We Made It! Now What?

City of LA—Tracing the Steps from Compliance Through Post-Implementation

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CASQA 2017

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Trash TMDL

…Regulated?

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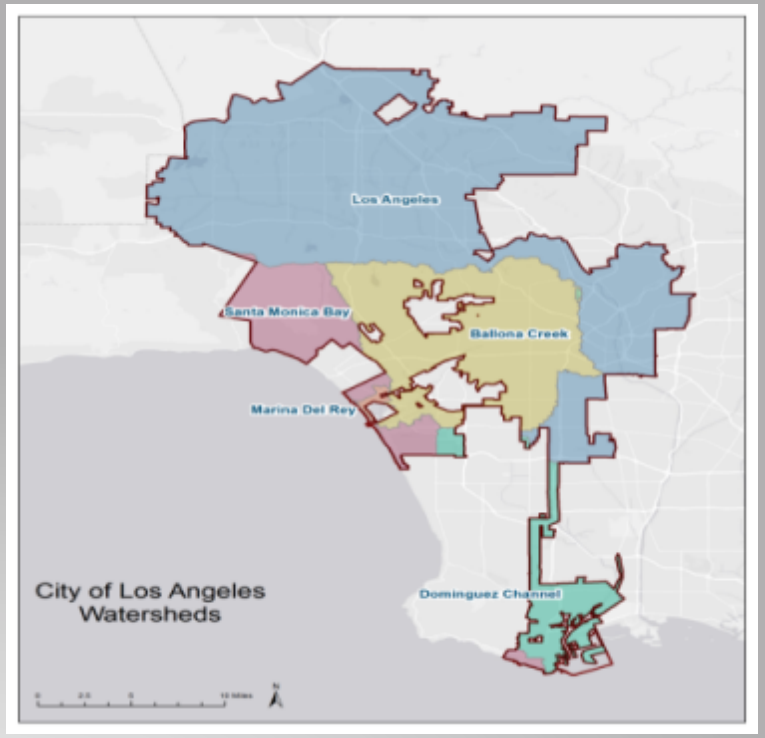
Watersheds *(City area only)*

- Upper Los Angeles River
  - 180,153 acres
- Ballona Creek
  - 68,582 acres
- Dominguez Channel
  - 19,244 acres
- Santa Monica Bay
  - 19,935 acres
- Marina del Rey
  - 974 acres



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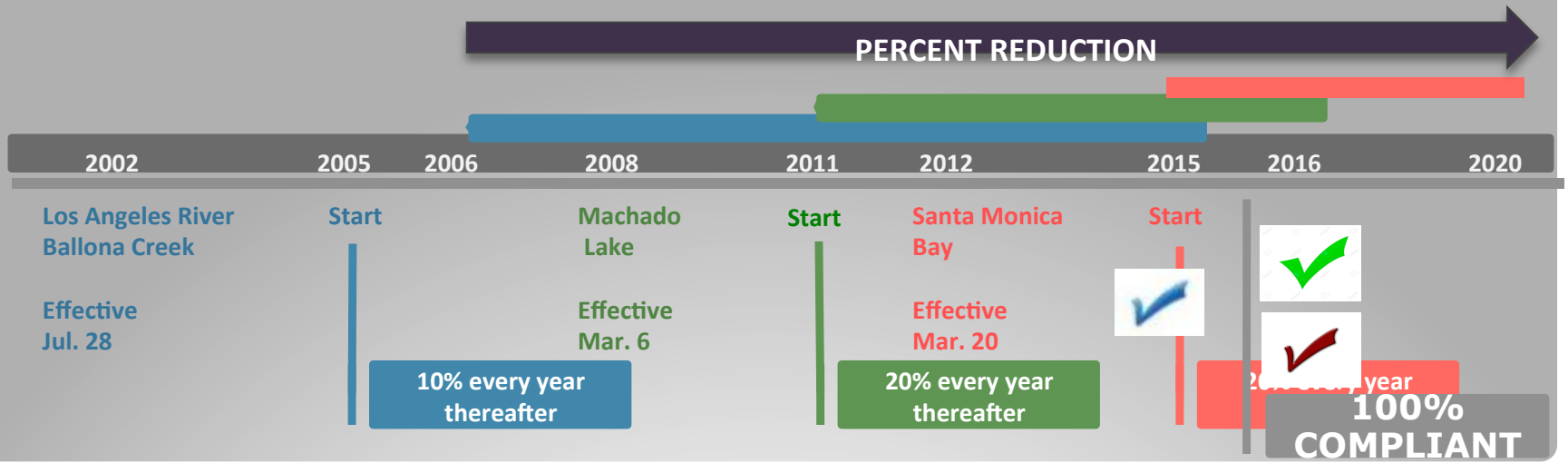
Compliance Requirements



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Trash TMDL
Overview

- ✧Compliance Pathway
- ✧Post-Implementation
- ✧Program Challenges

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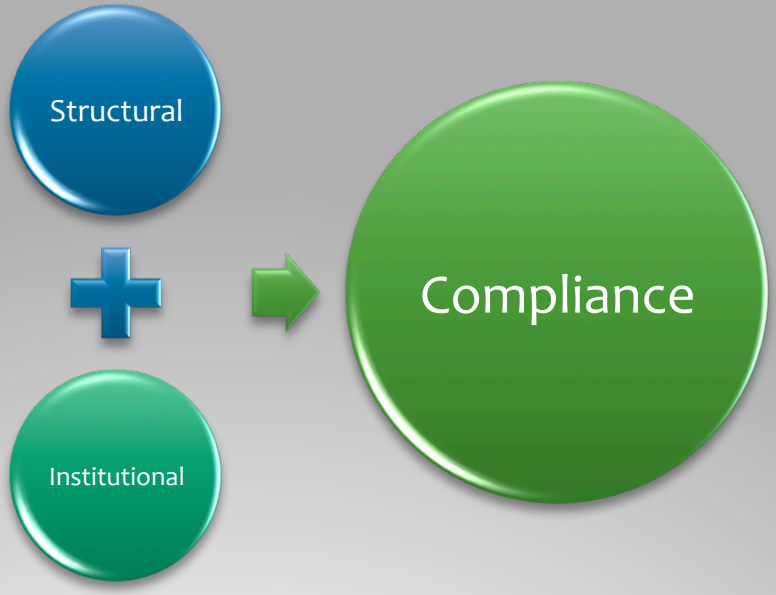
Strategy



COMPLIANCE PATHWAY

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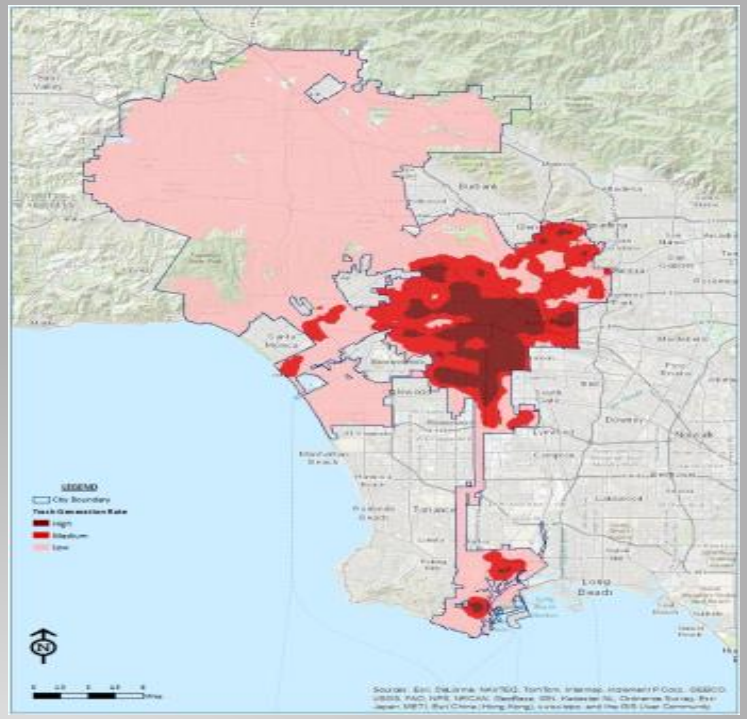
Generation Hot Spot

- Study defined areas of City by Trash Generation Rate:
  - High >14 cf/ac
  - Medium 5-14 cf/ac
  - Low <5 cf/ac
- Full Capture systems installed in high trash generating areas
- Partial Capture systems installed in medium and low trash generating areas



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STRUCTURAL CONTROLS

Trash TMDL

Catch Basin Evolution

Fixed

Self opening (magnet)

Self opening (water flow)

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STRUCTURAL CONTROLS

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Insert Evolution

Hanging basket → Horizontal → Vertical

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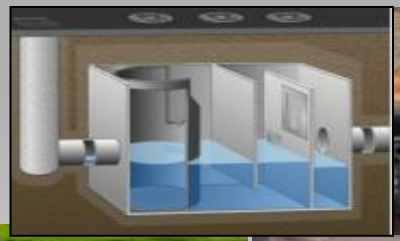
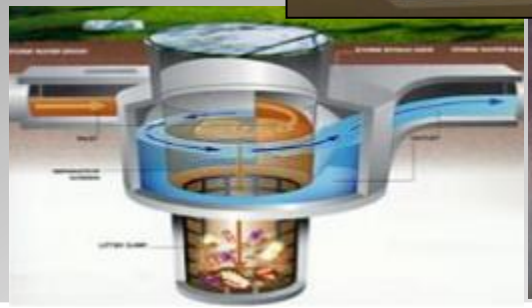
Trash TMDL

Structural

- Catch basin inserts
- Catch basin opening screens
- Hydrodynamic devices
- Netting systems





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Institutional Controls

- Catch basin maintenance
- Street sweeping
- Public outreach
- Trash receptacles

Trash TMDL

Institutional Quantification Study

SITE	LAND USE	TRASH GENERATION RATE	LGR (GAL/AC)	LGR PER LAND USE (GAL/AC)
1	Open Space	Medium	2.09	**3.62**
2	Open Space	Low	5.16	
3	Low Density Residential	Medium	3.26	**1.88**
4	Low Density Residential	Low	0.51	
5	Commercial	Medium	42.22	**22.48**
6	Commercial	Low	2.74	
7	Industrial	Medium	26.68	**14.54**
8	Industrial	Low	2.39	
9	High Density Residential	Medium	6.52	**3.85**
10	High Density Residential	Low	1.18	

INSTITUTIONAL CONTROLS

Trash TMDL

Litter Generation Rate (LGR)

DESCRIPTION	UNIT	HDSFR	LDSFR	COMMERCIAL	INDUSTRIAL	PUBLIC FACILITIES	EDUCATIONAL INSTITUTIONS	MILITARY	TRANSPORTATIO N	MIXED URBAN	OPEN SPACE	AGRICULTURE	WATER	RECREATION	TOTAL
Los Angeles – Land Use Area*	mi^2	146.95	6.86	17.04	16.81	8.83	7.72	0.13	11.66	2.16	45.85	2.61	5.11	9.77	281.5
Los Angeles – Land Use Area	ac	94,048	4,390	10,906	10,758	5,651	4,941	83	7,462	1,382	29,344	1,670	3,270	6,253	180,158
Los Angeles – Baseline Report WLA**	gal	523,851	13,302	161,072	164,951	86,603	72,974	0	114,426	21,170	170,494	9,692	0	36,310	1,374,845
Los Angeles – Study Results	gal	361,849	8,270	245,166	156,412	82,160	71,838	0	108,491	20,093	106,310	6,050	0	22,654	**1,189,293**

** Source: TMDL Baseline Report, Appendix I*
*** Source: TMDL Baseline Report, Appendix II*

% Reduction = 13.5 %

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- ✧Compliance Pathway
- ✧Post-Implementation
- ✧Program Challenges

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POST-IMPLEMENTATION

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Catch Basin BMPs

Phase	Start / End	Funding (construction)		Retrofits	
		Budget	Actual	Inserts	Covers
I	2005 / 2007	$14.9M	$14.2M	7,620	6,500
II	2006 / 2007	$9.4M	$9.2M	0	7,800
III	2008 / 2011	$41M	$36.9M	1,500	26,000
IV	2017 / 2020	$2.3M		~2600	

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POST-IMPLEMENTATION

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New Technologies

- Hydra Gate
- Fixed plastic “fingers”
- Easier/cost-effective installations
- Rated 92% Effective (1yr, 1hr storm)

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POST-IMPLEMENTATION

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Plastic Pellet Monitoring and Reporting Plans (PMRPs)

- <5mm – not captured by CB/Inserts
- Quantify discharges to receiving waters
- Provide supplemental Spill Response Plan (SRP)
- 200 Facilities LA River; **8 Verified**

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Order 13383

- Requires compliance for *all* 303(d) listed waters
- Dominguez Channel—Retrofitted with partial capture screens (2016)

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Trash Monitoring Reporting Program (TMRP)

- Requires Receiving Water Monitoring for Compliance (ULAR/BC)
- Phase I (Pilot Study June 2016)—Developed Alternative Field Protocol
- Phase II (Field Oct 2016)—LA River/Ballona Creek Watersheds (TMRP)

STATE-WIDE TRASH AMENDMENTS

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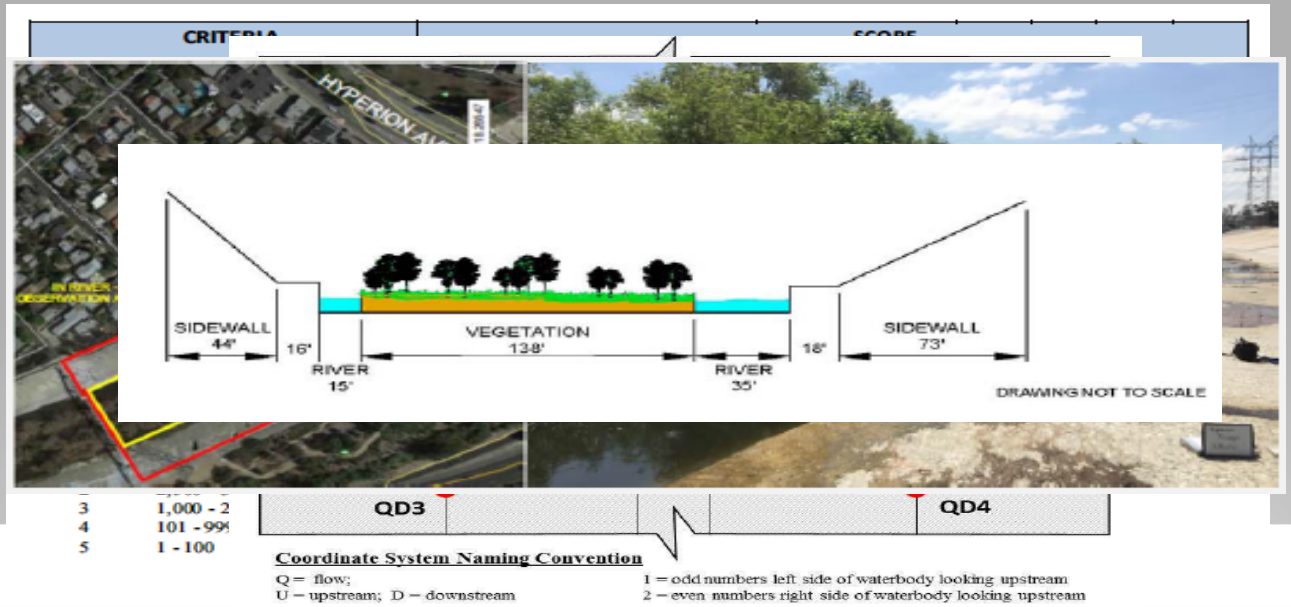
Standardization Criteria



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Observation Protocols

- *High Elevation Point (HEPO)*—visual survey of trash impacts in river/river banks
- *In-River (IRO)*—included velocity and suspended trash monitoring elements
- Quantifiable Metrics
  - Abundance
  - Mass Loading
  - Trash Library

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Alternative Protocol vs. SWAMP

Protocol	Stream Type	Length (ft) Monitored	Documentation	River Banks	Characterization	Fixed Site	Measure Flow	Suspended Trash Collection	Trash Collection
SWAMP	Wadeable	100	Record, photo	Y	Y	N	N	N	Y
IRO	Wadeable	300	Record, extensive photo documentation	Y	Y	Y*	Y	Y	Y
HEPO	Inaccessible	300	Record, extensive photo documentation	Y	Y	Y	N	N	Y

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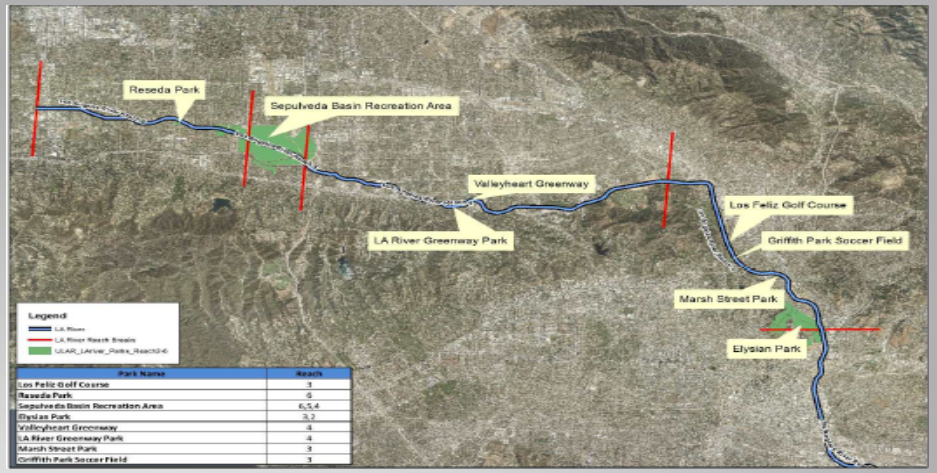
Minimum Frequency Assessment and Collection (MFAC)

- Required for River-adjacent Parks (ULAR/BC)
- Consistency among visual surveying methods
- Cost-effective solution for large watershed monitoring



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PROGRAM CHALLENGES

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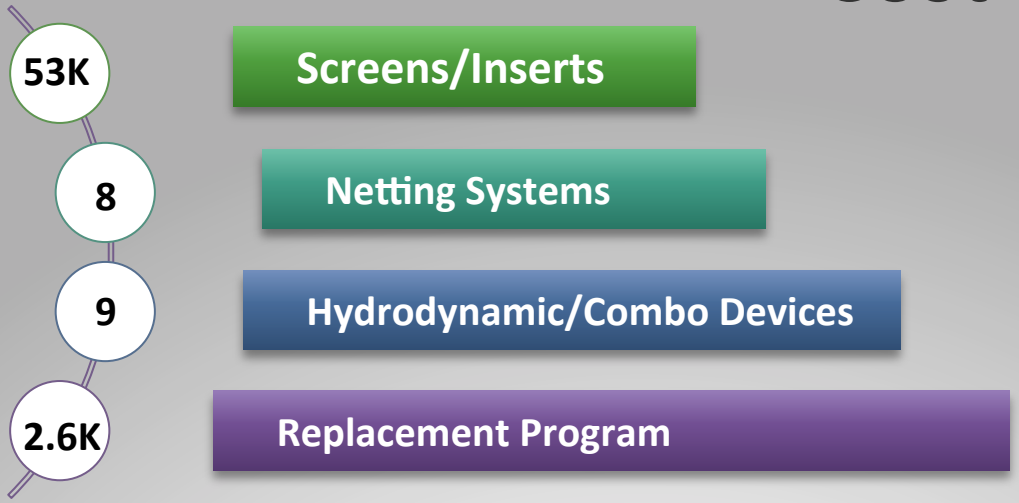
Fiscal Considerations



Implementation Cost ⇨ $82M

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PROGRAM CHALLENGES

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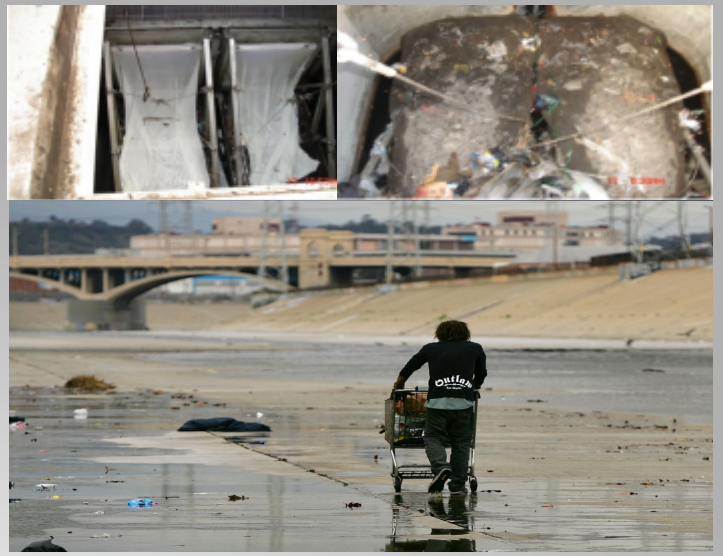
Additional Considerations

- On-going Programs Costs
  - Annual O & M (~$1M)
  - Replacement Program (~$2.3M)
- Site/Urban Constraints
- Evolving Technologies
- New Regulations…?



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Closing Remarks

- City of LA's implementation strategy has been successful—though many lessons learned
- City of LA's CB insert received Regional Water Quality Control Board's "Full Capture Certification" and newer technologies still being explored
- City continues to look for new revenue sources to fund ongoing costs and requirements

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