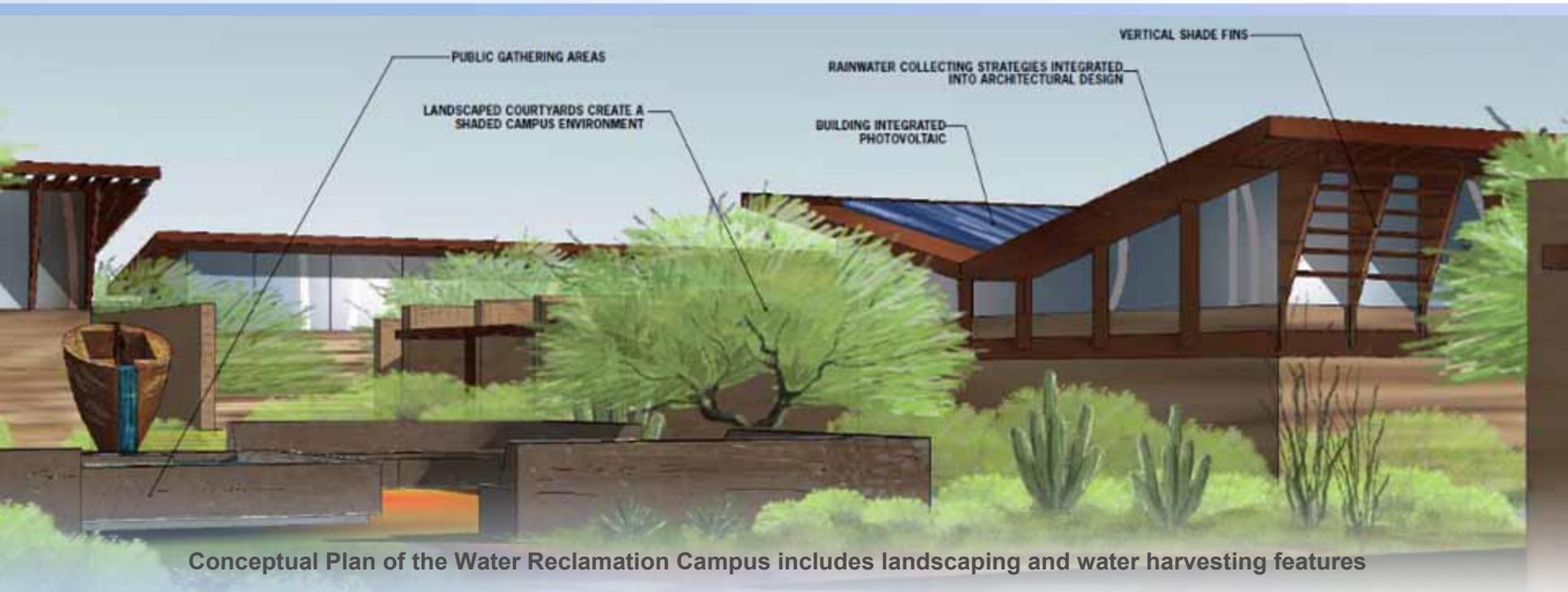
Groundbreaking for the Water Reclamation Campus Solar Energy Facility in August 2009 – 45% of energy at the new WRF will come from renewable resources



OdoWatch system to detect odors



# Multiple Benefits of the Regional Optimization Master Plan



- **Showcase for cultural and biological resources**
- **Environmental and aesthetic enhancements: adjacent parks, natural areas and economic development centers**
- **Sustainability projects including LEED Silver Certification and water harvesting at the Water Reclamation Campus**

# ROMP – Moving Forward

- ✓ **Continued review and evaluation**
- ✓ **Update strategic financial plan on annual basis**
- ✓ **Optimize project delivery and funding strategies**
- ✓ **Open and effective stakeholder communication**

