Groundwater Basin Briefing

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Items to Cover

- Types of Basin Management
- What is Safe Yield?
- Basin Management Objectives
- Sources and Types of Recharge
- *Sustainable Groundwater Management Act* (SGMA)
- Conditions in the Main San Gabriel and Raymond Basins

Types of Basin Management

- Formal Adjudication:

  Groundwater rights of overliers and appropriators determined by court. Agency must periodically report to the court

  - Measures and monitors production
  - Groundwater levels
  - Groundwater quality
  - Stream flows

- Management Agency Created by State Statute

  Example: Water Replenishment District (WRD)

  Orange County Water District (OCWD)

Types of Basin Management

- Result of a Groundwater Management Plan
  - Developed in accordance with State Water Code provisions.

Informal Management

- Result of cooperation among producers, or according to city ordinance

What is Safe Yield?

- The quantity of water that can be extracted from a supply source (basin) without resulting in adverse conditions
  - Determined by engineers and other technical professionals who study basin conditions and activity.
  - Definition usually varies by basin
    - Raymond Basin: SY set rights according to natural recharge alone, excluding active recharge

What is Safe Yield?

- Operating Safe Yield
  - The quantity of water determined safe to pump from a given source in a fiscal year
  - Used to address short term basin changes
- Natural Safe Yield
  - Used to define the amount that can be pumped when there is no active recharge
  - In basins that are actively recharged, this emphasizes importance of groundwater recharge operations (historical average 190,000 AF MSGB)

Safe Yield

- Overdraft
  - Occurs when pumping exceeds SY over extended period
  - Fluctuations in pumping are natural year to year
    - Drought vs. Wet years
      - OC Basin allows for short-term “overdraft” in their management plan, but have set a maximum allowed overdraft to prevent adverse conditions

Safe Yield

- Variables
  - Change in management, basin conditions, or land use
    - i.e. paved surfaces increasing runoff, decreasing recharge
  - If pumping rights are fixed and not adjusted according to groundwater levels
    - Even if basin is managed, could result in overdraft.
  - **Variables impact role of imported water**
    - Basins with fixed SY must rely on other sources if demands increase over time

Basin Management Objectives

- To provide for long term sustainable operations
- Balance recharge with production/discharge
  - Management techniques vary by basin

Sources of Recharge

- Natural Recharge
  - Centralized, Valley Floor
- Imported Water
  - Colorado River Aqueduct/State Water Project
- Recycled Water
  - Salt and Nutrient Balance

Sustainable Groundwater Management Act (SGMA)

- What is Sustainable Groundwater Management?
  - Management and use that can be maintained during the planning and implementation horizon without causing “undesirable results,” based on “significant and unreasonable” standard

Sustainable Groundwater Management Act (SGMA)

- Undesirable Results:
  - Chronic lowering of groundwater levels
  - Reductions in groundwater storage
  - Seawater intrusion
  - Degraded water quality
  - Land subsidence
  - Surface water depletions that have adverse impact on beneficial uses

Sustainable Groundwater Management Act (SGMA)

- Groundwater Sustainability Agency (GSA)
  - Empowered to:
    - Register groundwater wells
    - Measure extractions
    - Manage extractions
    - Require reports
    - Assess fees
    - Request revision of basin boundaries, including establishing new sub-basins

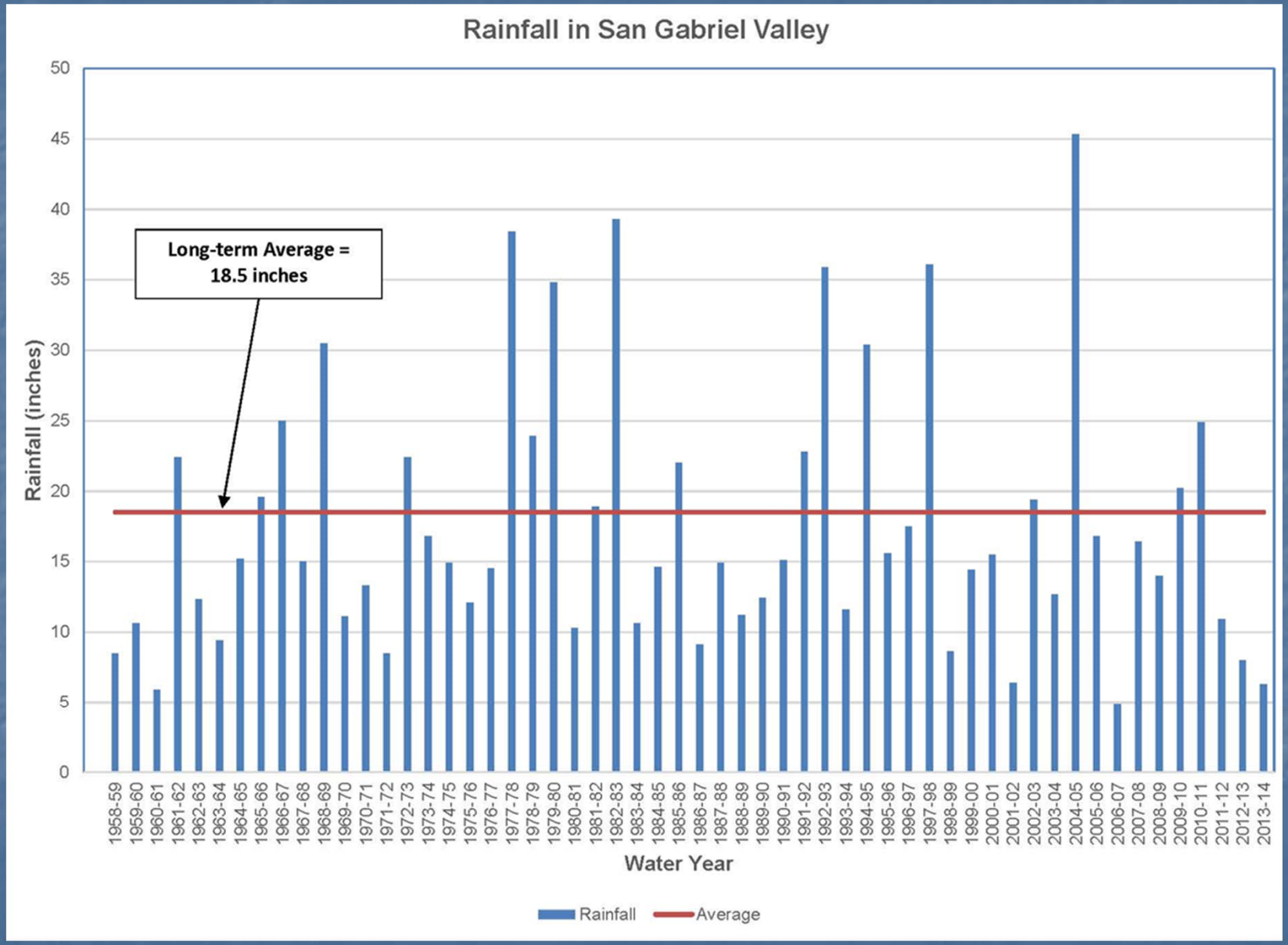
Sustainable Groundwater Management Act (SGMA)

- Groundwater Sustainability Plan
  - Physical Description of basin, including:
    - Groundwater levels
    - Water Quality
    - Subsidence
    - Groundwater-surface water interaction
    - Historical & projected data on demands & supplies
    - Monitoring & management provisions
  - How plans impact other plans

Regional Water Supply

- Drought Impacts
  - Local Water Supply (Calendar years 2012, 2013, 2014)
    - Rainfall over past three years has averaged 8.4 inches; long-term average is 18.5 inches
    - Local replenishment over past three years has totaled about 85,700 AF; long-term annual average is 104,700 AFY
    - Loss of local runoff is nearly 230,000 AF and represents nearly 29 feet at the Key Well
    - Key Well levels have fallen 53 feet since January 2012; Key Well is currently at 177.93 feet amsl; which is 22 feet below lower end of operating range of 200 feet amsl

Regional Water Supply



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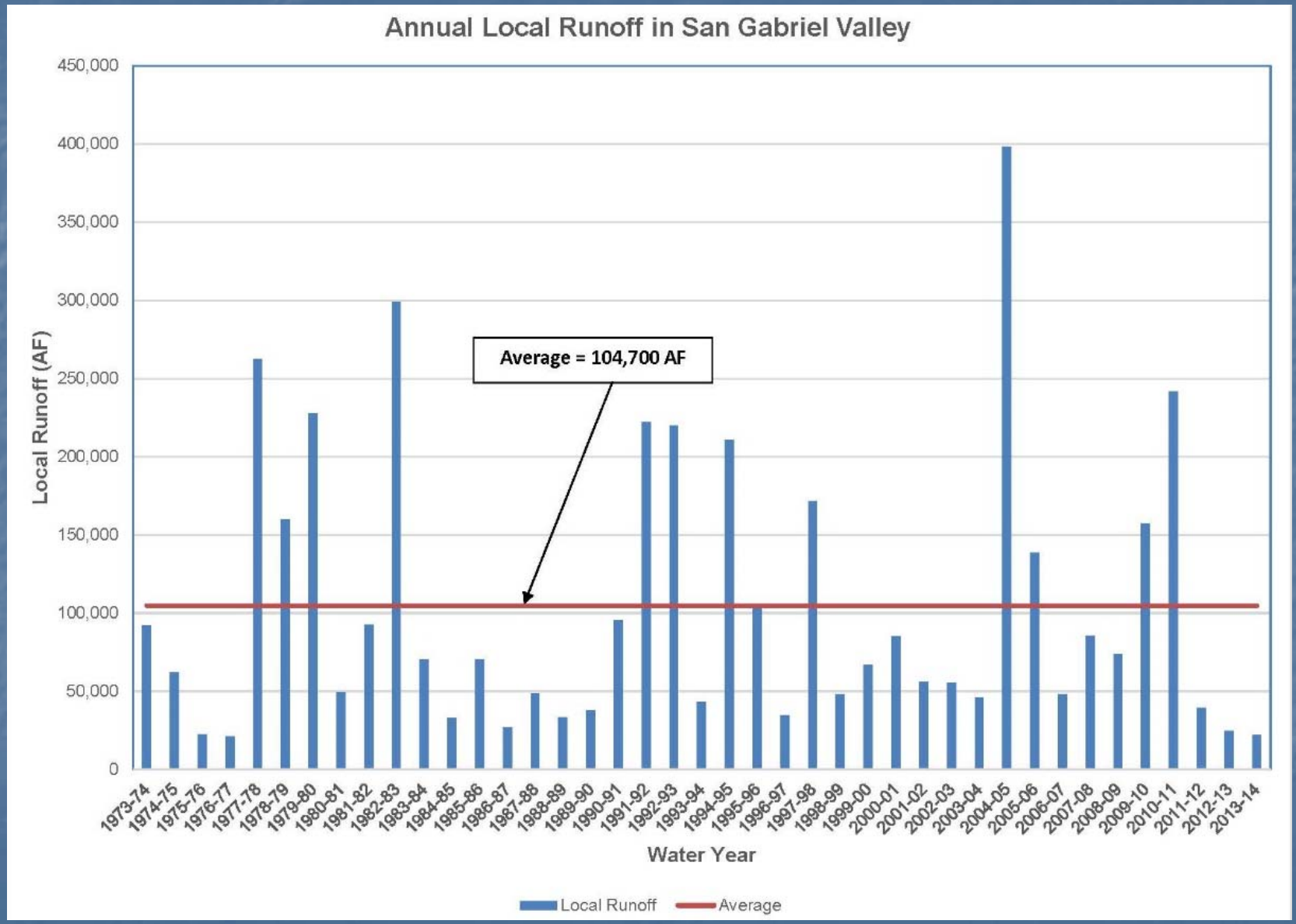

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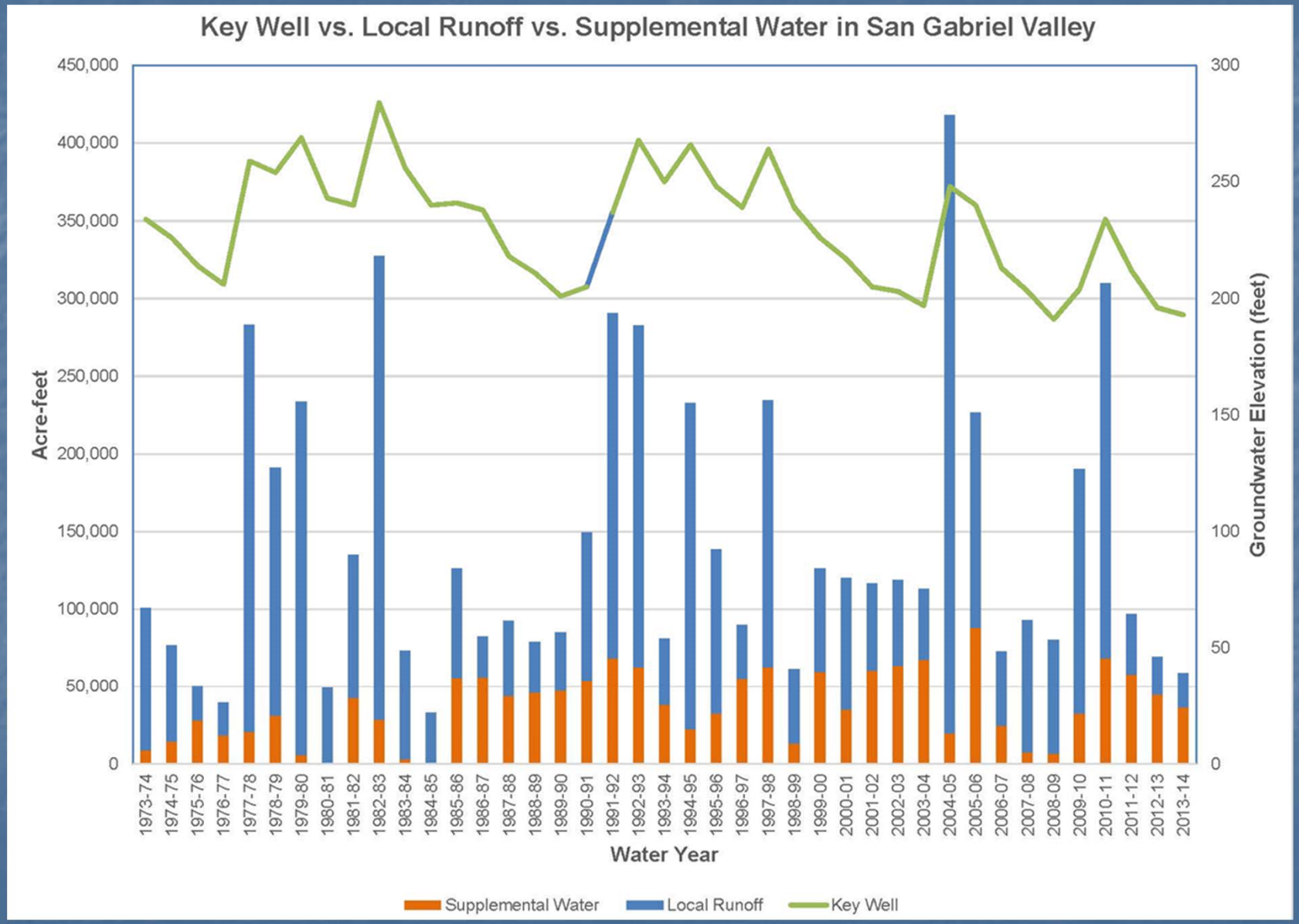

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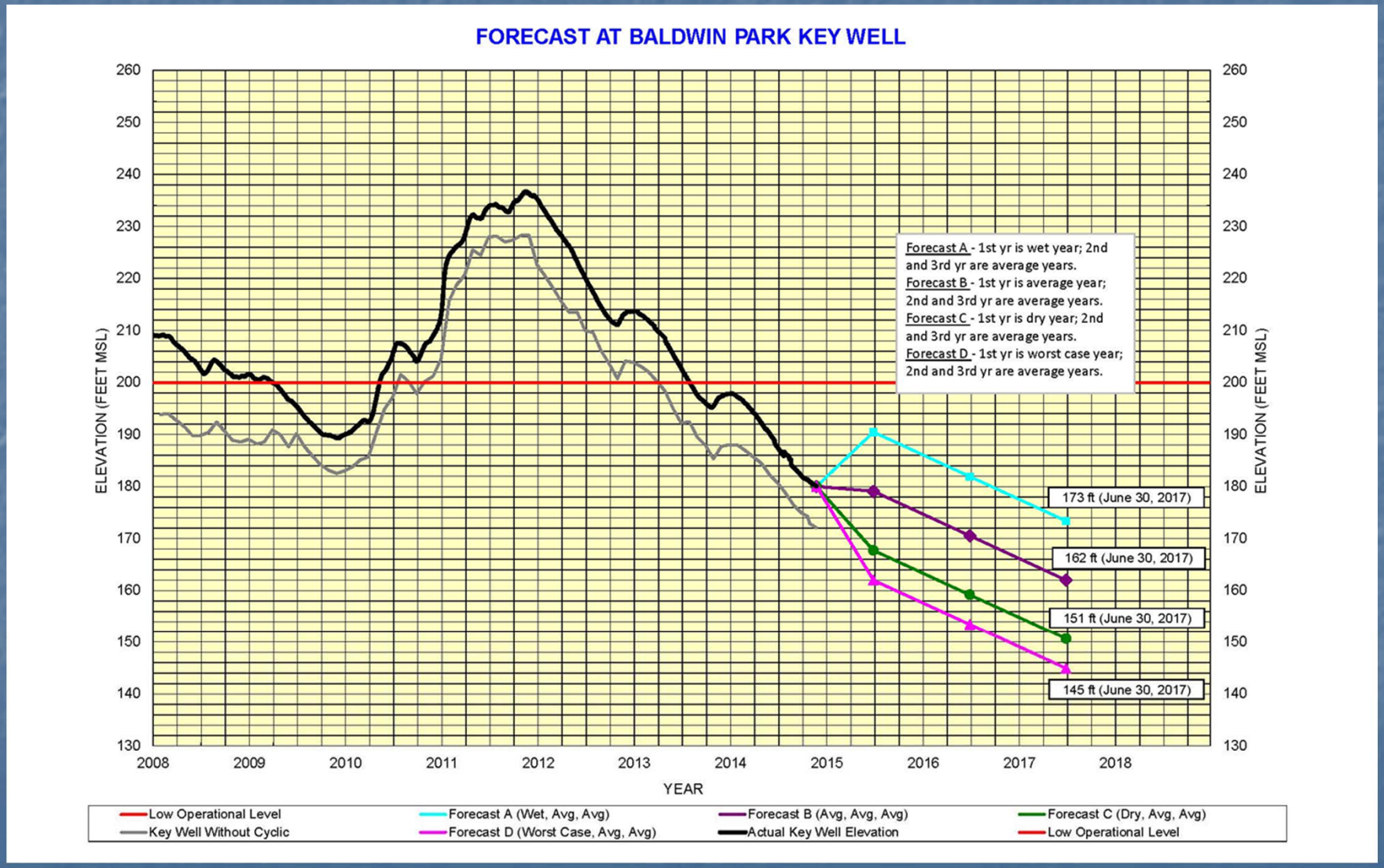

Requests of MWD Board

- Equitable Treatment of Connections
  - Reliable Supply for Full Service Rate
  - Explore Multi-Year Payment and Delivery schedules in Normal Years
  - Increased and improved efforts to integrate groundwater management with overall operations of imported water system
  - Recognize long standing role of groundwater basin management agencies, and MWD's role (Collaborative but different)
  - Consistent and uniform operation of connections with relation to source

Questions?