



City of Las Vegas

City Council and Utilities Advisory Committee Workshop

Technical Report Presentations
on the Water System

July 27, 2011



Why Are We Here?



- To Present the Consultants' Recommended Plan to Address Las Vegas' Long Term Water Situation
- To Obtain City Council Advice/Comment, and Concurrence to Publish, Prior to Enactment

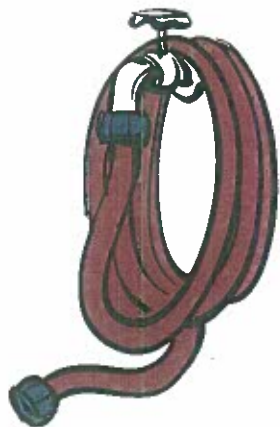
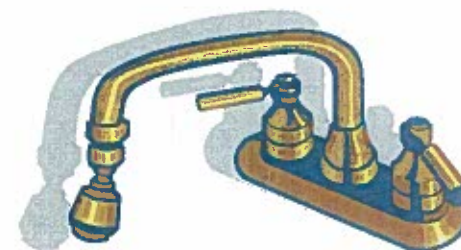


So the City can take action
to move forward



The City's Obligation?

Reliably deliver
enough water
at sufficient quality
with limited dollars
for years to come.



Easy to say; not so easy to do.
Five ways we're now failing.
Plan addresses each.



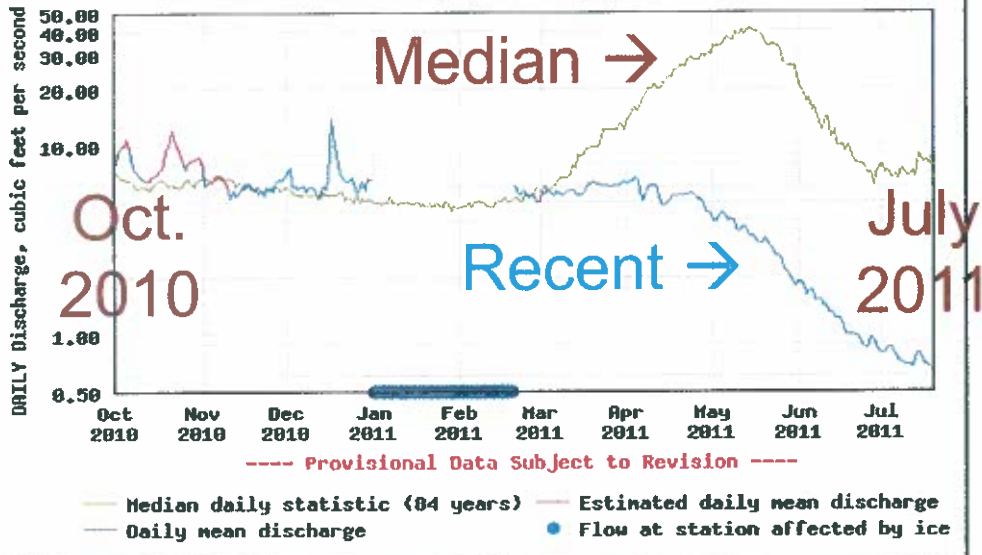
Why Should We Worry?

- Failures to Meet Citizens' Quality of Life Needs
- Damage to Economic Development and Well Being

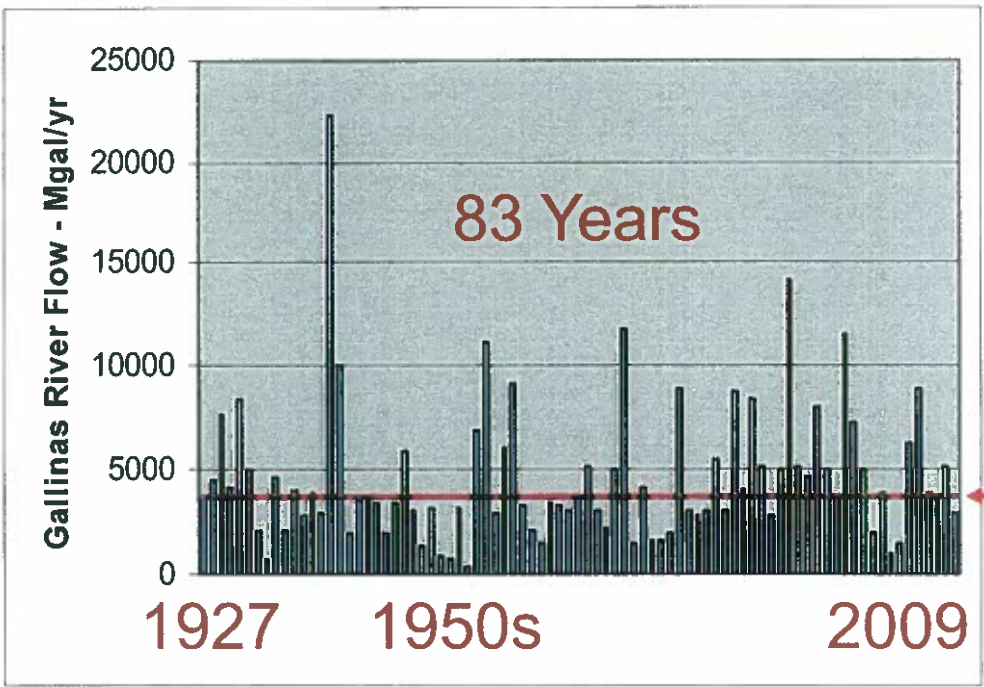
Sin agua, no hay vida



USGS 08380500 GALLINAS CREEK NEAR MONTEZUMA, NM



River Flows - one issue





This Year: We're Already in Trouble

- Following a Decade of More-or-Less Drought
- 2011 Brings Us a Record Drought
- We are Taking Numerous Remedial Actions
- Citizens Are Mostly Doing Their Part
- State and Federal Entities are Helping

We Need to Continue Being Aggressive



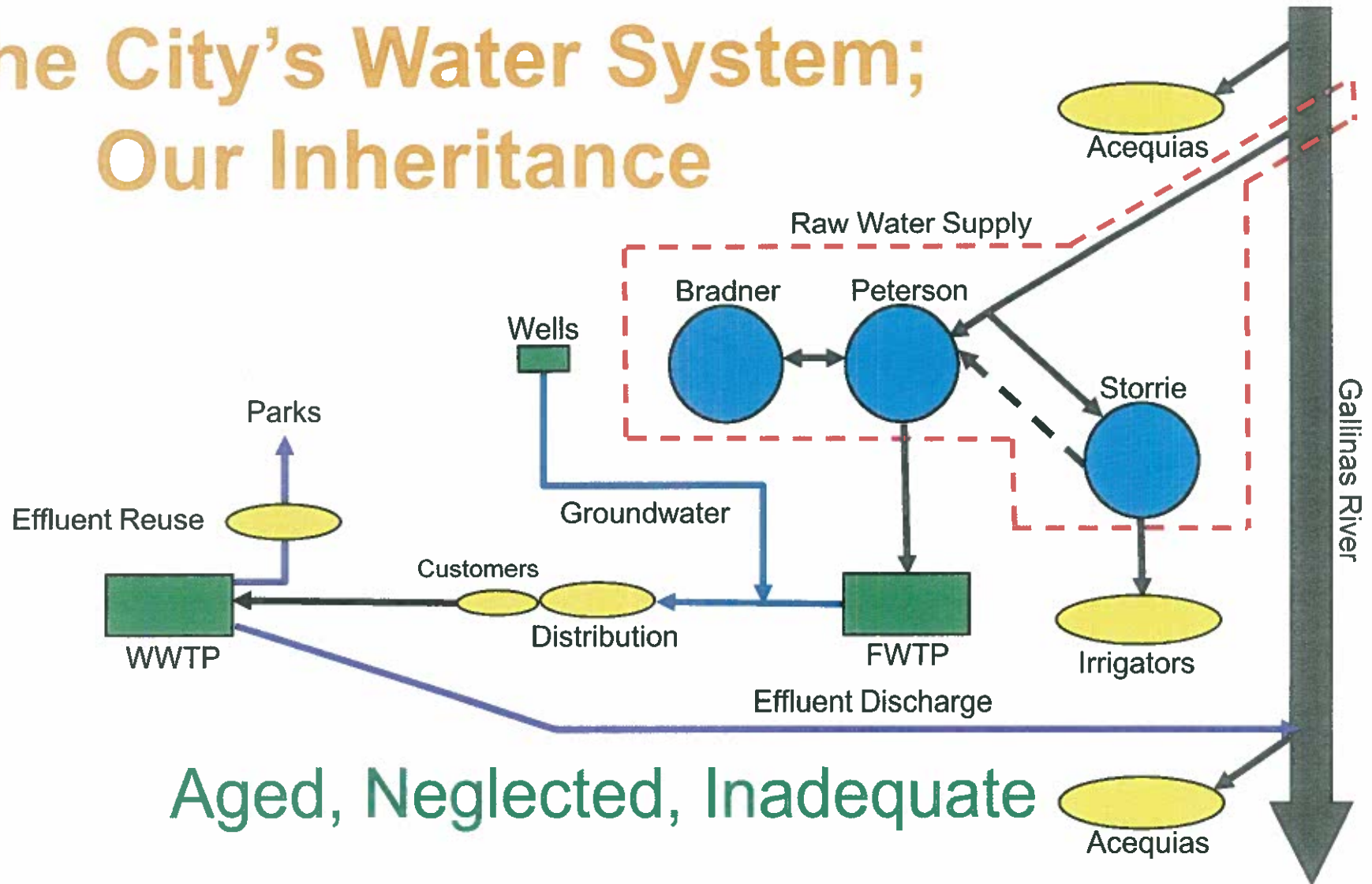
We are Already Taking Action

- Gallinas River Diversion Structure
- Taylor Well 2 Replacement
- Taylor Well 5 and 6 – Inspection and Rehabilitation
- Highlands University Irrigation Well Utilization
- Floating Pump for Storrie Lake Low Level Capture
- Leak Detection and Repair Program
- Meter Replacement and Installation Program
- Rodriguez Park Effluent Reuse Pipeline Extension
- Cinder Road Effluent Reuse Pipeline Extension
- Plaza Park Effluent Reuse Pipeline Connection
- Moreno Effluent Reuse Pipeline Extension
- Public Conservation Education and Enforcement
- Low-Flow Replacement Program in City Facilities
- Planning for Emergency Measures

But for now we focus on the future
– to minimize the chance of repetition



The City's Water System; Our Inheritance



Aged, Neglected, Inadequate



Bottom Line – The Overall Plan

Phased Starts of Action:

fund raising, permissions, design, construction



- Phase 0 - Start Now – first year
14 tasks listed previously
- Phase 1 - Start 1-5 years
13 tasks; estimated cost \$53.6 million
- Phase 2 - Start 5-15 years
6 tasks; estimated cost \$21.1 million
- Phase 3 - Start 15-40 years
9 tasks; estimated cost \$33.9million



Overview of Selected Aspects



- Kinds of Actions that Should Be Taken
- Example Actions in Each Phase
- Variety of Options Considered
- Selecting Actions: Criteria/Weights
- Financing

Parts of the forest, before the trees



Kinds of Actions that Should Be Taken

- Obtain More Surface Water Rights
- Access Other Aquifers; Increase Pump Capacity
- Reservoirs - Increase Capacity; Find Alternates
- Repair, Maintain and Improve Infrastructure
- Make Better Use of Water We Already Have

We evaluated several ways to address each;
and discarded the impractical ones



Actions Needed in Each Phase

Examples:

- **Phase 0 (Ongoing Projects)**
 - Raw Water Supply
 - Gallinas River Diversion Structure
 - Groundwater
 - Taylor Well 2 Replacement
 - Finished Water System
 - Leak Detection and Repair Program
 - Meter Replacement and Installation Program
 - Effluent Reuse
 - Cinder Road Effluent Reuse Pipeline Extension
 - Plaza Park Effluent Reuse Pipeline Connection

An indicator of what's in the plan



Actions Needed in Each Phase

Examples:

•Phase 1 (1 to 5 years)

- Raw Water Supply
 - Peterson Dam Leakage, Safety, and Expansion
- Raw Water Treatment Plant
 - Pilot Testing and Oxidation
- Groundwater Development
 - Optimize Groundwater Production from Taylor Well field
- Treated Effluent Reuse
 - Expansion of Existing Treated Effluent Reuse system

An indicator of what's in the plan



Actions Needed in Each Phase

Examples:

•Phase 2 (5 to 15 years)

- Raw Water Supply
 - Rehabilitate Bradner Dam
- Raw Water Treatment Plant
 - Stage 2 O&M Improvements
- Groundwater Development
 - Obtain Groundwater from area west of Taylor Well field
- Finished Water Storage and Distribution
 - Configuration Improvements

An indicator of what's in the plan



Actions Needed in Each Phase

Examples:

•Phase 3 (15 to 40 years)

- Raw Water Supply
 - Install Supplemental Inlet Pipe to Bradner Reservoir
- Raw Water Treatment Plant
 - Expansion: add one (1) additional pretreatment clarifier structure
- Groundwater Development
 - Obtain Groundwater from area west of Taylor Well field
- Treated Effluent Reuse
 - Expansion of Effluent Reuse to Lakes

An indicator of what's in the plan



A variety of Options Considered

- **Example: Increase Storage above 4 Months**
 - Increase Size and/or Permission at Storrie
 - Increase Size of Peterson Reservoir
 - Increase Size of Bradner Reservoir
 - Build New Upstream Reservoir
 - Aquifer Storage & Retrieval



Start broadly, narrow to practicality



Selecting Actions: Criteria/Weights



- 2 Per Capita Planning Period Cost
- 2 Planning Period Cost Per Acre-Foot
- 5 Meets Supply Needs
- 4 Water Rights Permitting
- 2 Environmental Permitting
- 4 Ease of Operation
- 3 Implementation Time
- 2 Environmental Stewardship

A guide for engineering judgments



Possible Sources of Funding



- Customer Water Rates
- Special Tax Rates
- Issuance of City Bonds
- Grants from State Entities
- Grants from Federal Entities

Ultimately, it all comes from the same pockets
- some choice on how to hide/apportion



In Summary

- The City Has Huge Inherited Water Problems
- There is No Single Silver Bullet to Fix Them
- Numerous Diverse Actions Are Needed to Help
- Phased Plan to Address the Problems
- The PER Plan Is a Roadmap to Fund and to Execute
- The next step is to Act Vigorously to Implement

Water will always be an issue;
but there can be light at the end of the tunnel.



Meet the Consulting Companies

- Souder Miller Assoc.
 - Chudnoff Consulting
 - WHPacific
 - URS Corporation
 - Daniel B Stephens
 - Molzen Corbin
 - RBC Capital
- Project Coordination
Water Rights and Demand
Surface Water Capture
Storage Reservoir Dams
Groundwater Capture
Trmt/Distribution/Reuse
Financing Options