

# Tucson (AZ) Water Reuse Program

- Size:
  - Summer Peak – 33 mgd
  - Winter Low – 0.20 mgd
- Type of Reuse
  - Golf Courses - 58% (18 courses)
  - Schools - 8% (52 schools)
  - Parks - 16% (39 parks)
  - Delivery to other providers - 11%
  - Single family residents, road medians, etc - 7% (about 700 single family lots)

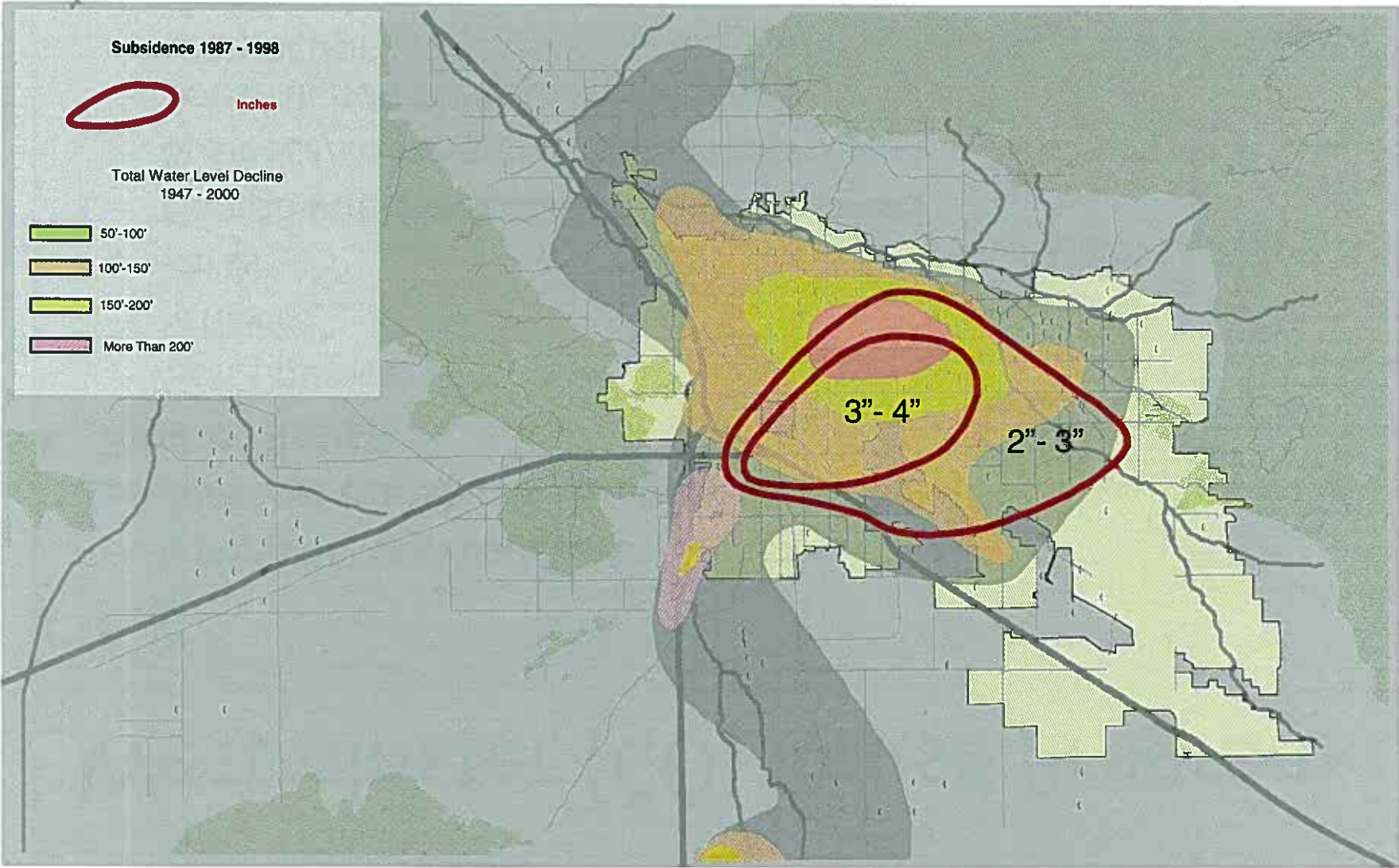


# Tucson (AZ) Water Reuse Program

- Driver for reuse
  - Water resources: over pumping of groundwater and land subsidence.
- Funding/financing
  - Originally bond funding
  - Subsidized by potable water rates and fees
  - User rates and fees



# Tucson (AZ) Reuse Program



# Westminster (CO) Reuse Program

- Size
  - 6 mgd, being expanded to 10 mgd
  - Seasonal use March 15 – November 15
- Type of Reuse
  - Golf Courses
  - Schools
  - Parks
  - Homeowners association common areas
  - Business/commercial area landscapes
  - Construction dust control and soil compaction



# Westminster (CO) Reuse Program

- Driver
  - Water supply: recycled water is 10 percent of the City's total water supply.
- Infrastructure in new development plus retrofit
- Funding/financing
  - State revolving loan funds for major transmission mains
  - Infrastructure in new development paid by developer
  - User rates and fees
  - Costs subsidized by potable water rates and fees

# St. Petersburg (FL) Reuse Program

- Size
  - Annual average reuse = 21 mgd
  - Total treated flows = 33 mgd
  - Excess recycled water disposed via injection wells
- Type of Reuse
  - 9,992 residential lawns (primarily retrofit)
  - 61 schools
  - 111 parks
  - 6 golf courses
  - Air conditioning cooling towers
    - Irrigation and cooling towers at major league spring training facility

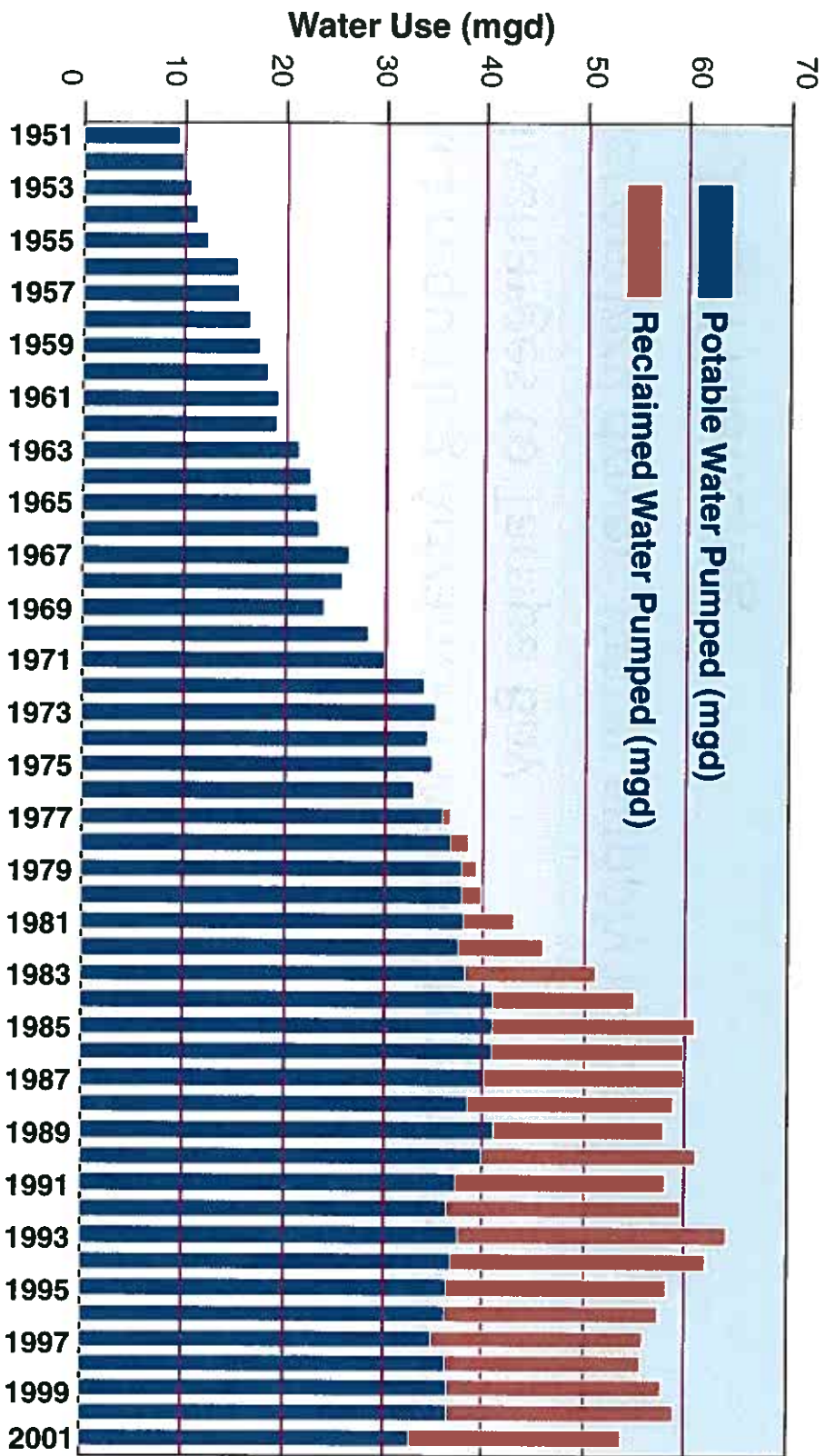




# St. Petersburg (FL) Reuse Program

- Driver
  - Effluent disposal
  - Act requiring Advanced Waste Treatment for all discharges to Tampa Bay
  - Secondary driver: water supply issues
- Funding/Financing
  - EPA Grant Funding (1970s)
  - User rates and fees

# Potable and Reclaimed Water Usage City of St. Petersburg (FL)





# City of Altamonte Springs (FL)

- Size
  - 12.5 mgd water reclamation facility
  - Use 94% of reclaimed water generated
  - Remainder discharged to surface water
- Type of Reuse
  - ~ 6000 active residential connections
  - ~ 300 commercial connections (includes commercial carwash)
  - 83 miles of 4- through 48-inch mains
- Driver
  - Reduce discharges to the Little Wekiva River
  - Secondary driver: reduce use of potable water for irrigation
- Funding/Financing
  - User rates and fees
  - Subsidized by water and wastewater rates and fees



# Irvine Ranch Water District (CA) Recycling Program

- Size
  - Current flows average 11 mgd
  - During periods of low demand:
    - Storage reservoirs/tanks
    - Excess sent to Orange County Sanitation District for disposal (outfall or groundwater recharge)
- Types of reuse
  - Landscape irrigation
    - 2,818 meters
    - 5,650 acres irrigated
  - Agricultural irrigation
    - 44 users
    - Over 1,000 acres irrigated
  - Commercial production
    - Includes carpet dyeing facility
  - Toilet flushing



# Irvine Ranch Water District (CA) Recycling Program

- Driver
  - Originally effluent disposal (developer had no access to an ocean outfall)
  - Secondary driver for program enhancements: water resources
- Funding/Financing
  - Developer funded original construction
  - Bonds/user rates and fees fund improvements

# LOTT Alliance (WA) Reuse Program

- LOTT – Cities of Lacey, Olympia, Tumwater and Thurston County, WA
- Hawk's Prairie Satellite Reuse System
  - Martin Way Reclaimed Water Treatment Plant
  - Constructed wetlands
  - Groundwater recharge
- Size – 2 mgd
- Types of Reuse
  - Park irrigation
  - Streamflow augmentation and wetland enhancement
  - Groundwater recharge
- Driver
  - Effluent disposal - eliminates surface water discharge
- Funding/Financing
  - \$35 million construction cost funded through SRF loan

# LOTT Alliance (WA) Reuse Program





# LOTT Alliance (WA) Reuse Program





**Potable/Recycled Water Rates Comparison**

Agency (State)	Potable Water (\$/1000 gal)		Recycled Water (\$/1000 gal)	Recycled/Potable (Low Tier Potable)
	Low Tier	Highest Tier		
<b>Tuscon (AZ)</b>	\$2.58	\$2.58	\$2.45	95%
<b>Westminster (CO)</b>	\$4.52	\$5.50	\$3.61	80%
<b>St. Petersburg (FL)</b>	\$1.07	\$4.05	\$0.45	42%
<b>Altamonte Springs (FL)</b>	\$1.15	\$2.85	\$1.06	92%
<b>Irvine Ranch Water District (CA)</b>	\$1.54	\$12.43	\$1.10	71%
<b>LOTT Alliance (WA)</b>				
- City of Lacey	\$1.16	\$2.72	\$0.81	70%
- City of Olympia (Nov - Jun)	\$2.02	\$2.02	\$1.41	70%
- City of Olympia (Jul - Oct)	\$6.66	\$6.66	\$4.66	70%
- City of Tumwater	\$2.98	\$2.98	\$2.09	70%
- Thurston County	\$2.66	\$4.86	\$1.86	70%
<b>Maui County</b>				
- General Users	\$1.65	\$4.10	\$1.16	70%
- Agriculture/Golf Courses (potable > 30,000 gallons)		\$1.00	\$0.30	30%
- Major Agriculture (non-potable, recycled > 3 mgd or 400 ac)	\$1.00	\$1.00	\$0.14	14%

