



5. RESOURCE MANAGEMENT STRATEGIES

5.1 STRATEGIES INAPPLICABLE TO REGION

Nearly all types of resource management strategies are applicable and have been considered within the Plan and potential projects in Appendix A. Excluded are conveyance (Delta), surface storage (CALFED), precipitation enhancement, forest management, crop idling, dewvaporation (atmospheric pressure desalination), fog collection, irrigated land retirement, rainfed agriculture, and water bag transport/storage technology.

Conveyance and surface storage are not directly applicable to the central Orange County region because most of the region's conveyance issues are related to local infrastructure and the region does not own or operate conveyance in the Delta region or surface storage facilities in the CALFED region. Precipitation enhancement does not apply to the region because artificial cloud seeding is not a practice within the region. Forest management is not applicable to the region due to a lack of forest zoned land use. Crop idling for water transfers does not apply due to the limited agricultural land and farming that occurs in the region. Dewvaporation, or atmospheric pressure desalination, is not a practice used within the region; however, reverse osmosis desalination is practiced and addressed accordingly. Fog collection is not applicable due to the limited rainfall and precipitation within the region. Irrigated land retirement is not applicable because it is not a strategy used in the limited agricultural farming practices in the region. Rainfed agriculture is not applicable due to the low rainfall. Water bag transport/storage technology has not been explored in the region, because aboveground reservoir storage facilities are used instead.

5.2 INTEGRATION OF STRATEGIES TO MEET OBJECTIVES

Each of the objectives identified in Chapter 4 is best achieved through the use of multiple complementary strategies. Local strategies to meet these objectives were identified. The state water resource management strategies to meet these objectives were also considered. This approach is consistent with integrated resource planning and provides the highest level of benefit from project implementation. The strategies as they apply to each objective are discussed in the following sections.

5.3 WATER RESOURCE OBJECTIVES

5.3.1 Flood Risk Management Subobjectives

Subobjective FRM-1: Provide appropriate public safety and property protection based on risk management standards.

Central Orange County WMA Strategies:

- Implement the Orange County Flood Control District's (OCFCD's Seven-Year Capital Improvement Plan and other projects subsequently added to the Seven-Year Plan.
- Remove or reduce the FEMA Special Flood Hazard Areas by active flood risk management, land use planning, and containing/conveying the 100-year storm event in regional OCFCD channels as well as other local and subregional flood control facilities maintained by others.
- Identify what effect climate change is going to have on the watershed and revisit the design discharges for the 100-year storm event, per the Orange County Hydrology Manual (County of Orange, 1986), if warranted in the future.
- Seek opportunities to reduce and retain sediment and floodwaters within the upstream watershed.
- Provide recommendations on how to reduce peak flows.
- Make recommendations on neighborhood-scale green infrastructure (LID) for water capture/retention and treatment.
- Use or modify the San Diego Creek SAMP (USACE and CDFG 2009) to streamline the permitting process in that part of the Central Orange County WMA.

Subobjective FRM-2: Minimize the potential impact of stormwater on canyon and channel stability, water quality, and habitat.

Central Orange County WMA Strategies:

- Identify what effect climate change is going to have on the watershed and revisit the design discharges for the 100-year storm event, per the Orange County Hydrology Manual, if warranted in the future.
- Incorporate LID site design principles to reduce runoff to a level consistent with the maximum extent practicable standard during each phase of priority development projects. Maintain or replicate the predevelopment hydrologic regime through the use of design techniques that create a functionally equivalent post development hydrologic regime through site preservation techniques and the use of integrated stormwater infiltration, retention, detention, evapotranspiration, filtration, and treatment systems as close as feasible to the source of runoff.
- Retain sediment and floodwaters upstream.
- Provide recommendations on how to reduce peak flows.

- Install eco-friendly engineering structures and soft-bottomed channels where adequate right-of-way is available.
- Make recommendations on neighborhood-scale green infrastructure for water capture and treatment.

Subobjective FRM-3: Implement stream channel naturalization efforts to promote riparian habitat and natural water quality treatment in concert with stable sediment transport.

Central Orange County WMA Strategies:

- Incorporate LID site design principles to reduce runoff to a level consistent with the maximum extent practicable standard during each phase of priority development projects. Maintain or replicate the predevelopment hydrologic regime through the use of design techniques that create a functionally equivalent post development hydrologic regime through site preservation techniques and the use of integrated stormwater infiltration, retention, detention, evapotranspiration, filtration, and treatment systems as close as feasible to the source of runoff.
- Retain sediment and floodwaters upstream.
- Install eco-friendly engineering structures and soft-bottomed channels where adequate right-of-way is available.

5.3.2 Water Quality Subobjectives

Subobjective WQ-1: Address pollution issues in a holistic, integrated manner.

Central Orange County WMA Strategies:

- The model water quality management plan (WQMP) was updated to incorporate LID principles and to address the impact of urbanization on downstream hydrology. Each priority development project is required to infiltrate, harvest, and reuse, evapotranspire, or biotreat the 85th percentile storm event to the maximum extent practicable.
- Design and build structural BMPs and treatment control BMPs, in accordance with the approved model WQMP.
- Require WQMP submittals that emphasize implementation of LID principles and address the hydrologic conditions of concern before issuing grading or building permits and before recording subdivision maps.
- The priority project WQMP requirement has been expanded to include new streets, roads, highways, and retail gasoline outlets.

- Design structural BMPs that will infiltrate, filter, or treat stormwater to protect groundwater resources to the maximum extent practicable.
- Review the watershed protection principles and policies in local general plans and related documents to ensure their proper consideration and incorporation into these documents.
- Develop and implement a residential program to reduce the discharge of pollutants from residential facilities.
- Incorporate LID site design principles to reduce runoff to a level consistent with the maximum extent practicable standard during each phase of priority development projects. Maintain or replicate the predevelopment hydrologic regime through the use of design techniques that create a functionally equivalent post development hydrologic regime through site preservation techniques and the use of integrated stormwater infiltration, retention, detention, evapotranspiration, filtration, and treatment systems as close as feasible to the source of runoff.
- Capture and retain rainfall on site.
- Reduce peak flows.
- Reduce dry-weather urban runoff.
- Reduce point-source discharges for dry-weather flows.
- Modify habitats to provide better contaminant removal and encourage aquatic nutrient cycling.
- Reduce groundwater pollutant concentrations.
- Reduce waterborne fecal indicator bacteria associated with pet waste.
- Encourage infiltration in appropriate areas.
- Drain runoff through vegetated swales or constructed wetlands.
- Encourage xeriscaping.
- Identify sources of trash and debris within the watershed and develop a management plan to address them.

Subobjective WQ-2: Meet TMDL, NPDES, and other requirements throughout the region.

Central Orange County WMA Strategies:

- The model WQMP was updated to incorporate LID principles and to address the impact of urbanization on downstream hydrology. Each priority development project is required to infiltrate, harvest and reuse, evapotranspire, or biotreat the 85th percentile storm event to the maximum extent practicable.

- Design and build structural BMPs and treatment control BMPs, in accordance with the approved model WQMP.
- Require WQMP submittals that emphasize implementation of LID principles and address hydrologic conditions of concern before issuing grading or building permits and before recording subdivision maps.
- The priority project WQMP requirement has been expanded to include new streets, roads, highways, and retail gasoline outlets.
- Design structural BMPs that will infiltrate, filter, or treat stormwater to protect groundwater resources to the maximum extent practicable.
- Review the watershed protection principles and policies in local general plans and related documents to ensure their proper consideration and incorporation into these documents.
- Develop and implement a residential program to reduce the discharge of pollutants from residential facilities.
- Incorporate LID site design principles to reduce runoff to a level consistent with the maximum extent practicable standard during each phase of priority development projects. Maintain or replicate the predevelopment hydrologic regime through the use of design techniques that create a functionally equivalent post development hydrologic regime through site preservation techniques and the use of integrated stormwater infiltration, retention, detention, evapotranspiration, filtration, and treatment systems as close as feasible to the source of runoff.
- Capture and retain rainfall on site.
- Reduce peak flows.
- Reduce dry-weather urban runoff.
- Reduce point-source discharges for dry-weather flows.
- Modify habitats to provide better contaminant removal and encourage aquatic nutrient cycling.
- Reduce groundwater pollutant concentrations.
- Reduce waterborne fecal indicator bacteria associated with pet waste.
- Encourage infiltration in appropriate areas.
- Drain runoff through vegetated swales or constructed wetlands.
- Encourage xeriscaping.
- Identify sources of trash and debris within the watershed and develop a management plan to address them.

5.3.3 Water Supply Subobjectives

Subobjective WS-1: Manage groundwater resources to maintain a sustainable groundwater supply into the future.

Central Orange County WMA Strategies:

- Partner with the Northern Orange County WMA in supporting programs and projects that increase recharge of the Orange County Groundwater Basin.
- Revise county and municipal general plans to integrate watershed-wise strategies.
- Facilitate collaboration with OCWD as to how and where groundwater recharge can best be enhanced and address LID requirements accordingly.
- Work with SAWPA to ensure that implications of Santa Ana River long-term flow trends for basin recharge are addressed in the OWOW plan.
- While implementing water use efficiency measures, use advocacy and coordination with MWDOC, MWD, and others to ensure the reliability of imported supplies so that conjunctive use planning is effective.

Subobjective WS-2: Maximize the use of recycled water.

Central Orange County WMA Strategies:

- Use a wide variety of water supply sources, including desalination.
- Revise county and municipal general plans to integrate watershed-wise strategies.
- Expand recycled water use by building new recycled water infrastructure.
- Develop a salt management plan for the Central Orange County WMA.

Subobjective WS-3: Maximize water conservation efforts.

Central Orange County WMA Strategies:

- Revise county and municipal general plans to integrate watershed-wise strategies.
- Reduce landscape irrigation by:
 - Creating incentives for homeowners and businesses to reduce their landscape irrigation water use
 - Mandating drought-tolerant landscaping for new development
 - Promoting the adoption of local landscape ordinances that meet the requirements of Assembly Bill 1881

- Fully utilizing existing, underutilized infrastructure to provide the maximum use of recycled water for landscape irrigation
- Encouraging xeriscaping
- Adopt local landscape ordinances that are as restrictive, or more restrictive, than the California Model Water Efficient Landscape Ordinance (California Code of Regulations Title 23, Waters Division 2, Department of Water Resources).

5.3.4 Habitat Subobjectives

Subobjective H-1: Provide functioning habitat that sustains viable populations of native species.

Central Orange County WMA Strategies:

- Conduct systematic removal of invasive species.
- Perform a region wide review of native plants and animals. Identify indicator species with recommendations for targets for indicator species population, number of breeding pairs, and spatial distribution and coverage.
- Use groups like the Nature Reserve of Orange County to determine measurable objectives.
- Conduct a study of the marine life resources in the CCAs and ASBSs and prepare recommendations for targets for indicator species population and diversity.
- Perform a region wide review of illegal trails and provide recommendations for increasing the number of legal trails and eliminating illegal trails.
- Perform a region wide study of critical linkages between vegetation communities and provide recommendations for creating wildlife corridors and increasing buffer zones along creeks.
- Perform a region wide study of fire hazard areas between natural habitat and urban development and provide recommendations for establishing fuel modification zones, converting nonnative grasslands to native plants, enacting stricter building and planning regulations, improving fire response capability, restricting access to certain critical open space areas during the fire season, and reviewing fire risks due to power lines.
- Incorporate LID site design principles to reduce runoff to a level consistent with the maximum extent practicable standard during each phase of priority development projects. Maintain or replicate the predevelopment hydrologic regime through the use of design techniques that create a functionally equivalent post development hydrologic regime through site preservation techniques and the use of integrated stormwater infiltration, retention,

detention, evapotranspiration, filtration and treatment systems as close as feasible to the source of runoff.

Subobjective H-2: Minimize occurrence of invasive species.

Central Orange County WMA Strategies:

- Conduct systematic removal of invasive species.
- Use groups like the Nature Reserve of Orange County to determine measurable objectives.

Subobjective H-3: Promote the use of water quality treatment systems that also provide habitat.

Central Orange County WMA Strategies:

- Incorporate LID site design principles to reduce runoff to a level consistent with the maximum extent practicable standard during each phase of priority development projects. Maintain or replicate the predevelopment hydrologic regime through the use of design techniques that create a functionally equivalent post development hydrologic regime through site preservation techniques and the use of integrated stormwater infiltration, retention, detention, evapotranspiration, filtration and treatment systems as close as feasible to the source of runoff.

5.4 BALANCED ENVIRONMENTAL SUSTAINABILITY OBJECTIVES

Objective BES-1: Promote sustainable principles within the watershed.

Central Orange County WMA Strategies:

- Develop a practical and implementable IRWMP to serve as a roadmap for the Central Orange County WMA.
- Require WQMP submittals that emphasize implementation of LID principles and address hydrologic conditions of concern before to issuing grading or building permits and before recording subdivision maps.
- The priority project WQMP requirement has been expanded to include new streets, roads, highways, and retail gasoline outlets.
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Objective BES-2: Seek grants and encourage public-private financing partnerships.

Central Orange County WMA Strategies:

- Develop a project prioritization method that will support the attainment of project funding.
- Recognize the economic value of recreation opportunities within the Central Orange County WMA when prioritizing projects.

Objective BES-3: Support water quality improvement efforts that will enhance public recreation.

Central Orange County WMA Strategy:

- Recognize the economic value of recreation opportunities within the Central Orange County WMA when prioritizing projects.

5.5 COLLABORATION STRATEGIES

Objective C-1: Promote inclusive and participatory watershed governance.

Central Orange County WMA Strategies:

- Use the memorialized governance structure of the Newport Bay Watershed Executive Committee with decision-making capabilities and procedures conducted per open public meeting laws.
- Participate in regional watershed planning that opens opportunities for science-based studies, improvements in habitat connectivity, and multibenefit flood management.

Objective C-2: Encourage data collaboration between the state, county, cities, universities, and the public.

Central Orange County WMA Strategies:

Objective C-3: Promote intraregional agency collaboration and cooperation.

Central Orange County WMA Strategies:

- Develop a practical and implementable IRWMP to serve as a roadmap for the Central Orange County WMA.
- Review the watershed protection principles and policies in local general plans and related documents to ensure their proper consideration and incorporation into these documents.
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Objective C-4: Promote interregional agency collaboration and cooperation.

Central Orange County WMA Strategies:

- Partner with the North Orange County WMA in supporting programs and projects that increase recharge of the Orange County Groundwater Basin.
- Work with SAWPA to ensure that implications of Santa Ana River long-term flow trends for basin recharge are addressed in the OWOW plan.

Objective C-5: Promote watershed public education and citizen involvement.

Central Orange County WMA Strategies:

- Build stakeholder relationships and shared goals throughout the region.