

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



A vertical water meter assembly with a blue body and brass fittings, mounted on a wall. The meter has a circular dial with numbers and a needle. Various pipes and valves are visible around the meter.

“Watch Me Pull a Rabbit Out of My Hat!”

Performance-Based Incentives

WaterSmart Innovations 2016

**Gary Tilkian
Metropolitan Water District
October 6, 2016**

Metropolitan Water District of Southern California

- Regional water wholesaler to 6 counties, 19 million people over 5,200 sq mi
 - Growth: ~150,000 people/yr
 - \$1 trillion regional economy
 - ~50% of region's retail water supply

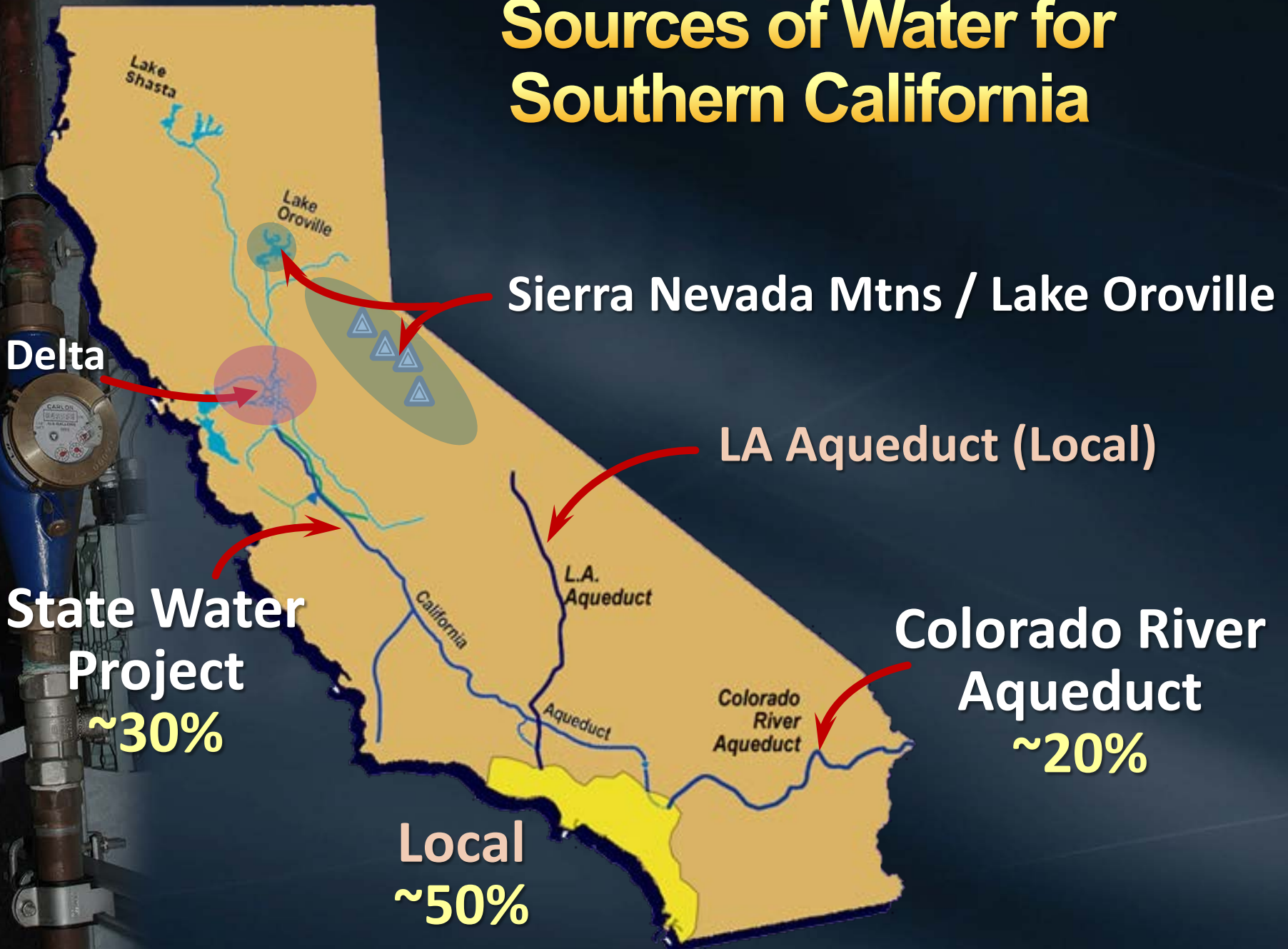


A map of Southern California showing Metropolitan Water District service areas. The map is color-coded by region: Los Angeles (green), San Bernardino (orange), San Diego (blue), and Orange (yellow). Major cities like Los Angeles, San Bernardino, Orange, and San Diego are labeled. A large, dark blue, irregular shape is overlaid on the map, representing the Metropolitan Water District service area. In the foreground, on the left, is a photograph of a water meter and pipes. The text 'Metropolitan Water District Service Area' is written in yellow and white over the dark blue shape. Below it, a bullet point indicates '26 member agencies'.

Metropolitan Water District Service Area

- 26 member agencies

Sources of Water for Southern California



Sierra Nevada Mtns / Lake Oroville

LA Aqueduct (Local)

Colorado River Aqueduct ~20%

Local ~50%

Delta

State Water Project ~30%

Water Savings Incentive Program (WSIP)

- Program start: Sep 2012

- “Pay for performance”

Goals:

- Reach out to non-residential water users
- Incentives for custom projects
- Encourage long-term water management as a standard business practice



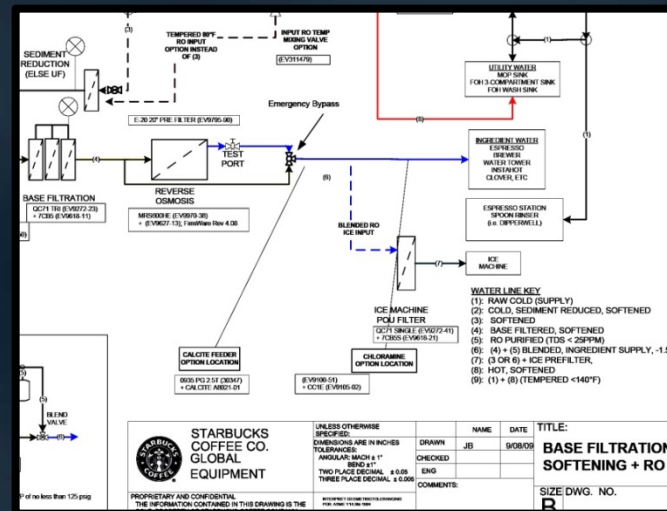
Eligible Projects

- Retrofit existing equipment
 - Improve processes
 - Improve agriculture & landscape irrigation systems
- Contract for water management services



Incentives

- Up to \$0.60 / 1,000 gal saved per year (up to 10 yrs)
- Limited to 50% of eligible project costs
- Payments are phased
 - Final payment may be adjusted per monitored results
 - Some projects may qualify for single payment based on detailed engineering plans



WSIP Eligible Costs

- Directly pertain to project installation or water management services

- Audit, engineering, software, hardware
- construction, equipment, materials (incl plants),
- freight shipping, 3rd party labor, contract water management services

Ineligible costs:

- Customer's direct labor
- Sales tax
- Permitting
- Environmental compliance
- Land acquisition



Project Examples:

LA County Arboretum



- Irrigation Upgrades
- \$141K / 650 AF

Stone Brewing Co.



- Industrial Recycled Water System Retrofit
- \$65,864 / 440 AF

Air Products & Chemicals, Inc.



- Brine Recovery & Mgmt Services
- \$227,000 / 2,500 AF

Project Examples:

UC Irvine



- Med Center
- \$4K / 20 AF

Emerald Textiles



- Filter / Recycle water for Tunnel Washers
- \$240K / 1,100 AF

Starbucks



- Store RO Filtration System (67 stores)
- \$39K / 220 AF

Recently Approved: 3 Textile Dyers

- Total annual use: 428 Mgal
- Target reduction 70% (annual)
- Est Water Savings: 9,179 AF (2.99 Billion Gallons/10 yrs)
- Estimated rebate \$1.8M

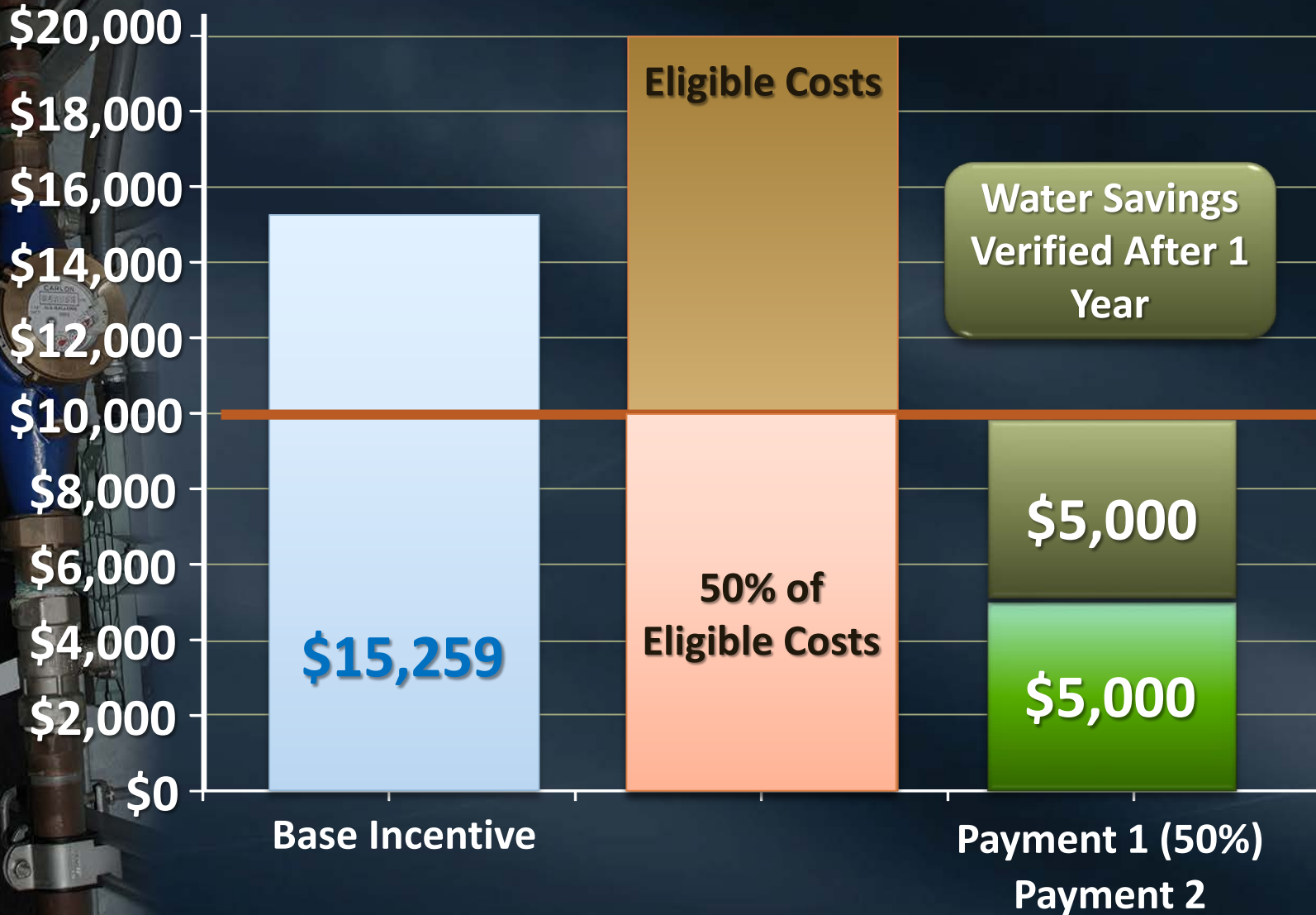


Example 2: Incentive Calculation (WSIP)

Site 3			
Average annual total use (gallons HCF)	8,078,400	10,800	
Estimated 1-Year Water Savings (gallons/yr HCF/yr AF/yr)	2,543,200	3,400	8
% savings (annual)	31.5%		
Life of improvements (years)	10		
Estimated Lifetime Water Savings (gallons HCF AF)	25,432,000	34,000	78
Metropolitan Incentive Calculation			
Base Incentive (\$0.60 per 1,000 gallons)	\$15,259		
Eligible Project Costs	\$20,000		
50% of eligible Costs	\$10,000		
Metropolitan Maximum Water Savings Incentive	\$10,000		
Agency Supplemental Funding			
Agency 1: N/A	\$0		
Total Agency Supplemental Funding	\$0		
Total Maximum Incentive (based on water savings estimate)	\$10,000		
Payment Schedule			
Up-Front percentage	50%		
After installation payment amount	\$5,000		
Final MAX Payment amount (w/ verified savings)	\$5,000		

Example 1: Incentive Calculation (WSIP)

Estimated 25.4 MGal Saved Over 10 Years



WSIP Analysis: Normalizing for Weather

Adjustment Factors (ET at CIMIS 153 / Escondido)					
Month	Long-Term Avg ETo	3-Yr Prior ETo Adjust	2-Yr Prior ETo Adjust	1-Yr Prior ETo Adjust	Monitored ETo Adjust
Jan	2.39	0.06	0.01	0.17	0.02
Feb	2.73	-0.08	-0.01	-0.18	-0.12
Mar	3.97	-0.10	0.04	-0.01	0.06
Apr	4.95	-0.10	0.04	0.08	0.08
May	6.02	0.02	0.04	0.11	-0.24
Jun	6.65	0.05	0.03	0.07	-0.06
Jul	7.02	0.03	-0.03	-0.14	-0.04
Aug	6.63	0.07	-0.02	-0.06	-0.04
Sep	5.26	-0.07	-0.01	-0.01	0.03
Oct	3.77	0.05	-0.12	-0.04	0.04
Nov	2.71	-0.21	-0.11	-0.13	0.03
Dec	2.14	0.06	-0.44	0.08	-0.64
Total ETo (in)	54.24	-0.01	-0.02	-0.01	-0.06

Adjusts actual use: upward for ETo lower than avg, and downward for ETo higher than avg

Includes effective rainfall (25% of recorded precip)

WSIP Analysis: Calculating the Change

Adjusted Use						
Month	3-Yr Prior Adjusted Use	2-Yr Prior Adjusted Use	1-Yr Prior Adjusted Use	Monitored Adjusted Use	Monitored Unadjusted Use	3-Yr Avg Adjusted Use
Jan	192.78	23.65	22.47	11.79	12.00	79.09
Feb	73.54	28.21	26.79	150.57	134.00	41.39
Mar	165.74	210.86	200.31	118.62	126.00	129.90
Apr	99.05	194.49	184.77	167.29	182.00	102.14
May	235.90	118.44	112.52	161.90	131.00	129.37
Jun	236.84	185.54	176.27	175.17	165.00	157.86
Jul	310.37	272.82	259.18	63.30	61.00	286.47
Aug	324.79	210.04	199.54	76.06	73.00	192.47
Sep	285.34	281.46	267.39	126.29	130.00	202.40
Oct	184.04	282.19	268.08	104.45	109.00	165.42
Nov	151.64	154.39	146.67	85.08	88.00	109.53
Dec	142.53	92.26	87.65	27.90	17.00	81.65
Total	2,403	2,054	1,952	1,268	1,228	1,678

Compare the Monitored Adjusted Use against the 3-year average adjusted use (baseline)

In this sample the site used ~24% less water

Challenges

● Projects may save 1 M or 100 M gallons

- Budgeting
- Admin costs
- Contracts & contract management

● New / Untested Technologies

- Different contract provisions?
- Precedents?
- Could be useful as “Pilot” programs

● (Third Party) Contractors

- Often the project contact
- Facilitator or ??
- Useful for outreach/marketing

More Challenges

Analyses

- Approach for large landscape \neq industrial projects
- Special considerations (e.g. weather normalization)
- Data acquisition

Anticipating increased capacity

- Still saving water?
- Proxies to measure efficiency?

Evaluation

- \$/AF
- Are there “good” and “bad” projects?
- Avoid / disallow certain projects or technologies?

Managing Program Risk

Identified Risk	Program Change / Response
Overpayment (Identified by monitored use)	<ul style="list-style-type: none">• Determine “up front” incentives on a case-by-case basis: 50% or lower amount• No “up front” projects with minimal testing and/or new technologies
Overestimated Project Life	<ul style="list-style-type: none">• 50% of eligible project costs reduces exposure• Many larger projects likely to exceed 10 year life

Managing Program Risk

Identified Risk	Program Change / Response
Enhanced Production Capacity	<ul style="list-style-type: none">• Likely the capacity would be handled elsewhere in region, greater efficiency still a benefit• Analyses may require proxies (e.g. gal/lb laundry)
Poor Post-Inspection Results	<ul style="list-style-type: none">• Determine if it is equipment/technology or management/training• Consider program policy changes

Managing Program Risk

Identified Risk	Program Change / Response
Minimum or Maximum Incentive?	<ul style="list-style-type: none">• Establish minimum incentive to accommodate your admin costs• Consider impacts to annual budget• Capitalize?
Handling Water Management Services	<ul style="list-style-type: none">• Incentives limited to lesser of 5 years or term of contracted services• Avoid renewing incentive agreements
Policy for Off-setting Supplies	<ul style="list-style-type: none">• No <i>new</i> recycled water hookup/use• No offset dependent on hydrologic variability (e.g. well rehab)

Other Program Development issues

- **New Construction?**
- **Inspections: Pre? Post? Both?**
- **Establishment of specialized or streamlined incentives**
- **Bonus / Contingency funding**
- **Standardized analyses or approaches**
- **“Free Ridership” and/or how to define project "start“**
- **Admin internally or use consultant?**

Program Accomplishments

- Applications received: **>200**
- Total Executed Agreements: **113**
- Total Funds Committed: **\$3.3 M**
- Estimated Lifetime Water Savings: **21 TAF**
- Average Cost Over Lifetime: **\$157/AF**



Program Accomplishments

Paid Projects to date

- 10 Customers represent 80% of incentive funding
- \$1.2M paid
- 8,946 AF expected water savings

Altman Plants

Emerald Textiles

LA County Dept of Parks & Recreation

City of Orange

The Boeing Company (Huntington Beach)

County of San Diego (North County Regional Center)

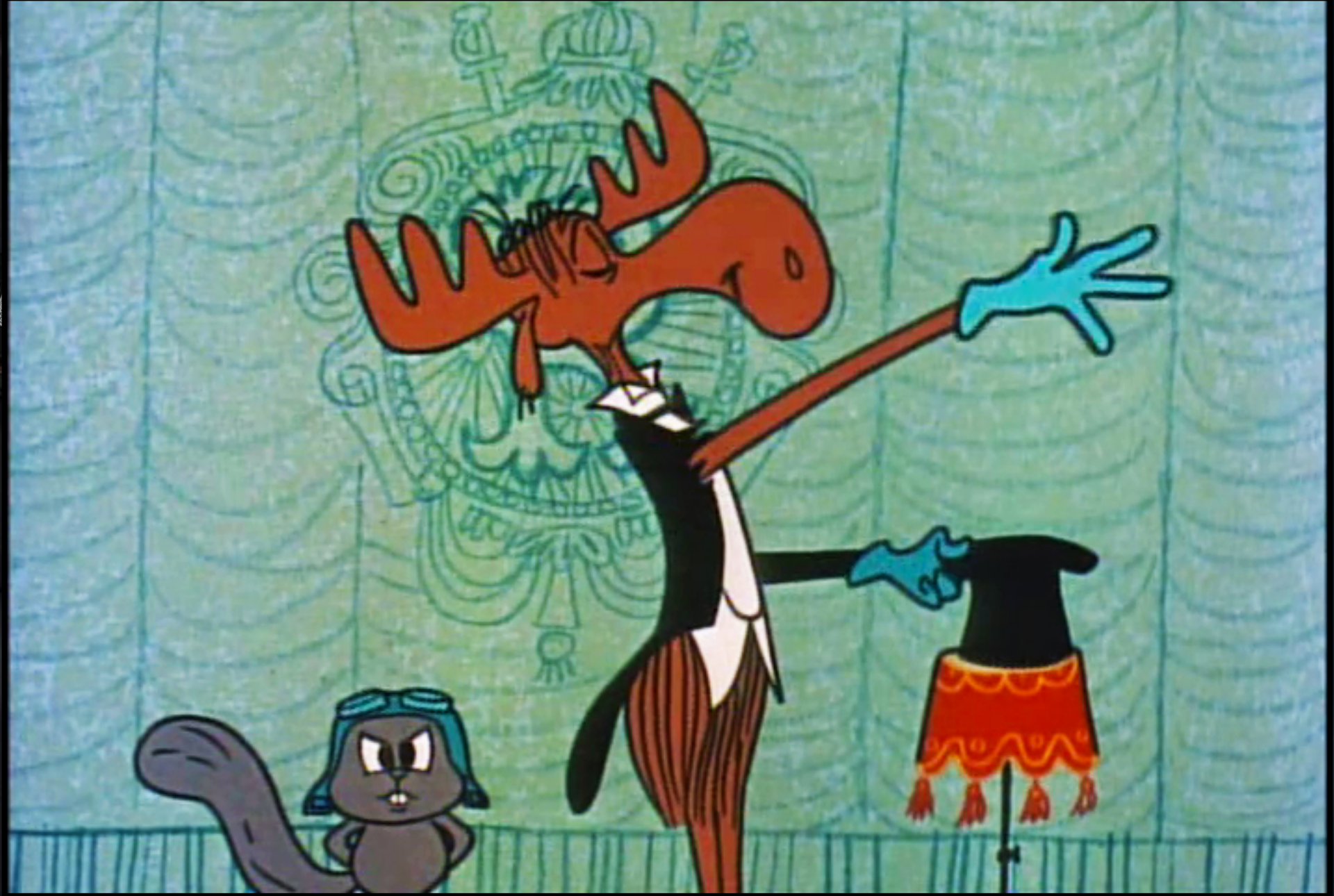
Hoag Hospital

Starbucks Corporation

Laundrywood

Trilogy at Glen Ivy Maintenance Association

“Watch Me Pull a Rabbit Out of My Hat!”



“Must Have Grabbed the Wrong Hat!”





Gary Tilkian

(213) 217-6088

gtilkian@mwdh2o.com

