Denver Parks & Recreation Water Conservation

Parks, Arts and Culture Committee - November 4, 2025

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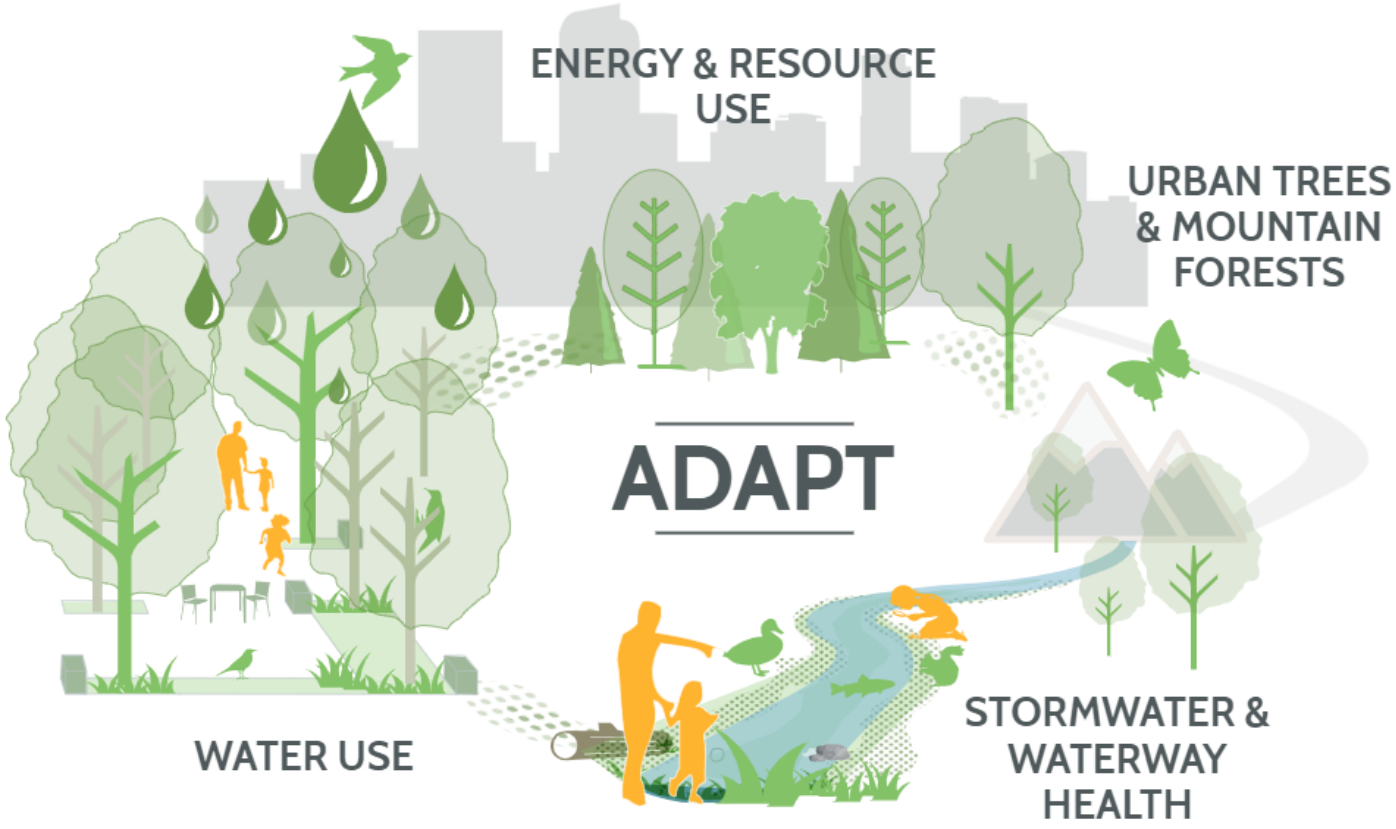
DENVER PARKS & RECREATION

GAME PLAN for a Healthy City

EVERY DROP, ADAPTING TO OUR CHANGING CLIMATE

CHALLENGES

- DPR uses over 2 billion gallons of water per year
- Water costs around $5 million + per year
- Temperatures, unpredictable weather, and acreage have increased
- Irrigation equipment costs have risen over 300% in the last 10 years
- System pressure and vandalism has increased 50% since COVID



DENVER PARKS & RECREATION IRRIGATION INFRASTRUCTURE

PARKS IRRIGATION DEMANDS

- 38 Maintenance Technicians manage 3,300 irrigated acres, which includes over 250,000 sprinkler heads
- Each technician is responsible for:
    - ~87 acres
    - ~6,500 irrigation heads
    - All associated system maintenance including activations, inspections, timely repairs, and system winterization
    - Over 85 parks irrigated with infrastructure over 40 years old

WATER CONSERVATION

RELIEVING THE BURDEN, IMPROVING OUTCOMES

- Created to support Maintenance Technicians by fully managing Denver's 700+ irrigation control systems
- See to all aspects of the central control infrastructure and associated data systems
- Use a proactive, technology driven approach to:
    - Ensure system reliability
    - Conserve water
    - Reduce operating costs
    - Protect the long-term health of our parks
- Tracking irrigation usage and monitoring water budgets throughout the growing season

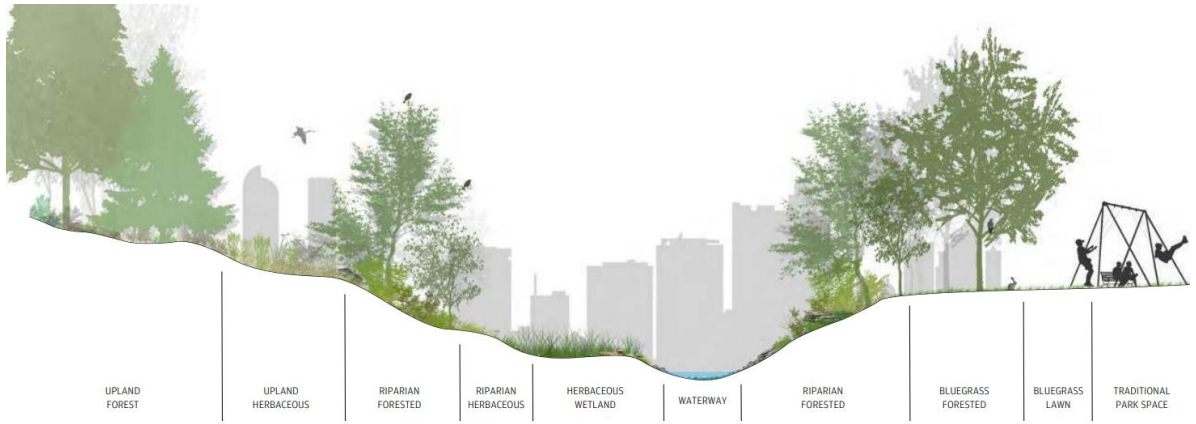
IRRIGATION WATER BUDGETS & CONSUMPTION REPORTING

Denver Parks Irrigation - P-9 2025 Consumption Report

District	YTD Cons*	Irrigated Acres	Season Water Target**	District Inches Used YTD	Percent of Target Used
East	334,328	622	460,536	20.9	73%
Northeast	392,839	1,023	561,547	18.5	70%
Northwest	114,743	289	198,449	19.1	58%
Southwest	219,781	494	327,158	18.2	67%
DPO	75,152	127	83,165	34.4	90%
Total All Districts:	**1,136,843**	**2,555**	**1,630,855**	**20.5**	**70%**

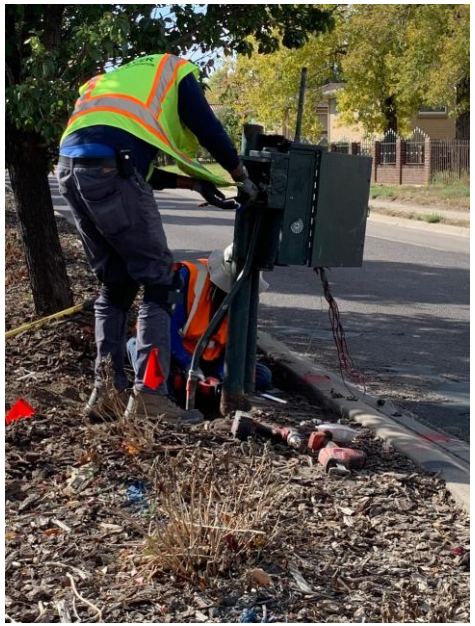
IWR through Apr 15-Sep 30, 2025 in inches:					
Location:	Centennial/Sloans/Berkeley & Swansea (DT/NW)	Rosedale/Kenyon (SW)	Crestmoor (EA)	Central Pk/Lowry (NE)	Historical
ET	32.47	33.49	28.91	36.66	32.5
ET Water Req (Kc 0.88)	28.57	29.47	25.44	32.26	28.60
Precipitation	9.01	6.50	9.01	10.59	10.03
Effective Rain (76%)	6.85	4.94	6.85	8.04	7.62
Adjusted ET Req	21.73	24.54	18.59	24.22	20.98
System Efficiency Adj	70%	70%	70%	70%	70%
Adjusted Irr Req	31.04	35.05	26.56	34.59	**29.97**
GPSF	19.35	21.85	16.56	21.57	18.68

LANDSCAPE WATER REQUIREMENTS



- Event/high use areas 35 in/yr
- Athletic Fields 32 in/yr
- Traditional Park 28 in/yr
- Medians/ ROW's 16 in/yr
- Native areas 8 in/yr

Central Control Buildout



95% completed on central control buildout, with 235 new units installed by the Water Conservation department, with 55 new cellular units.

Implemented a citywide weather network to optimize water use and minimize employee downtime during shutdowns.

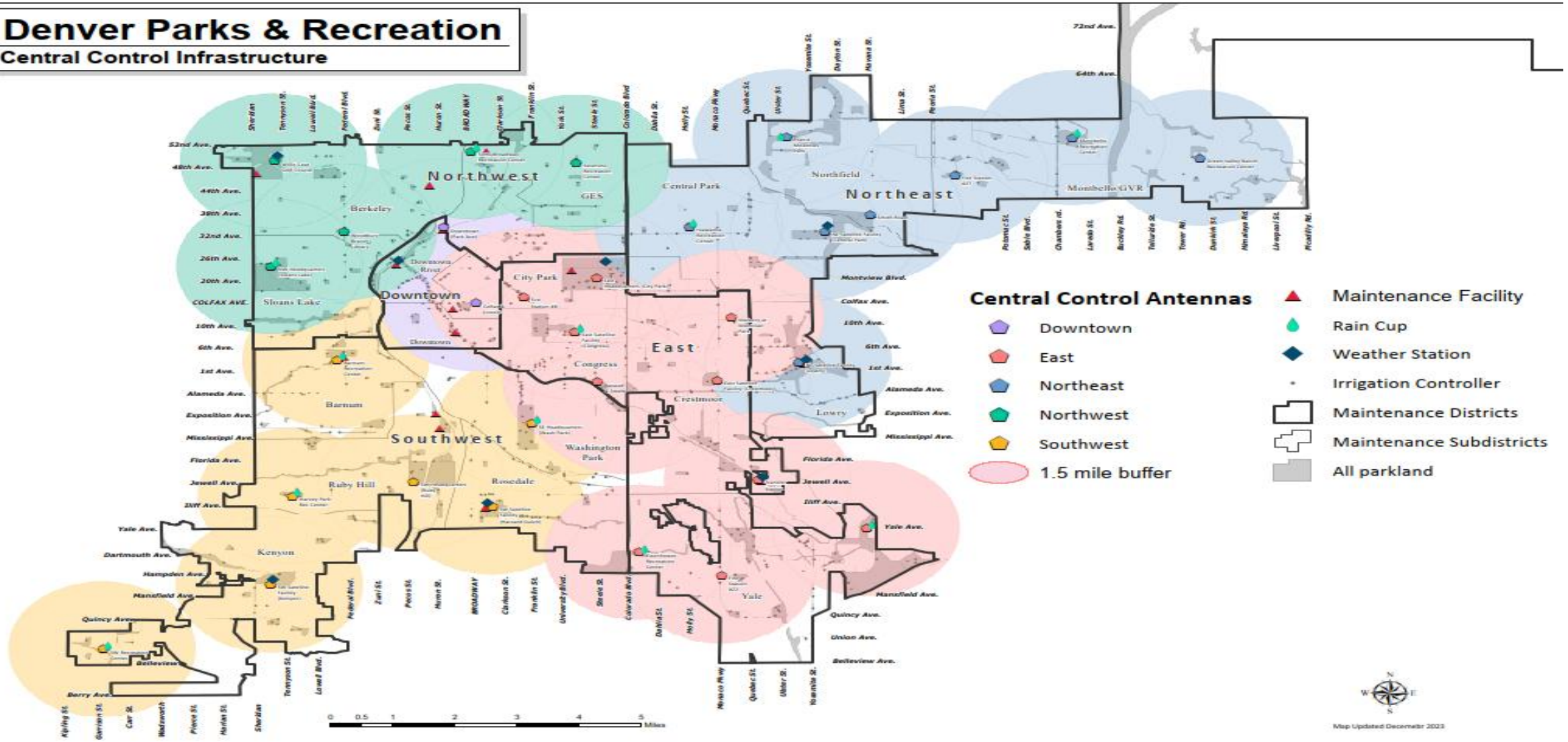
Central Control Weather Network

8 weather stations & 12 rain cups enabling real-time weather event irrigation shut-downs

Water Savings potential of over 30 million gallons & $70K per full rain shut-down

Denver Parks & Recreation

Central Control Infrastructure



WATER CONSERVATION TODAY

Since 2018, completed 1,200+ service calls covering hardware/software repairs and clock replacements – enhancing departmental self sufficiency, reducing turn around time and over reliance on external vendors

Developed and delivered citywide training on the new Toro irrigation system, showcasing its cellular-based technology and advanced features.

WATER MANAGEMENT OPTIMIZATION

CURRENT STATE: A BASELINE TO BETTER PERFORMANCE

- Parks historically used 30 minutes for rotors and 15 minutes for pop-ups
  - One size fits all approach
  - Ignores park-specific landscape types
  - Ignores plant water requirements
  - Not varied seasonally
  - Reactive

THE FUTURE WATER CONSERVATION STANDARD

- Park-specific data utilized to create efficiencies
  - Allows watering time decisions to be customized park by park
  - Applies the correct amount of water for each landscape type
  - Can be varied seasonally or for conditions (shade, slope)
  - Proactive

PROGRAMMING WITH WATER CONSERVATION

- Refresh outdated irrigation programming, adapting to and ensuring success of hybrid parks
- Data-driven scheduling updates
- Hyper-focused programming leads to water, time, and financial savings
- Water Conservation assumes responsibility for monitoring irrigation database
- Labor savings – 1.5 hr. a day per tech x 40 x 5 days = 300 hrs. per week freed up for repairs, locates, & other tasks
- Tasks are assigned bidirectionally through OpenGov Cartegraph

Greenway Park Drone Monitoring Strategies

Fred Thomas Park

THANK YOU!
Questions?