Case Study Solicitation

The impacts of continued drought, climate change and anticipated population growth in California dictates that storm water be viewed as a resource to meet both environmental and public needs. The Strategy to Optimize Resource Management of Storm Water (STORMS) includes identification of actions needed for the SWRCB and Regional Boards to improve the regulation, management and utilization of California's storm water. To support this effort, the Office of Water Programs (OWP) at Sacramento State is developing a Storm Water Capture and Use White Paper that will include identification and evaluation of approaches that may be applicable for California implementation. The White Paper will include storm water capture and use case studies that demonstrate one or more benefits (e.g., drinking water supply, irrigation, urban greening). The case studies will be used to identify solutions to barriers that could potentially be extrapolated to the region or state.

OWP is seeking storm water case studies that attempted one or more of the following:

- Projects that use conventional and/or emerging technologies to achieve capture and use objectives (e.g., LID, dry wells).
- Projects that exemplify integration of water resource objectives as opposed to the conventional silo approach toward stormwater, wastewater, water supply, etc.
- Projects where intra- and inter-agency and stakeholder coordination concerning stormwater capture and use were instrumental to achieving objectives.
- Projects that used triple bottom line whole life cycle cost-benefit analyses (environment, social, economic) to evaluate multi-benefit alternatives.

Any suggestions for potential case studies would be greatly appreciated. The case studies do not need to be located within California. Any written material (e.g., reports, journal articles) that can be provided for each Case Study is ideal, however, information of this type may not be readily available and contact information for individuals who can supply additional information is also welcome. Please use the attached Case Study Nomination Form. Submittals will be categorized by barrier and project type to prioritize follow up investigation.

Please direct any questions and Case Study examples to:

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ED_002551_00000721-00101

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name:
Description:

County:
City:
Lat/Long:

Stormwater Permit ☐ Phase I ☐ Phase II
Construction Completed? ☐ Y ☐ N Date:

Scale

☐ Decentralized/Street/Centralized
☐ Centralized/Regional/Neighborhood

Project Capture Technology

☐ Basins
☐ Dry Wells
☐ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows
☐ Urban Wet Weather
☐ Urban Dry Weather
☐ Other:

Water Use

If quantified, report average annual acre-ft (afy):

☐ Recharge: afy
☐ Agricultural/Industrial: afy
☐ Municipal Supply: afy
☐ Residential/Park Irrigation: afy
☐ Natural Hydrologic Function: afy

Capture Design

Drainage Area: ac
% Impervious: %
Storm Capture Depth: in
Average Annual Capture: in

Asset Management

Total Project Cost (permitting, design, construction):
Construction Cost:
O&M Cost (annual):
Infrastructure Lifetime (yrs.):
Annual Energy Use (Mwh):

Data Sources

Groundwater Levels:
Proximity to GW Contamination:
Proximity to Wells:
HSG Classification:

Multi – Benefit

☐ Open Space/Parks
☐ Surface Water Quality (TMDL, MEP, etc.)
☐ Increase Water Supply
☐ Flood Control
☐ Habitat

Funding Source

☐ Local Bond Measure
☐ State Grant
☐ SRF
☐ Parcel Fees
☐ Federal
☐ GSA
☐ Water Fees
☐ Development Fees
☐ Non-profit
☐ Other:

Funding Designations

☐ Transportation
☐ Parks
☐ Redevelopment
☐ Conservation
☐ Clean Water/TMDL/etc.
☐ Water Supply Fees
☐ Groundwater Recharge (eg. From GSA)
☐ Other:

ED_002551_00000721-00102

Site Investigation & Coordination

- ☐ Geotechnical
- ☐ Groundwater Level
- ☐ Soil Contamination
- ☐ Water Quality Testing
- ☐ Groundwater Sustainability Agency
- ☐ Groundwater Quality
- ☐ Regional Water Board Consultation

Downstream Constraints

- ☐ Downstream water rights were evaluated
- ☐ Downstream water rights exist
- ☐ Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	☐ Y	☐ N
Did this require public vote?	☐ Y	☐ N
Did this require elected official approval?	☐ Y	☐ N

Public education and outreach strategy:

What were primary public concerns?

External Review

NGO:
SWRCB:
Federal Agencies:
Water Rights:
Other:

Barriers

Please list all applicable barriers by number from the attached list:

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.

Other Comments or Description of Barriers

Project Contacts

	Phone	Email
Lead Agency:		
Project Website:		
Agency Contact:		
Design Firm Contact:		

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Barriers

To assist in categorizing barriers in the Case Study Nomination Form, use the number corresponding to your project barriers in the list below. This list is not exhaustive, so please additional barriers in the space provided on the template:

1. Funding source limited consideration of all alternatives
2. Project infeasible without augmentation from temporary funding sources (e.g. grants, local bond measure, etc.)
3. Schedule limitations constrained alternatives analysis or ability to explore partnerships
4. Unclear regulations (e.g., groundwater protection)
5. Unavailable or unendorsed design standards to ensure operation and protection of groundwater resources
6. Constraining or competing local, state, or federal regulations
7. Location of facility "capture" in relation to desired "use" may be cost or technologically prohibitive
8. Unknown water rights
9. Unclear, inconsistent, or unknown public health standards for capture systems or use types
10. Constraints on diversion and routing strategies that involve Waters of the State may not be adequately known
11. Uncertain capacity, legal, or policy limitations for interconnecting stormwater to waste water collection systems
12. Project justification only considers narrow comparison of stormwater capture cost with cost other water sources (out-of-basin, groundwater, reclaimed water)
13. Non-standard or unendorsed hydrologic calculation methods to determine optimal sizing considering rainfall patterns, seasonality, and magnitudes.

The remaining barriers group barriers by project scale or type:

14. *Multi-benefit*: Lack of consensus or knowledge of techniques to quantify all water and non-water benefits in a multi-benefit project to solicit additional funds (e.g., water supply, transportation, parks, etc.). More generally, any barrier restricting triple-bottom line analysis.
15. *Multi-benefit*: Public safety considerations for projects with passive or active recreation
16. *Decentralized*: Inadequate project justification due to many decentralized projects are cumulatively required to provide measureable benefit.
17. *Decentralized*: Competing objectives, e.g. infill redevelopment in the ultra-urban setting.
18. *Centralized*: Land acquisition cost and availability
19. *Centralized*: Lack of multiple agencies collaboration
20. *Centralized*: Technical and policy guidance lacking for range of retrofit options (e.g. enhancing groundwater recharge at flood control facilities).

ED_002551_00000721-00104

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name: Ballona Creek Watershed
Description: Rainwater Harvesting Pilot Program (Rain Barrels)
County: Los Angeles County
City: City of Los Angeles
Lat/Long:

Stormwater Permit ☐ Phase I ☐ Phase II
Construction Completed? ☐ Y ☐ N Date:

Scale

☒ Decentralized/Street/Centralized
☐ Centralized/Regional/Neighborhood

Project Capture Technology

☐ Basins
☐ Dry Wells
☐ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows
☒ Urban Wet Weather
☒ Urban Dry Weather
☐ Other:

Water Use

If quantified, report average annual acre-ft (afy):

☐ Recharge: afy
☐ Agricultural/Industrial: afy
☐ Municipal Supply: afy
☒ Residential/Park Irrigation: 1.8 afy
☐ Natural Hydrologic Function: afy

Capture Design

Drainage Area: ac
% Impervious: %
Storm Capture Depth: in
Average Annual Capture: in

Asset Management

Total Project Cost (permitting, design, construction): $1M
Construction Cost:
O&M Cost (annual):
Infrastructure Lifetime (yrs.):
Annual Energy Use (Mwh):

Data Sources

Groundwater Levels:
Proximity to GW Contamination:
Proximity to Wells:
HSG Classification:

Multi – Benefit

☐ Open Space/Parks
☒ Surface Water Quality (TMDL, MEP, etc.)
☐ Increase Water Supply
☐ Flood Control
☐ Habitat

Funding Source

☐ Local Bond Measure
☒ State Grant
☐ SRF
☐ Parcel Fees
☐ Federal
☐ GSA
☐ Water Fees
☐ Development Fees
☐ Non-profit
☐ Other:

Funding Designations

☐ Transportation
☐ Parks
☐ Redevelopment
☒ Conservation
☒ Clean Water/TMDL/etc.
☐ Water Supply Fees
☐ Groundwater Recharge (eg. From GSA)
☐ Other:

ED_002551_00000721-00105

Site Investigation & Coordination

- ☐ Geotechnical
- ☐ Groundwater Level
- ☐ Soil Contamination
- ☐ Water Quality Testing
- ☐ Groundwater Sustainability Agency
- ☐ Groundwater Quality
- ☐ Regional Water Board Consultation

Downstream Constraints

- ☐ Downstream water rights were evaluated
- ☐ Downstream water rights exist
- ☐ Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	☐ Y	☒ N
Did this require public vote?	☐ Y	☒ N
Did this require elected official approval?	☐ Y	☒ N

Public education and outreach strategy:
Directly engaging property owners

What were primary public concerns?
Maintenance of rain barrels

External Review

NGO:	California Coastal Conservancy
SWRCB:	
Federal Agencies:	
Water Rights:	Santa Monica Bay Restoration
Other:	Committee

Barriers

Please list all applicable barriers by number from the attached list: 2

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.

Other Comments or Description of Barriers

Project Contacts

		Phone	Email
Lead Agency:	LASAN		
Project Website:			
Agency Contact:			
Design Firm Contact:			

ED_002551_00000721-00106

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name: Elmer Avenue Neighborhood
Description: Retrofit Project – Public ROW & Private Residence Improvements (Infiltration Gallery, Bioswales)
County: Los Angeles County (City of Los Angeles): 34°12'40.03"N 118°22'36.80"W
City:
Lat/Long:

Stormwater Permit ☐ Phase I ☐ Phase II
Construction Completed? ☒ Y ☐ N Date: 6/1/10

Scale

☒ Decentralized/Street/Centralized
☐ Centralized/Regional/Neighborhood

Project Capture Technology

☐ Basins
☐ Dry Wells
☒ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows
☒ Urban Wet Weather
☒ Urban Dry Weather
☐ Other:

Water Use

If quantified, report average annual acre-ft (afy):

☒ Recharge:	35 afy
☐ Agricultural/Industrial:	afy
☐ Municipal Supply:	afy
☐ Residential/Park Irrigation:	afy
☐ Natural Hydrologic Function:	afy

Capture Design

Drainage Area:	40 ac
% Impervious:	42%
Storm Capture Depth:	¾ in
Average Annual Capture:	in

Asset Management

Total Project Cost (permitting, design, construction):	$2.54M
Construction Cost:	
O&M Cost (annual):	
Infrastructure Lifetime (yrs.):	30 years
Annual Energy Use (Mwh):	

Data Sources

Groundwater Levels:
Proximity to GW Contamination:
Proximity to Wells:
HSG Classification:

Multi – Benefit

☐ Open Space/Parks
☒ Surface Water Quality (TMDL, MEP, etc.)
☒ Increase Water Supply
☒ Flood Control
☐ Habitat

Funding Source

☐ Local Bond Measure
☒ State Grant
☐ SRF
☐ Parcel Fees
☐ Federal
☐ GSA
☒ Water Fees
☐ Development Fees
☐ Non-profit
☐ Other:

Funding Designations

☐ Transportation
☐ Parks
☐ Redevelopment
☐ Conservation
☒ Clean Water/TMDL/etc.
☒ Water Supply Fees
☐ Groundwater Recharge (eg. From GSA)
☐ Other:

ED_002551_00000721-00107

Site Investigation & Coordination

☒ Geotechnical
☐ Groundwater Level
☐ Soil Contamination
☐ Water Quality Testing
☐ Groundwater Sustainability Agency
☐ Groundwater Quality
☐ Regional Water Board Consultation

Downstream Constraints

☐ Downstream water rights were evaluated
☐ Downstream water rights exist
☐ Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	☐ Y	☒ N
Did this require public vote?	☐ Y	☒ N
Did this require elected official approval?	☐ Y	☒ N

Public education and outreach strategy:
Public meetings and outreach efforts, such as fliers

What were primary public concerns?
O&M and Aesthetics

External Review

NGO:	- Council for Watershed
SWRCB:	Health; TreePeople
Federal Agencies:	
Water Rights:	
Other:	- LASAN

Barriers

Please list all applicable barriers by number from the attached list: 2

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.
Lack of continued outreach resulted in property owners not maintaining vegetative swales in perpetuity, resulting in some of the greening elements falling into disrepair
Real-time monitoring of stormwater capture volumes was not feasible due to cost

Other Comments or Description of Barriers

Lack of design standards for site-specific conditions and conflicting city/local policies involving green infrastructure

Project Contacts

		Phone	Email
Lead Agency:	LADWP		
Project Website:			
Agency Contact:			
Design Firm Contact:			

ED_002551_00000721-00108

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name: Garvanza Park Best Management
Description: Practices Project (Infiltration Basin)

County: Los Angeles County
City: City of Los Angeles
Lat/Long: 34° 7'10.87"N
118°10'49.12"W

Stormwater Permit ☐ Phase I ☐ Phase II
Construction Completed? ☒ Y ☐ N Date: 5/1/12

Scale

☒ Decentralized/Street/Centralized
☐ Centralized/Regional/Neighborhood

Project Capture Technology

☐ Basins
☐ Dry Wells
☒ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows
☒ Urban Wet Weather
☒ Urban Dry Weather
☐ Other:

Water Use

If quantified, report average annual acre-ft (afy):

☒ Recharge:	51 afy
☐ Agricultural/Industrial:	afy
☐ Municipal Supply:	afy
☐ Residential/Park Irrigation:	afy
☐ Natural Hydrologic Function:	afy

Capture Design

Drainage Area:	85 ac
% Impervious:	42%
Storm Capture Depth:	¾ in
Average Annual Capture:	in

Asset Management

Total Project Cost (permitting, design, construction):	$3.88M
Construction Cost:	
O&M Cost (annual):	
Infrastructure Lifetime (yrs.):	30
Annual Energy Use (Mwh):	

Data Sources

Groundwater Levels:
Proximity to GW Contamination:
Proximity to Wells:
HSG Classification:

Multi – Benefit

☒ Open Space/Parks
☒ Surface Water Quality (TMDL, MEP, etc.)
☒ Increase Water Supply
☐ Flood Control
☐ Habitat

Funding Source

☐ Local Bond Measure
☒ State Grant
☐ SRF
☐ Parcel Fees
☐ Federal
☐ GSA
☒ Water Fees
☐ Development Fees
☐ Non-profit
☐ Other:

Funding Designations

☐ Transportation
☒ Parks
☐ Redevelopment
☐ Conservation
☒ Clean Water/TMDL/etc.
☒ Water Supply Fees
☐ Groundwater Recharge (eg. From GSA)
☐ Other:

ED_002551_00000721-00109

Site Investigation & Coordination

☒ Geotechnical
☐ Groundwater Level
☐ Soil Contamination
☐ Water Quality Testing
☐ Groundwater Sustainability Agency
☐ Groundwater Quality
☐ Regional Water Board Consultation

Downstream Constraints

☐ Downstream water rights were evaluated
☐ Downstream water rights exist
☐ Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	☐ Y	☒ N
Did this require public vote?	☐ Y	☒ N
Did this require elected official approval?	☐ Y	☒ N

Public education and outreach strategy:
Public meetings

What were primary public concerns?
O&M

External Review

NGO:
SWRCB:
Federal Agencies:
Water Rights:
Other: LASAN

Barriers

Please list all applicable barriers by number from the attached list: 2

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.

Other Comments or Description of Barriers

Lack of design standards for site-specific conditions and conflicting city/local policies involving green infrastructure

Project Contacts

	Phone	Email
Lead Agency:		
Project Website:		
Agency Contact:		
Design Firm Contact:		

ED_002551_00000721-00110

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name: Hansen Spreading Grounds
Description: Improvement Project

County: Los Angeles County
City: City of Los Angeles
Lat/Long: 34°15'1.01"N
118°23'41.29"W

Stormwater Permit ☐ Phase I ☐ Phase II
Construction Completed? ☒ Y ☐ N Date:

Scale

☐ Decentralized/Street/Centralized
☒ Centralized/Regional/Neighborhood

Project Capture Technology

☒ Basins
☐ Dry Wells
☐ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows
☐ Urban Wet Weather
☐ Urban Dry Weather
☒ Other: Hansen Dam

Water Use

If quantified, report average annual acre-ft (afy):

☒ Recharge:	2,100 afy
☐ Agricultural/Industrial:	afy
☐ Municipal Supply:	afy
☐ Residential/Park Irrigation:	afy
☐ Natural Hydrologic Function:	afy

Capture Design

Drainage Area:	97280 ac
% Impervious:	2 %
Storm Capture Depth:	in
Average Annual Capture:	in

Asset Management

Total Project Cost (permitting, design, construction):	$8.4M
Construction Cost:	
O&M Cost (annual):	
Infrastructure Lifetime (yrs.):	50
Annual Energy Use (Mwh):	

Data Sources

Groundwater Levels:
Proximity to GW Contamination:
Proximity to Wells:
HSG Classification:

Multi – Benefit

☐ Open Space/Parks
☐ Surface Water Quality (TMDL, MEP, etc.)
☒ Increase Water Supply
☐ Flood Control
☐ Habitat

Funding Source

☐ Local Bond Measure
☐ State Grant
☐ SRF
☐ Parcel Fees
☐ Federal
☐ GSA
☒ Water Fees
☐ Development Fees
☐ Non-profit
☐ Other:

Funding Designations

☐ Transportation
☐ Parks
☐ Redevelopment
☐ Conservation
☐ Clean Water/TMDL/etc.
☒ Water Supply Fees
☒ Groundwater Recharge (eg. From GSA)
☐ Other:

ED_002551_00000721-00111

Site Investigation & Coordination

☒ Geotechnical
☐ Groundwater Level
☐ Soil Contamination
☐ Water Quality Testing
☐ Groundwater Sustainability Agency
☐ Groundwater Quality
☐ Regional Water Board Consultation

Downstream Constraints

☐ Downstream water rights were evaluated
☐ Downstream water rights exist
☐ Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	☐ Y	☒ N
Did this require public vote?	☐ Y	☒ N
Did this require elected official approval?	☐ Y	☒ N

Public education and outreach strategy:

What were primary public concerns?

External Review

NGO:
SWRCB:
Federal Agencies:
Water Rights:
Other: LACFCD

Barriers

Please list all applicable barriers by number from the attached list:

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.

Other Comments or Description of Barriers

Project Contacts

Lead Agency: LADWP/LACFCD
Project Website:
Agency Contact:
Design Firm Contact:

	Phone	Email

ED_002551_00000721-00112

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name: Sun Valley EDA Public
Description: Improvements Project (

County:
City:
Lat/Long:

Stormwater Permit ☐ Phase I ☐ Phase II
Construction Completed? ☐ Y ☐ N Date:

Scale

☒ Decentralized/Street/Centralized
☐ Centralized/Regional/Neighborhood

Project Capture Technology

☐ Basins
☒ Dry Wells
☐ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows
☒ Urban Wet Weather
☒ Urban Dry Weather
☐ Other:

Water Use

If quantified, report average annual acre-ft (afy):

☒ Recharge:	93 afy
☐ Agricultural/Industrial:	afy
☐ Municipal Supply:	afy
☐ Residential/Park Irrigation:	afy
☐ Natural Hydrologic Function:	afy

Capture Design

Drainage Area:	146 ac
% Impervious:	47%
Storm Capture Depth:	1 in
Average Annual Capture:	in

Asset Management

Total Project Cost (permitting, design, construction):	$6.66M
Construction Cost:	
O&M Cost (annual):	
Infrastructure Lifetime (yrs.):	30
Annual Energy Use (Mwh):	

Data Sources

Groundwater Levels:
Proximity to GW Contamination:
Proximity to Wells:
HSG Classification:

Multi – Benefit

☐ Open Space/Parks
☒ Surface Water Quality (TMDL, MEP, etc.)
☒ Increase Water Supply
☒ Flood Control
☐ Habitat

Funding Source

☐ Local Bond Measure	☐ Parcel Fees	☐ Development
	☒ Federal	☐ Fees
☐ State Grant	☐ GSA	☐ Non-profit
☐ SRF	☒ Water Fees	☐ Other:

Funding Designations

☒ Transportation
☐ Parks
☒ Redevelopment
☐ Conservation
☒ Clean Water/TMDL/etc.
☒ Water Supply Fees
☐ Groundwater Recharge (eg. From GSA)
☐ Other:

ED_002551_00000721-00113

Site Investigation & Coordination

☒ Geotechnical
☐ Groundwater Level
☐ Soil Contamination
☐ Water Quality Testing
☐ Groundwater Sustainability Agency
☐ Groundwater Quality
☐ Regional Water Board Consultation

Downstream Constraints

☐ Downstream water rights were evaluated
☐ Downstream water rights exist
☐ Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	☐ Y	☒ N
Did this require public vote?	☐ Y	☒ N
Did this require elected official approval?	☐ Y	☒ N

Public education and outreach strategy:
Public meetings

What were primary public concerns?
VECTOR control issues

External Review

NGO:
SWRCB:
Federal Agencies:
Water Rights:
Other: LA BOE; LASAN

Barriers

Please list all applicable barriers by number from the attached list: 2

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.
Real-time monitoring of stormwater capture volumes was not feasible due to cost

Other Comments or Description of Barriers

Lack of design standards for site-specific conditions and conflicting city/local policies involving green infrastructure

Project Contacts

	Phone	Email
Lead Agency:		
Project Website:		
Agency Contact:		
Design Firm Contact:		

ED_002551_00000721-00114

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name: Woodman Avenue Multi-Beneficial
Description: Stormwater Capture Project (Green Median)
County:
City: Los Angeles County
Lat/Long: City of Los Angeles

34°13'3.76"N
118°25'51.96"W

Stormwater Permit ☐ Phase I ☐ Phase II
Construction Completed? ☒ Y ☐ N Date: 2/1/14

Scale

☒ Decentralized/Street/Centralized
☐ Centralized/Regional/Neighborhood

Project Capture Technology

☐ Basins
☐ Dry Wells
☒ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows
☒ Urban Wet Weather
☒ Urban Dry Weather
☐ Other:

Water Use

If quantified, report average annual acre-ft (afy):

☒ Recharge:	55 afy
☐ Agricultural/Industrial:	afy
☐ Municipal Supply:	afy
☐ Residential/Park Irrigation:	afy
☐ Natural Hydrologic Function:	afy

Capture Design

Drainage Area:	111 ac
% Impervious:	42 %
Storm Capture Depth:	1 in
Average Annual Capture:	in

Asset Management

Total Project Cost (permitting, design, construction):	$3.4M
Construction Cost:	
O&M Cost (annual):	
Infrastructure Lifetime (yrs.):	30 years
Annual Energy Use (Mwh):	

Data Sources

Groundwater Levels:
Proximity to GW Contamination:
Proximity to Wells:
HSG Classification:

Multi – Benefit

☐ Open Space/Parks
☒ Surface Water Quality (TMDL, MEP, etc.)
☒ Increase Water Supply
☒ Flood Control
☒ Habitat

Funding Source

☐ Local Bond Measure	☐ Parcel Fees	☐ Development
	☐ Federal	☐ Fees
☒ State Grant	☐ GSA	☐ Non-profit
☐ SRF	☒ Water Fees	☐ Other:

Funding Designations

☐ Transportation
☐ Parks
☐ Redevelopment
☐ Conservation
☒ Clean Water/TMDL/etc.
☒ Water Supply Fees
☐ Groundwater Recharge (eg. From GSA)
☐ Other:

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Site Investigation & Coordination

☒ Geotechnical
☐ Groundwater Level
☐ Soil Contamination
☐ Water Quality Testing
☐ Groundwater Sustainability Agency
☐ Groundwater Quality
☐ Regional Water Board Consultation

Downstream Constraints

☐ Downstream water rights were evaluated
☐ Downstream water rights exist
☐ Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	☐ Y	☒ N
Did this require public vote?	☐ Y	☒ N
Did this require elected official approval?	☐ Y	☒ N

Public education and outreach strategy:
Public meetings; stakeholder meetings; pre-construction meetings; neighborhood council meetings;

What were primary public concerns?
Operation and maintenance; perpetuity

External Review

NGO:	The River Project
SWRCB:	
Federal Agencies:	
Water Rights:	
Other:	LASAN; LA BOSS

Barriers

Please list all applicable barriers by number from the attached list: 2

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.
Real-time monitoring of stormwater capture volumes was not feasible due to cost

Other Comments or Description of Barriers

Lack of design standards for site-specific conditions and conflicting city/local policies involving green infrastructure

Project Contacts

ED_002551_00000721-00116

Lead Agency:	LADWP		
Project Website:		Phone	Email
Agency Contact:			
Design Firm Contact:			

ED_002551_00000721-00117

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name:
Description:

County:
City:
Lat/Long:

Stormwater Permit ☐ Phase I ☐ Phase II
Construction Completed? ☐ Y ☐ N Date:

Scale

☐ Decentralized/Street/Parcel
☐ Centralized/Regional/Neighborhood

Project Capture Technology

☐ Basins
☐ Dry Wells
☐ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows
☐ Urban Wet Weather
☐ Urban Dry Weather
☐ Other:

Water Use

If quantified, report average annual acre-ft (afy):

☐ Recharge: afy
☐ Agricultural/Industrial: afy
☐ Municipal Supply: afy
☐ Residential/Park Irrigation: afy
☐ Natural Hydrologic Function: afy

Capture Design

Drainage Area: ac
% Impervious: %
Storm Capture Depth: in
Average Annual Capture: in

Asset Management

Total Project Cost (permitting, design, construction):
Construction Cost:
O&M Cost (annual):
Infrastructure Lifetime (yrs.):
Annual Energy Use (Mwh):

Data Sources

Depth to Groundwater: Click or tap here to enter text.
HSG Classification: Click or tap here to enter text.
Proximity to GW Contamination: Click or tap here to enter text.
Proximity to Wells: Click or tap here to enter text.

Multi – Benefit

☐ Open Space/Parks
☐ Surface Water Quality (TMDL, MEP, etc.)
☐ Increase Water Supply
☐ Flood Control
☐ Habitat

Funding Source

☐ Local Bond Measure
☐ State Grant
☐ SRF
☐ Parcel Fees
☐ Federal
☐ GSA
☐ Water Fees
☐ Development Fees
☐ Non-profit
☐ Other:

Funding Designations

☐ Transportation
☐ Parks
☐ Redevelopment
☐ Conservation
☐ Clean Water/TMDL/etc.
☐ Water Supply Fees
☐ Groundwater Recharge (eg. From GSA)
☐ Other:

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Site Investigation & Coordination

- ☐ Geotechnical
- ☐ Groundwater Level
- ☐ Soil Contamination
- ☐ Water Quality Testing
- ☐ Groundwater Sustainability Agency
- ☐ Groundwater Quality
- ☐ Regional Water Board Consultation

Downstream Constraints

- ☐ Downstream water rights were evaluated
- ☐ Downstream water rights exist
- ☐ Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	☐ Y	☐ N
Did this require public vote?	☐ Y	☐ N
Did this require elected official approval?	☐ Y	☐ N

Public education and outreach strategy:

What were primary public concerns?

External Review

NGO:
SWRCB:
Federal Agencies:
Water Rights:
Other:

Barriers

Please list all applicable barriers by number from the attached list:

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.

Other Comments or Description of Barriers

Project Contacts

	Phone	Email
Lead Agency:		
Project Website:		
Agency Contact:		
Design Firm Contact:		

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Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name: Marina del Rey - Parking Lot 9
Description: Water Quality Enhancement Project
County: Los Angeles
City: Unincorporated Area
Lat/Long: 33.9824/-118.4560

The main goal of this project is to facilitate the capture and treatment of stormwater from a 1.5 acres impervious parking lot in Marina del Rey, California. The stormwater runoff from the parking lot could potentially carry pollutants such as fecal matter from birds, oil and grease from cars, zinc from metals, and copper from brake pads into the downstream harbor. The project will include the construction of four modular wetlands and bioswale units to filter out pollutants and redirect the filtered runoff to the existing catch basins before being discharged into the harbor. The project will also include two sets of rest areas called parklets which includes benches and tables in addition to educational signage to provide a recreational and outreach benefit. The Project provides many benefits in terms of stormwater treatment, aesthetic improvement, habitat value, and recreational use in a sustainable and green fashion.

Stormwater Permit ☒ Phase I ☐ Phase II
Construction Completed? ☐ Y ☒ N Date: 12/31/2016

Scale

☒ Decentralized/Street/Centralized
☐ Centralized/Regional/Neighborhood

Project Capture Technology

☐ Basins
☐ Dry Wells
☐ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows
☐ Urban Wet Weather
☐ Urban Dry Weather
☒ Other: Stormwater

Water Use

If quantified, report average annual acre-ft (afy):

☐ Recharge: afy
☐ Agricultural/Industrial: afy
☐ Municipal Supply: afy
☐ Residential/Park Irrigation: afy
☐ Natural Hydrologic Function: afy

Capture Design

Drainage Area:	1.5 ac
% Impervious:	100%
Storm Capture Depth:	1.32in
Average Annual Capture:	8.00in

Asset Management

Total Project Cost (permitting, design, construction):	$1,672,000
Construction Cost:	$1,084,000
O&M Cost (annual):	$10,000
Infrastructure Lifetime (yrs.):	25 to 50 years
Annual Energy Use (Mwh):	

Data Sources

Groundwater Levels:	
Proximity to GW	5 ft
Contamination:	
Proximity to Wells:	
HSG Classification:	

Multi – Benefit

- ☐ Open Space/Parks
- ☒ Surface Water Quality (TMDL, MEP, etc.)
- ☐ Increase Water Supply
- ☐ Flood Control
- ☒ Habitat

Funding Source

- ☐ Local Bond Measure
- ☐ State Grant
- ☐ SRF
- ☐ Parcel Fees
- ☐ Federal
- ☐ GSA
- ☐ Water Fees
- ☐ Development Fees
- ☐ Non-profit
- ☒ Other: County of Los Angeles

Funding Designations

- ☐ Transportation
- ☐ Parks
- ☐ Redevelopment
- ☐ Conservation
- ☐ Clean Water/TMDL/etc.
- ☐ Water Supply Fees
- ☐ Groundwater Recharge (eg. From GSA)
- ☒ Other: Stormwater quality improvement

Site Investigation & Coordination

- ☒ Geotechnical
- ☐ Groundwater Level
- ☒ Soil Contamination
- ☐ Water Quality Testing
- ☐ Groundwater Sustainability Agency
- ☐ Groundwater Quality
- ☐ Regional Water Board Consultation

Downstream Constraints

- ☐ Downstream water rights were evaluated
- ☐ Downstream water rights exist
- ☐ Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR? ☐ Y ☒ N
Did this require public vote? ☐ Y ☒ N
Did this require elected official approval? ☐ Y ☒ N

Public education and outreach strategy:
The project has been featured on the Los Angeles County Department of Public Works website, http://dpw.lacounty.gov/pdd/marinadelrey/ which shows the progress of all projects in the Marina del Rey. The project was also presented at the Marina del Rey Design Control Board (DCB) on August 2015which allows input from the Marina del Rey Lessees, businesses, and residents. The DCB was supportive of the project and there were no comments from the public at this meeting. Interpretative signage was strategically placed within the project's premises so that visitors would be able to learn about how the project works and educate themselves about the importance of a healthy watershed

What were primary public concerns?
Loss of parking spaces during construction was a major concern which is why construction was delayed until after the 4th of July holiday.

External Review

NGO:
SWRCB:
Federal Agencies:
Water Rights:
Other:

Barriers

Please list all applicable barriers by number from the attached list: None Applicable

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.
Porous concrete and typical infiltration type BMPs were initially proposed for the project, however they were not pursued due to the high groundwater. Typical Low Impact Development BMPs would have been preferred since they have been more tested than the modular wetlands unit that was selected.

Other Comments or Description of Barriers

Since this parking lot serves a very popular beach, coordinating with local businesses and stakeholders was a major factor in the construction of the parking lot. The contractor had to coordinate very closely with the County of Los Angeles Department of Beaches and Harbors and recreational users of the beach.

Project Contacts

		Phone	Email
Lead Agency:	County of Los Angeles		
Project Website:	http://dpw.lacounty.gov/pdd/marinadelrey/		
Agency Contact:	Bruce Hamamoto County of Los Angeles Department of Public Works	626-458-5918	bhamamo@dpw.lacounty.gov
Design Firm Contact:			

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name: Rory M. Shaw Wetlands Park

Description: The project proposes to convert a 46-acre, engineered, inert landfill into a multi-purpose wetlands park.

County: Los Angeles

City: Sun Valley

Lat/Long: 34.219739, -118.377883

Stormwater Permit ☐ Phase I ☐ Phase II

Construction Completed? ☐ Y ☒ N Date: 2022

Scale

☐ Decentralized/Street/Centralized

☒ Centralized/Regional/Neighborhood

Project Capture Technology

☒ Basins

☐ Dry Wells

☒ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows

☒ Urban Wet Weather

☒ Urban Dry Weather

☐ Other:

Water Use

If quantified, report average annual acre-ft (afy):

☒ Recharge: 590 afy

☐ Agricultural/Industrial: afy

☐ Municipal Supply: afy

☐ Residential/Park Irrigation: afy

☐ Natural Hydrologic Function: afy

Capture Design

Drainage Area: 929 ac

% Impervious: 63 %

Storm Capture Depth: 5.00 in **note**: considers a 4-day, 10-year design storm volume

Average Annual Capture: 7.62 in

Asset Management

Total Project Cost (permitting, design, construction): $126 Million **note**: also includes land acquisition

Construction Cost: $98 Million

O&M Cost (annual):

Infrastructure Lifetime (yrs.):

Annual Energy Use (Mwh):

Data Sources

Groundwater Levels: 478 feet (above mean sea level)

Proximity to GW Contamination:

Proximity to Wells:

HSG Classification: Project site is an inert, debris landfill. Soil classifications varies throughout the property.

Multi – Benefit

☒ Open Space/Parks

☒ Surface Water Quality (TMDL, MEP, etc.)

☒ Increase Water Supply

☒ Flood Control

☒ Habitat

Funding Source

☒ Local Bond Measure

☐ State Grant

☐ SRF

☒ Parcel Fees

☐ Federal

☐ GSA

☐ Water Fees

☐ Development Fees

☐ Non-profit

☒ Other: partnering government agency

Funding Designations

☐ Transportation

☐ Parks

☐ Redevelopment

☐ Conservation

☐ Clean Water/TMDL/etc.

☐ Water Supply Fees

☐ Groundwater Recharge (eg. From GSA)

☐ Other:

Site Investigation & Coordination

- [x] Geotechnical
- [x] Groundwater Level
- [x] Soil Contamination
- [x] Water Quality Testing
- [ ] Groundwater Sustainability Agency
- [x] Groundwater Quality
- [x] Regional Water Board Consultation

Downstream Constraints

- [ ] Downstream water rights were evaluated
- [ ] Downstream water rights exist
- [ ] Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	[x] Y	[ ] N
Did this require public vote?	[ ] Y	[x] N
Did this require elected official approval?	[x] Y	[ ] N

Public education and outreach strategy:

What were primary public concerns?

The public was concerned with the types of recreational amenities in the project. Through public outreach and communication/ coordination with local officials we were able to identify the community needs and adjust our design.

A series of community outreach meetings were held to solicit input for amenities and layout of the recreational/open space areas of the park.

NGO:
SWRCB:
Federal Agencies:
Water Rights:
Other: City of L.A.

Barriers

Please list all applicable barriers by number from the attached list:

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.

* Wanted to include a recycled water pipeline to sustain the wetlands during dry months. Our partnering agency evaluated the cost-benefit of adding the pipe and found it was not cost-effective to include in the project.
* Unexpected project site conditions such as presence of organic landfill material onsite.

Other Comments or Description of Barriers

Project Contacts

		Phone	Email
Lead Agency:	Los Angeles County Flood Control District (LACFCD)		
Project Website:	https://dpw.lacounty.gov/wmd/svw/wetlands.aspx		
Agency Contact:	Christine Wartman, PE (LACFCD); phone: 626-458-4342; email: cwartman@dpw.lacounty.gov		
Design Firm Contact:	Michael Pollard, PE, ENV SP (Psomas); phone: 619-961 - 2800; email: mpollard@psomas.com		

Stormwater Capture & Use Case Study Nomination Form (check all that apply)

Location and Description

Project Name: Sun Valley Park

Description: The project proposes to convert an existing municipal park into a flood mitigation, water quality treatment, and water conservation multi-use site.

County: Los Angeles

City: Sun Valley

Lat/Long: 34.218254, -118.371461

Stormwater Permit ☐ Phase I ☐ Phase II

Construction Completed? ☒ Y ☐ N Date: 2006

Scale

☐ Decentralized/Street/Centralized

☒ Centralized/Regional/Neighborhood

Project Capture Technology

☐ Basins

☐ Dry Wells

☒ Underground Capture (vaults, cisterns, chambers, tranches)

Water Source

☐ Dry Weather Flows

☒ Urban Wet Weather

☒ Urban Dry Weather

☐ Other:

Water Use

If quantified, report average annual acre-ft (afy):

☒ Recharge: 30 afy

☐ Agricultural/Industrial: afy

☐ Municipal Supply: afy

☐ Residential/Park Irrigation: afy

☐ Natural Hydrologic Function: afy

Capture Design

Drainage Area: 21 ac

% Impervious: 63 %

Storm Capture Depth: 6.8 in

Average Annual Capture: 17 in

Asset Management

Total Project Cost (permitting, design, construction): $7 Million

Construction Cost: $6 Million

O&M Cost (annual):

Infrastructure Lifetime (yrs.):

Annual Energy Use (Mwh):

Data Sources

Groundwater Levels: 478 feet (above mean sea level)

Proximity to GW Contamination:

Proximity to Wells:

HSG Classification:

Multi – Benefit

☒ Open Space/Parks

☒ Surface Water Quality (TMDL, MEP, etc.)

☒ Increase Water Supply

☒ Flood Control

☒ Habitat

Funding Source

☐ Local Bond Measure

☒ State Grant

☐ SRF

☒ Parcel Fees

☐ Federal

☐ GSA

☐ Water Fees

☐ Development Fees

☒ Non-profit

☐ Other:

Funding Designations

☐ Transportation

☐ Parks

☐ Redevelopment

☐ Conservation

☐ Clean Water/TMDL/etc.

☐ Water Supply Fees

☐ Groundwater Recharge (eg. From GSA)

☐ Other:

Site Investigation & Coordination

- [x] Geotechnical
- [x] Groundwater Level
- [x] Soil Contamination
- [x] Water Quality Testing
- [ ] Groundwater Sustainability Agency
- [x] Groundwater Quality
- [x] Regional Water Board Consultation

Downstream Constraints

- [ ] Downstream water rights were evaluated
- [ ] Downstream water rights exist
- [ ] Minimum instream flows were required

If required, how were minimum instream flows evaluated?

Public Involvement

Did this require full EIR?	[x] Y	[ ] N
Did this require public vote?	[ ] Y	[x] N
Did this require elected official approval?	[x] Y	[ ] N

Public education and outreach strategy:

* The project was community-drive; stakeholders had input from concept, design, and operation and maintenance. The stakeholder group continues to meet today.

What were primary public concerns?

* A portion of the park was closed during construction.

External Review

NGO: TreePeople
SWRCB:
Federal Agencies:
Water Rights:
Other: City of L.A.

Barriers

Please list all applicable barriers by number from the attached list:

To further assist in identifying barriers, please describe what you would like to have added to this project and why that was not accomplished.

Other Comments or Description of Barriers

Project Contacts

Lead Agency: Los Angeles County Flood Control District (LACFCD)
Project Website: https://dpw.lacounty.gov/wmd/svw/SVP.aspx

	Phone	Email
Agency Contact:	Christine Wartman, PE (LACFCD); phone: 626-458-4342; email: cwartman@dpw.lacounty.gov	
Design Firm Contact:	Kathleen Higgins (CH2MHill); phone: 714-435-6161	

Appendix D: Caltrans Criteria for Cooperative Implementation Agreement

Local MS4s and Caltrans – Individual agreements. April 2016

Criteria for Cooperative Implementation Agreement:

1) **Reach Priority list;**

   The Reach Prioritization is posted on the State Board website at;

   http://www.waterboards.ca.gov/water_issues/programs/stormwater/caltrans.shtml

   What reach is the project located in and where on the priority list does it land?

2) **Number of pollutant categories treated (list TMDLs)**
   1) Sediment/Nutrients/Mercury/Siltation/Turbidity
   2) Metals/Toxics/Pesticides
   3) Trash
   4) Bacteria
   5) Diazinon
   6) Selenium
   7) Temperature
   8) Chloride

3) **a) What stage is the project in (Conceptual, Environmental Documents and Permits, Design?)**

   Is the project conceptual? What environmental documents and permits been obtained? Is the project in design?

   b) Project Schedule and funding requested by local MS4.

   Include project schedule and total funding (show funds broken down by fiscal year).

4) **Maintenance and Operation costs.**

   Will the maintenance and operation costs be solely borne by the MS4?

5) **Number of Stakeholders benefitted from the project**

   How many local MS4s will benefit from the project? Please list MS4s.

6) **Amount of runoff from Caltrans Right of Way (if any)**

   How many acres of Caltrans right of way is being treated?

7) **Lead agency; individual MS4(s), JPA, stakeholder group?**

   Will Caltrans be dealing with an individual MS4, JPA, or stakeholder group?

8) **Type of BMP to be built. (Full capture, reuse, etc.)?**

9) **Number of acres treated**

   How many acres will be treated (BMP type, dry and wet weather flows)?

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Appendix E: Response to Comments Matrix

Page Number	Comment	Reviewer	Response
6	"In particular, local capture and use of urban stormwater runoff is becoming a more attractive source as out-of-basin supply becomes less reliable and access becomes more competitive. . . . for direct use or recharge of useable groundwater aquifers. . . " **Comment:** No citation is provided. What is the basis for asserting this when these users will be "last in time, last in right" as is said when it comes to allocating water storage rights? Is there a basis in riparian right?	Regional Boards 6,3	References added, (Santa Monica 2014 and LADWP Stormwater Capture Master Plan)
6	Wondering why water rights was not mentioned as a barrier?	DWR-DSIWM	Water Rights added to Executive Summary and Table 2 (see 8.2)
6	**Comment:** In the "Summary of Barriers" section it is not clear where this potential issue could rest: Even where collection systems to gather and infiltrate storm waters are implemented, such as spreading grounds or dry wells, storm drainage systems are likely to remain needed to safely convey flood waters to receiving waters during large, or extended storm events, when infiltration or retention capacity is exceeded. Thus, adding these costs will reduce benefit : cost ratios.	Regional Boards 6	Marginal costs of capture and use compared to traditional stormwater treatment is covered in Section 4.1.
6	Summary of Barriers: Education/Guidance in Institutional/Policy on page 7 should include recommendations that additional research is needed on the performance of infiltration systems, including dry wells, related to potential water quality impacts to groundwater.	OCWD	The needs identified by this comment are being addressed by ongoing STORMS projects.
6	The report indicates "a definition of urban runoff capture and use was developed: the intentional collection of urban runoff to augment surface water supplies, to recharge groundwater, or to support ecosystems." (p. 6) Also, the report indicates education and guidance is lacking for, "Training on integrated water resource planning" and "Training on the appropriate scale and use of triple bottom line (TBL) analyses." (p. 7) **Comment:** These are good observations. Assuming the "triple bottom line" means, intentional collection of urban runoff to augment surface water supplies, to recharge groundwater, or to support ecosystems, these goals are often going to be mutually exclusive – therefore, serve only one bottom line or another. Thus, "TBL" may well be a misnomer, jargon essentially lacking true meaning. It is unclear by the definition how water capture and use projects will "support ecosystems" whose water supplies are depleted by storm water capture and use, especially when planning is not integrated across regional, state and national scales, and surface water caught is sequestered underground, mainly for human uses. Perhaps the results will be to alter salt balances in estuaries; reduce dilution (increase toxicity) of other pollutant inputs from uncontrolled, uncaptured wastes in surface runoff; and increase desert habitats and species.	Regional Boards 6,3	Triple Bottom Line spelled out throughout the report.
7	Under Education/Guidance. "Expansion of the Department of Water Resources (DWR) Water Management Planning Tool to incorporate stormwater infrastructure and analyze stormwater as a supply source"- Nirmala has mentioned the development of a separate tool to show stormwater projects to STORMS program but there has been no interest in coordinating on that. Is there a preference to include stormwater information on this SGMA tool? Discussions with SGMA group?	DWR-DSIWM	Water board staff to coordinate with DWR. Language Added.
7	Under Institutional/Policy: Last bullet on this page mentioned potable water use but what about non-potable uses?	DWR-DSIWM	Language Added
7	Third bullet under financing - a bit random to just call out roads here - harvest will be done where physically possible.	Taylor	Language modified
7	Under Education/Guidance- Consider replacing the bulleted list with a summary	DWR-DSIWM	Comment noted. No change made to conform with format of other sections.

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Page Number	Comment	Reviewer	Response
7	"Application of receiving water limitations (RWL) in stormwater conveyance systems could be used to convey stormwater to regional stormwater capture and use systems." **Comment:** Everyone from the Supreme Court on down is confused about what is "MS4" conveyance and what is "receiving water" – this won't help. Receiving water limits could be applied to MS4 discharges to the extent that would be protective of the actual receiving waters (i.e., assuming NO assimilative capacity or dilution). However, in many cases, e.g., the Los Angeles River through downtown L.A., the receiving water has already essentially been converted to a giant MS4 storm drain, lacking many other beneficial uses. So, which is what? How will the policies manage that situation? Calling it all receiving water, or applying those objectives to the storm drains, may be a way of management. The point where an MS4 discharge becomes a surface receiving water needs further analysis and definition development in the context of the federal Clean Water Act.	Regional Boards 6,3	Language modified
7	Under Financing/Valuation: The 3rd bullet seem more like an example of the first bullet	DWR-DSIWM	Language modified
7	Under Education/Guidance. Maybe add a caveat under bullet 1 to add ("if water right is approved" or some mention of water rights)	DWR-DSIWM	Language modified
7	Repeated bullet under education/guidance re: storage limitations	Regional Boards 6,3	Bullet removed
7	2nd bullet under Institutional/Policy unclear	Regional Boards 6,3	Language modified
7	Under Education/Guidance. Bullet 4: Preface "long-term storage" with "surface water long-term storage". i.e. Assume the sentence is not applicable to groundwater storage. Also this bullet is accidentally repeated at end of list.	DWR-DSIWM	Language modified
7	"Training on the appropriate scale and use of triple bottom line (TBL) analyses". Include some detail like you did on page 22: "...triple bottom line (TBL) analysis that assesses environmental costs and benefits of various water supply sources using a standardized method".	DWR-DSIWM	Language modified
7	No explicit mention of need for state funding to support projects.	Feldman	Language added
7	Statewide training programs and design guidelines for what? How is that a barrier?	Regional Boards 6,3	Statewide training programs and design guidelines for capture and use projects. Language added.
7	Under Education and Guidance, we see a need for those designing capture and use systems to include working with local mosquito and vector control districts and adopt guidelines from CDPH [source: ANR publications on stormwater and on managed wetlands; CDPH BMP manual]. Further, many local mosquito control districts can provide valuable input on how their operations may be affected by installation. Discussion with them before installation can allow them to better plan work that needs to be conducted.	Jennifer Henke, Mosquito Vector Control Association CA	Not necessarily a barrier, requires implementation guidance and increased operational costs. The increased costs ultimately act as a barrier. Language regarding coordination for vector control added.
7	Education/Guidance section bullets: we are not lacking in analysis tools, guidance and training; these tools exist out there via IAPMO, ICC, WERF's latest health-risk assessment and water quality standards, ARCSA standards 63 and 78 (ANSI, ASPE), local and state manuals, national certification groups, WEF, Center for Watershed Protection, plenty of guidance, standards to help cities do projects; we have all the tools, standards; for the Institutional/Policy section, 4th bullet, we do have, and you cite the document on page 8, last bullet, the National Blue Ribbon report, which I mention, the WERF health-risk assessment. We have plumbing standards, water quality standards; technology exists for this strategy. We have all the components; only barrier is the will to do, and the financing, but creative financing is available, loans, and passing stormwater fees.	Shapiro	Language added.
7	Under Institutional and Policy, attention must be paid to the long-term implications of these devices. The devices themselves must be maintained and cleaned with regularity to ensure that they continue to work as designed. Further, the long-term impacts of removing water from the current conveyance systems upstream may have impacts downstream (e.g., if a house at the top of the stream is collecting rainwater, that amount of water is now removed from the stream during the storm. Multiply that by the number of installations, and far-reaching implications can occur.) While the water rights are considered, the environmental impacts of creating more smaller sources on properties is not fully outlined.	Jennifer Henke, Mosquito Vector Control Association CA	Correct, environmental impacts are not fully outlined. More study is needed (see Finding 10 and Section 4 for further discussion)
8	2nd bullet- But is this true of Storm Water Resource Plans which are supposed to be part of IRWM plans? It is a recommendation in urban water management plans but not a requirement.	DWR-DSIWM	Language added.

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Page Number	Comment	Reviewer	Response
8	"There is no requirement, and no uniform established methods, to assess the disruption to local watershed ecosystems and impact to groundwater due to excessive capture of stormwater and routing away from the area normally receiving the ~~source~~ of precipitation."	Regional Boards 6,3	Language modified.
8	First bullet on page- consider including flood control agencies too.	DWR-DSIWM	Language added.
8	Suggest adding the word "projects". "There are no requirements to analyze the environmental benefits and costs of urban runoff **projects** compared…	DWR-DSIWM	Language added.
8	Competing use discussion is a policy consideration as much as a technological one.	Feldman	Language added.
8	I think a barrier (That NMSA can help with) is lack of understanding at the public and decision maker lever, which will be needed to provide funding for projects, you have it under finding 2, but it should also be a barrier. We need tools to help us in public and decision maker education	Taylor	Language added.
9	"Finding 4: Technological limitations were not reported in case studies. . . . " (p. 9) The technology to treat water to high quality is generally available, and limited only by costs to maintain and operate. Putting urban storm water in the ground untreated or using low-cost, passive "BMPs" is likely to degrade water quality in ground water basins over time (e.g. from p. 13: ". . . Stormwater can be captured and stored using a variety of methods. Stormwater capture can be accomplished by implementing best management practices (BMPs) that include green roofs, infiltration basins, detention basins, and bioretention raingardens . . ."). **Comment:** This limitation does not appear to be adequately considered, for instance in "fit-for-purpose" approaches that don't recognize all potential beneficial uses and future generations: What will the costs and constraints be when enormous and expensive infiltration systems are built without considering treatment needs and constraints on degrading ground water quality (under the state's Antidegradation Policy, Resolution No. 68-16, for new or increased discharges), or worse, when spills and underground contaminations introduced by surface flows (formerly externalized, or sent to "the commons" – the ocean) must be locally cleaned up or abated?	Regional Boards 6,3/Miller	The document recognizes the potential risks to groundwater quality (see finding 10, barrier 12.2 in table 2, and section 1.2)
9	Finding 1 should say to local waterbodies or receiving waters, not watersheds.	Regional Boards 6,3	Language modified.
9	Finding 3 should say stormwater runoff already (or currently) constitutes.	Regional Boards 6,3	Language modified.
9	Is the listing of the findings sorted based on some criteria? Surprised no mention of water rights until Finding #9 on page 10.	DWR-DSIWM	Not sorted or ranked by criteria.
9	Finding 5. Delete "extreme". You could say "highly variable," but not really necessary. And human settlement patterns are as much a reason why SW capture can't meet all urban demands.	Regional Boards 6,3	Language modified.
9	Finding 5 - not just extreme climate but growing urban demands are a constraint.	Feldman	Language modified.
9	Dry well should be 1 word, drywell.	Shapiro	Change made throughout document.
9	Somewhere in the report - I think it needs to describe that water should be used and reused locally. We talk about this in general, but it should be a stated goal that the City of the future will use and reuse local water.	Taylor	Language added.
10	Finding 7: use "and when" instead of "as well as" …failing to include benefits...	Regional Boards 6,3	Language modified.
10	Summary of Findings: Tradeoffs and Consequences on page 10 discusses the need to consider tradeoffs between benefits and potential unintended consequences. Another example to be included here could be a caution to consider potential impacts to groundwater quality when siting and using infiltration BMPs	OCWD	Language added.

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10	Finding 10. Do you really mean "targets" or "potential" or "goal" or other? Double check to be consistent with term specific to intention...since you are aware of our effort to develop **targets**.	DWR-DSIWM	The use of the term target was deliberate because it applies to a watershed specific numeric analysis that is sensitive to the consequences of diverted flows. Potential was not used because that term has been used to describe the maximum amounts that could be captured. Our understanding is that the targets being established by DWR relate to water supply at regional or statewide scales. The term goal was avoided because it is often used for less quantitative outcomes such as water resilience and ecosystem health.
11	Match the rest of document- There are 5 local and 5 state actions on pages 68 and 69. Included all listed at end of the report in executive summary (may want to condense).	DWR-DSIWM	Language modified.
11	Promising Actions: State Actions, page 11, OCWD concurs with the recommendation to "Resolve policy questions regarding use of promising technologies and approaches such as dry wells." An additional State action that should be added is to provide funding for water quality studies to develop a database on the performance of infiltration devices and potential impacts to groundwater quality.	OCWD	The needs identified by this comment are being addressed by ongoing STORMS projects.
11	Local actions, 2nd bullet- general plan requirements? Which plans do you mean?	DWR-DSIWM	Language modified.
12	After bullets, say "A primary purpose of this report" rather than "The" purpose. I think the bullets belie other important purposes.	Regional Boards 6,3	Language modified.
12	If embracing the "one water" approach then you need to state something about stormwater capture as also a means of protecting water quality and attenuating floods.	Feldman	Language modified.
13	'"This project supports the overall mission of the Water Board's Stormwater Strategy: to value stormwater as a resource." **Comment:** The value of the resource quality has been and is substantially diminished by pollutants in storm water that have for long been ignored or have been inadequately addressed in the state due to a long-standing inability to effectively manage storm water pollutant loads and effects on water quality in the industrial and municipal storm water programs. The regulatory role of the State Water Board is essentially unrecognized or discussed on page 22; they are apparently only in the funding game. (E.g., less than 100 "personnel years" currently dedicated to regulatory purposes, and diminishing over time with respect to regulatory expectations and vastly increased "general permittees" lacking real compliance oversight.) The management legacy is discussed in part in section 2.1. Many of the state's "impaired" listings and TMDLs are attributable to storm water and the lack of effective management and engineering controls that stem from past and ongoing lack of valuing the resource, and inadequate regulatory sight even in the face of water quality declines.	Regional Boards 6,3	Treatment needs and the consideration of groundwater quality are covered elsewhere in the report. (See finding 10, Barrier 12.2 in Table 2, and Section 1.2).
13	"temperature management objectives" -it is not clear how this is related to groundwater extraction	DWR-DSIWM	Over pumping groundwater dewaters streams which results in lower stream flows increasing temps. Reference added.
13	Is there a definition of Stormwater in report? I didn't see. What about Rainwater description. If the document is entirely focused on Stormwater which is found in the public right of way, I think this should be stated clearly in beginning, and distinguish from rainwater. Precipitation falling to the surface and collected is rainwater, regulated by local government; when it leaves a parcel or flows in the public right of way, it is stormwater, regulated by the federal government. T**he feds call precipitation flowing in public ROW as stormwater**. Is this report only about stormwater managed by cities? Not dealing with rainwater onsite, managed by property owners, which would help cities manage stormwater by reducing stormwater needed to be managed by cities. Providing incentives (retrofits) AND CODE REQUIREMENTS DURING CONSTRUCTION to property owners (private and public) goes a long way to contribute to the solution of stormwater (and rainwater) collection and use. Maybe I missed a statement about the report only on precipitation flowing in public ROW.	Shapiro	Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage (40 CFR 122.26 (b) 13). Lack of differentiation in the regulation. No change made.

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13	What do you mean "deposits can be claimed without time limitation"? Duration? Timing? Please clarify.	Regional Boards 6,3	Language modified.
13	Capture can support habitat by reducing peak flows AND volumes generated from impervious surfaces Note: pg number not included in original sheet. Assuming belongs to page 13.	Regional Boards 6,3	Language modified.
13	The Colorado River supports 7 states and Mexico, not 5. And, according to Beaureu of Reclamation, it is over-allocated not heavily allocated	Feldman	Language modified and reference added.
13	"...deposits can usually be claimed". It's not clear what deposits mean here.	DWR-DSIWM	Language modified.
17	Stormwater was has been commonly viewed and treated as a nuisance or danger.	Regional Boards 6,3	Comment noted, this point is emphasized in Section 2.
18	I think the section continuing from page 17 should perhaps conclude with the following statement: "With most of these examples of capture and use, reducing the volume of urban runoff discharged to receiving waters is the primary mechanism by which water quality benefits are achieved. Because this reduction in volume is intrinsic to any capture and use strategy, capture and use is inherently beneficial to water quality in surface waters." The paragraph directly above section 3.2 might work as well, with some transitional wordsmithing.	Regional Boards 6,3	Language added.
18	It seems like the first paragraph of 2.2 should cite SWRCB and other State agency positions (e.g., STORMS, SWRCB Strategic Plan, DWR Strategic Plan, policies, Steve Moore's battle cries), not just those of NRC and CASQA. See Sections 2.2 -2.4 of the STORMS Introduction, as well as STORM's Mission, for a review of State's basis for shifting to view SW as a resource. https://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/ch_2.shtml#toc_ch2.2	Regional Boards 6,3	Language added.
18	NOT A SENTENCE: The original intent of low-impact design of valuing both stormwater and natural systems as resources that can work together to protect stream ecosystems by mimicking the pre-urban hydrologic model, with an emphasis on replicating the volume balance of runoff, infiltration, and evapotranspiration in urban catchments (Walsh et al. 2016).	Feldman	Language modified.
20	Figure 1 shows Stormwater capture being used as 'source water' for a treatment plant. I checked with a couple water agencies and both said that that while theoretically possible, it would require that CDPH re-evaluate their operating permits. Both thought the re-evaluation process would be costly and time-consuming and neither gave it a lot of hope. I still think this is a viable idea but it needs to have a regulatory hurdle removed.	Boothe	Comment noted and reference added (CA Health and Safety code HSC 116550).
22	Surprised there is no mention of water rights under the SWRCB section. DWR got feedback that it was a barrier to stormwater capture and use. Maybe you did not get that specific feedback?	DWR-DSIWM	Water rights language added in other sections of the report (see Table 2).
22	The following language you have here would be good to also include on page 7 of the executive summary...."triple bottom line (TBL) analysis that assesses environmental costs and benefits of various water supply sources using a standardized method"	DWR-DSIWM	Language added.
22	Add Regional Water Quality Control Boards to State Water Board section.	Regional Boards 6,3	Language added.
22	Under DWR: Could include some language on MWELO: As required by the Water Conservation in Landscaping Act (AB 2515, 2016), DWR is required to update the Model Water Efficient Landscape Ordinance (MWELO) every three years with the next update effective in 2020. Governor Brown's 2015 Drought Executive Order (EO B-29-15) directed DWR to update MWELO to increase water efficiency standards in landscapes in part through onsite stormwater capture. The MWELO is a regulation comprised of minimum standards used in the design, installation and management of water efficient landscapes. In addition to water efficiency, MWELO compliant landscapes will be better able to manage rainwater and stormwater flows by infiltration through healthy soils, interception by plants, and erosion control from the application of mulch and proper grading practices. MWELO is administered at the local agency level, and applies primarily to landscapes installed with new development projects.	DWR-DSIWM	Language added.

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24	Comment: Page 24 discusses the role of Department of Fish and Wildlife (CDFW) in assuring that capture and use projects don't result on adverse effects on the public resources they are charged to protect. However, the CDFW lacks authority to regulate much in this regard, and likely lacks personnel and funding to effectively carry out the recommended actions without substantial augmentations. It seems highly unrealistic to think they can effectively manage determinations of in-stream flows necessary to prevent declines in aquatic resources over time, as the number of endangered plants and animals grows. Thus, the stage is set for another "tragedy of the commons" with actions that will be too little, and too late. Likewise, the Regional Water Boards are poorly positioned and understaffed to move into this area of determining necessary in-stream flows to protect water quality or anything else, since all water-rights authority is currently vested in the State Water Board. Perhaps that is why the Regional Water Boards are omitted in the discussion of the State Water Resources Control Board (p. 22), as they currently have no viable role in establishing in-stream flows for water quality purposes, or any other purpose. This is due to the long-standing divorce of the water quality and water supply regulatory authorities in the State that this policy will likely exacerbate unless corrected. The USEPA (p. 22) suffers the same deficiencies; as a water quality agency it has no role in managing water rights or in-stream flows, which authority is left to the State(s).	Regional Boards 6,3	Language Modified.
24	Regional IWM Groups. Why not "IRWM Groups?" The last 2 sentences are speculation. I've heard DFA staff tell Prop 1 grantees SRPs could potentially be required by future permits. That would be an unfunded mandate clear and simple. So, unless the State is contemplating paying MS4s to develop SRPs (unfair to entities that have already developed them on their own), we probably should not speculate about this. It would be more appropriate to describe SRPs as being required for funding, and being required to be integrated into IRWMs. SRPs essentially ensure IRWM plans give consideration to stormwater capture and use projects.	Regional Boards 6,3	Language modified.
24	Regional SW coalitions and JPAs. It seems SCCWRP is a good JPA example too.	Regional Boards 6,3	SCCWRP added.
24	Under "Regional Integrated Water Management Groups". You could mention that SWRPs are currently only required for Proposition 1 funding.	DWR-DSIWM	Language modified.
24	Muni Code section needs major revision. It overstates the requirements, which are not "prevent runoff" of design storm. Most new and redevelopment is only held to treatment of the 85th percentile storm, not retention (which is encouraged, but not usually required, depending on impervious area thresholds). It also confuses landscape ordinances, which are conservation focused and not about stormwater, with stormwater management requirements for new and replaced impervious surface, which only apply to new and redevelopment, not exisiting impervious areas.	Regional Boards 6,3	Language modified.
25	Add the American Institute of Architects (AIA). They can educate architects about capture and use. Architects hand drawings to engineers, leaving engineers to figure out how to route and manage SW. The architects need to integrate knowledge of opportunities for capture and use into plans BEFORE giving them to engineers.	Regional Boards 6,3	Section added.
27	LGC also educates decision-makers about opportunities for green infrastructure and stormwater capture and use. (CASQA's Prop 84 grant and Central Coast LID Initiative hired them for this purpose)	Regional Boards 6,3	Language added.
28	A big focus of NMSA is messaging, pubic education and outreach. These will also be very helpful promoting stormwater capture	Taylor	Language added.
30	**Comment:** Table 1 identifies "Stakeholders for Engagement in Green Infrastructure Program" and includes "Local Environmental Groups" and 'Local watershed/waterkeeper/conservation groups." The listing is an improvement over the section 2.3 omissions cited above. Nonetheless, the listing seems otherwise centric to those persons whose "local" charge is not with protection of local, regional and national wildlife and water resources, which are often threatened by water transfers, water development projects, and regional and statewide policies such as here, they have little knowledge or control of, can't see coming, etc. A suggestion is to expand the WEF stakeholder listing with national and international interests aligned with preserving migratory birds, World Heritage sites, and the like, for examples World Wildlife Fund, The Wilderness Society, National Audubon Society, Sierra Club, NRDC, etc., realizing they are largely funded by voluntary contributions and staffed by volunteers likely to be outmanned and out-resourced comparatively.	Regional Boards 6,3/Miller	Reference for EPA surf watershed added.
30	Does this broader definition include, or not foreclose, pumping stormwater or treated stormwater directly into treatment plant headworks, or reclaimed systems?	Taylor	Language added.

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31	Definition of Capture and Use AND the paragraph on 'To augment surface water supplies: Please remove 'surface' from both the definition and throughout the paragraph. Each/all of the ideas are just as applicable for augmenting GW supplies as they are for surface water. And, retaining 'surface' will create another hurdle (demonstrating that you are augmenting surface water supplies) for projects within areas that use GW or a combination of GW and surface water.	Regional Boards 6,3	No change made. The term surface water supply was used to differentiate from groundwater recharge which includes both groundwater supply, saltwater intrusion, enhancing base flow etc.
31	(p. 31, near bottom) The discussion of recharging ground water includes uses such as preventing seawater intrusion. The viability of such efforts as have been carried on should be re-evaluated in the face of rising sea levels, which can't be controlled at the state level. Feasibility of such fresh water uses to prevent seawater intrusion may not be viable over the time-scale of projects and should be considered in cost-benefit analyses.	Regional Boards 6,3	This document is not intended to focus on site specific cost benefit analyses.
31	"groundwater aquifers" is somewhat redundant, if not awkward. I suggest "aquifers" here.	Regional Boards 6,3	Language modified throughout report.
32	The section discusses a definition that ". . . focuses on replicating key aspects of the annual hydrograph that are critical to support desired ecological goals, rather than restoring 'natural hydrology.'" One should study the Lower Owens River Project in the Lahontan region, by the Los Angeles Department of Water and Power, as an example of large-scale management on that basis. As one of the largest river "restoration" projects in the nation (perennial flow restored to 64 river miles), it has done a lot of good, and has arguably not achieved the desired restoration goals, with fish kills routinely occurring year after year. It is an example of capture and use of river flows, using a pump-back station to supply the LA aqueduct, for flows formerly captured high in the watershed.	Regional Boards 6,3	This project seeks to minimize out of basin water use (see Section 2)
33	**Comment:** Among non-structural tools is found an alternative "triple bottom line" reference, namely 1) economic 2) environmental and 3) social valuations, to contrast with "triple bottom line" concepts earlier introduced in the report in the definitional context of "collection of urban runoff to (1) augment surface water supplies, (2) to recharge groundwater, or (3) to support ecosystems." A suggestion is to define precisely what is meant when referring to such "TBL" concepts in this report, and clarify any overlapping concepts. The discussion is inherently biased towards economics ($), and the cost of water capture is often quite high compared to other sources, as the report indicates.	Regional Boards 6,3	Triple Bottom Line spelled out throughout the report. Clarifying language also added to initial reference to triple bottom line.
36	Mosquito control is probably best listed in barriers. Long term storage can provide mosquito habitat. Maintenance of capture and use systems is vital to proper function and prevention of mosquito production.	Jennifer Henke, Mosquito Vector Control Association CA	Reference to Metzger and DPH checklist for minimizing vector production in stormwater management structures was added as a tool.
37	TBL could be spelled out everywhere, since it is not widely recognized as an acronym. Is this first use in this paper?	Regional Boards 6,3	Language modified.
37	Last full pgraf: "Many parts of Southern California, where the cost of purchasing water from large import (MWD) or wholesale agencies is more expensive <place comma here>" can include averted costs of water supply in benefit-cost calculations for new stormwater infrastructure as well."	Regional Boards 6,3	Language modified.
38	We talk about competing with reclaimed here - there should be master plans so that all water in a watershed is used and reused to is best and highest purpose with the best TBL outcome. This points to the need for a comprehensive water plan that considers the cost, quantity and environmental benefits and costs of all sources of water, not eliminating one because another is already there.	Taylor	Language modified.
38	"In some watersheds, non-potable water demands are met by water recycling, so there is limited demand for direct use of stormwater." At best they are partially offset by recycling. The next sentence does not follow well. Another transitional sentence might read: "However, captured stormwater could be used to support continued delivery of ecosytem services."	Regional Boards 6,3	Language modified.
38	Under section 4.2 - another barrier is the lack of dissemination of experiences with LID as applied/implemented in one place being applied or "diffused" to others.	Feldman	Language modified.
39	Laws, rules, regulations and established written practices are all policies. I would not single out policies as a category of its own, but define it as the one that encompasses all these other categories.	Feldman	Language modified.
42	Again, distinguishing policies and regulations is not a good idea - the latter is a specieis of the former.	Feldman	Language modified.

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42	I would take a look again through this section, clauses like, "Due to the tendancy of regulation to impede projects...a bit argumentative and conclusory and somewhat at odds with the paragraph below on permits	Taylor	Language modified.
42	Some of these risks seem a bit iffy - pathogen from rooftops? How is this different from anywhere else? Transporting water from the rainsource? Done all the time.	Taylor	Risk removed.
44	Brown's executive order. There was legislation earlier than 2017 that streamlined the process for expedited review. It might be good to include some of that information.	DWR-DSIWM	Expedited review does not eliminate the barrier.
45	Section 4.5. Suggest elaborate or edit to improve flow of the paragraph.	DWR-DSIWM	Language modified.
46	This figure is not too compelling - hardly any area that matters. I would deleted and just point out the area around CCC	Taylor	Figure removed.
47	Last paragraph on this page has spelling errors. Overall, section 4 is a bit weaker than the first sections	Taylor	Spelling error corrected. Language modified.
48	Expand consideration of space availability and water quality on barriers-An important element missing from Table 2 (capture and use barriers matrix) is the significant need for adequate aquifer/space and the conveyance/storage/treatment facilities to collect and use urban stormwater as a supply. Additionally, more could be said about the reliability of urban stormwater as a supply source, the water quality challenges uniquely related to stormwater as a supply source, and the need to protect existing supply sources, including supplies in existing surface water storage facilities and aquifers that already capture stormwater runoff.	CUWA	Both are applicable concerns but barrier 12.1 and 12.2 are focused on ecosystem function and protection of natural hydrologic function.
48	Create guidance on how to plan/develop projects considering partnerships and site-specific factors. As noted in the LADWP Capture Master Plan, many stormwater projects are anticipated to leverage other, ongoing projects in the vicinity of the new capture systems and will benefit from partnerships with stormwater management agencies and other agencies to share costs.	CUWA	Reference added to Table 2.
48	Create guidance on how to plan/develop projects based on local conditions and cost per yield- The potential yield (amount of water recoverable) must be weighed against the costs of building and operating the new systems. Urban stormwater capture costs vary greatly based on site-specific conditions, such as infrastructure requirements to transfer, treat, and store the supply and local hydrology considering options to capture storm water in both groundwater basins and surface water reservoirs.	CUWA	Added discussion to Table 2.
54	Can Barrier 9 include the following drivers/consequences: there are drawdown time limits for captured stormwater (for vector control); captured stormwater held for an extended period is a potential vector control concern. Cooperation with vector control districts can ensure appropriate guidance for capture and use storage.	Regional Boards 4	Langauge added.
54	Can Barrier 9 include the following consequences: captured stormwater held for an extended period of time can take the stormwater BMP offline for future storm events--this may not be accounted for in reasonable assurance analysis models or in permits.	Regional Boards 4	Comment Noted.
55	For Barrier 12.1 and 12.2, Project 11 C is referenced. Is this a STORMS project?	Regional Boards 4	Typo. Should read STORMS project 1 C. Language modified.
55	Does Barrier 12.1 and 12.2 encompass the concern that systems that capture stormwater and non-stormwater flows take flow away from downstream receiving waters, potentially impacting beneficial uses or causing a water rights issue. This concern may be more pronounced in dry weather for channelized receiving waters that typically have no or low flow.	Regional Boards 4	Both are applicable concerns but barrier 12.1 and 12.2 are focused on ecosystem function and protection of natural hydrologic function.
60	Concern with statement that water agencies have a bias against stormwater projects causing groundwater contamination. We ask you to restate to recognize the responsibility of Drinking Water Suppliers to ensure that all stormwater recharge and capture projects do not result in contaminating drinking water supplies. Our member agencies also ask that any potential impacts be addressed through good science and proper design to protect water quality.	CUWA	Language modified.
65	"the next phase of projects"- STORMS projects?	DWR-DSIWM	No change made. More than just STORMS.