Strategic Plan

Adopted September 3, 2003

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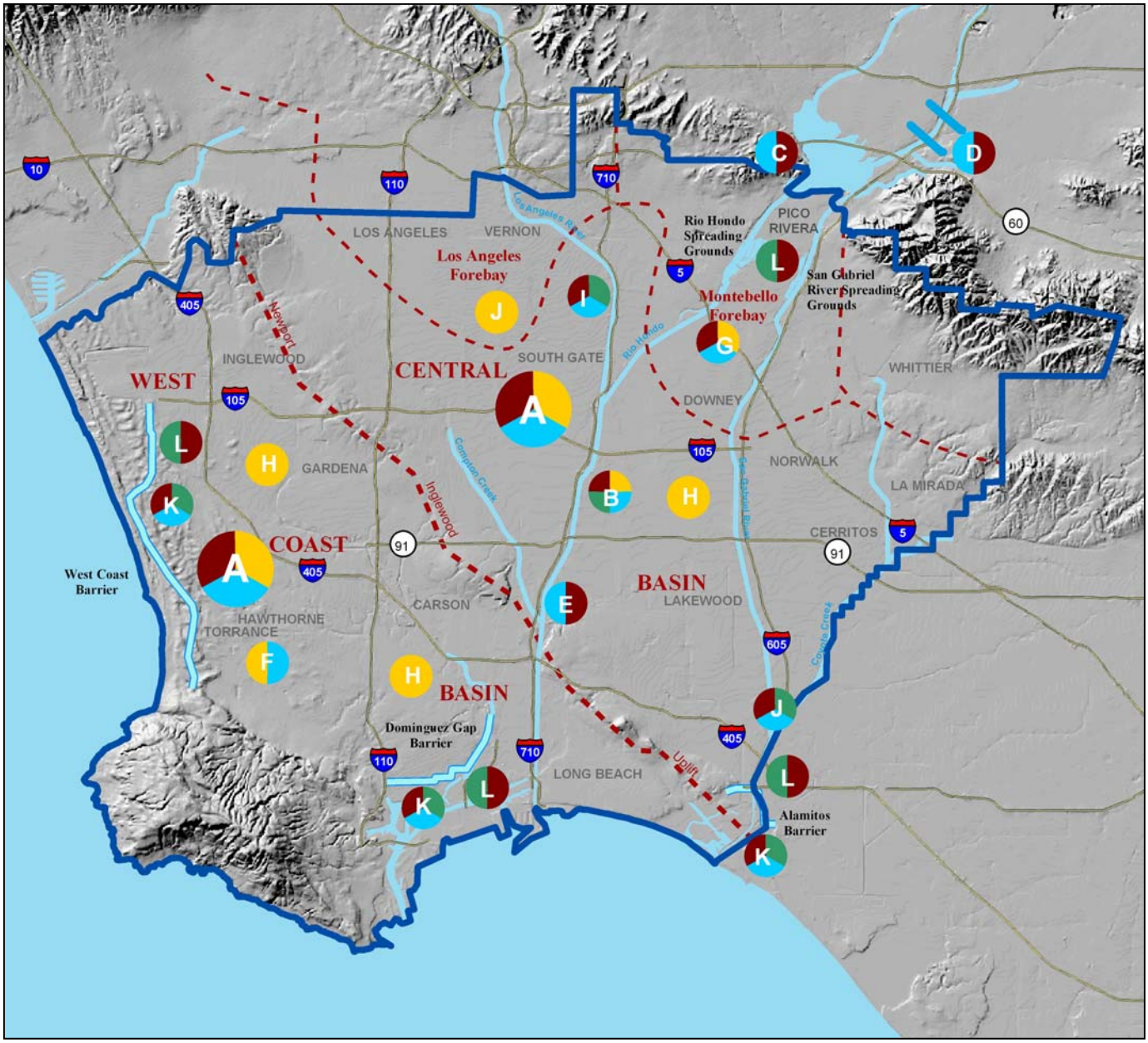

WRD Statistics			
Area	*420 square miles*	***Central Basin Adjudication***	*217,369 acre-feet per year*
Population	*Approximately 4 million*	***West Coast Basin Adjudication***	*64,468 acre-feet per year*
Number of Cities within Service Area	*43*	***Average Groundwater Production***	*250,000 acre-feet per year*

WRD 2003 Strategic Plan
Mission and Goals

WRD Mission Statement

"To provide, protect and preserve high quality groundwater through innovative, cost-effective and environmentally sensitive basin management practices for the benefit of residents and businesses of the Central and West Coast Basins."

WRD Goals

Goal 1 — ***Protect and Preserve Water Quality in the Central and West Coast Basins***

Goal 2 — ***Provide Basin Replenishment***

Goal 3 — ***Manage the Basins through Environmentally Sensitive Practices***

Goal 4 — ***Develop and Foster Effective Relationships and Communications for the Benefit of Residents and Businesses of the Central and West Coast Basins***

Top Priority Projects and Programs

	Description	Goal
A	Implement Groundwater Storage Programs in Central and West Coast Basins to Increase Conjunctive Use Activities	1,2,4
B	Implement Caltrans 105 to Dominguez Gap Barrier Pipeline Project to Conserve Water Being Wasted to the Ocean	1,2,3,4
C	Work with Los Angeles County Department of Public Works to Enhance the Whittier Narrows Conservation Pool Project to Increase the Ability to Capture and Reuse Local Stormwater for Replenishment	2,4
D	Work with Los Angeles County Department of Public Works on the San Gabriel River Rubber Dams Project to Increase the Ability to Capture and Reuse Local Stormwater for Replenishment	2,4
E	Increase Groundwater Recharge Capacity in Dominguez Gap Spreading Grounds to Increase the Ability to Capture and Use Local Water Resources	2,4
F	Convert Orduña Wells to Injection Wells to Provide Replenishment Flexibility and Reduce Costs	1,2

	Description	Goal
G	Work with State and Local Agencies to Increase Recycled Water Use in the Montebello Forebay to Maximize use of Local Water Resources, Provide Replenishment Flexibility and Reduce Costs	1,2,4
H	Continue Safe Drinking Water Program to Remove Contaminants from the Groundwater Basins	1
I	Work with the Los Angeles Department of Water and Power to Evaluate Methods for Utilization of Los Angeles River Water for Groundwater Replenishment to Maximize Use of Local Water Resources, Provide Flexibility and Reduce Costs	2,3,4
J	Complete Construction of Leo J. Vander Lans Advanced Water Treatment Facility to Maximize use of Local Water Resources and Provide Replenishment Flexibility	2,3,4
K	Develop Seasonal Injection Scenarios at Barriers to Capitalize on Availability of Surplus Imported Water and to Reduce Replenishment Costs	2,3,4
L	Work with the Los Angeles County Department of Public Works to Develop Active Role in Spreading Grounds and Barrier Injection Facilities to Pool Resources and Optimize Economic Benefits	3,4

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Chapter I – Introduction

Purpose

The existing and future limitations of water resources in Southern California have resulted in the need for water supplies in the Central and West Coast basins to be managed more efficiently. As groundwater manager of both basins, WRD plays an integral role in overall water resource management in southern Los Angeles County. As the population of the region continues to increase, it becomes even more important to maximize the use of both imported and local water sources available to WRD.

Recognizing the need to efficiently manage current and future groundwater resources in the Central and West Coast basins, the WRD Board of Directors instructed staff to update the Strategic Plan that was developed and adopted in 1998. The purpose of this update is to revisit priorities identified in the 1998 Strategic Plan and to assess their current applicability. Additionally, the 1998 strategic goals and objectives have been reevaluated to ensure that they meet WRD's legal, ethical, institutional and professional obligations.

To effectively serve as the groundwater basin management agency for the Central and West Coast basins, it is necessary for the District to review and update its vision and goals for both the short and long term. The District also needs to continue to foster cooperative relationships with stakeholders, solicit their ideas for this vision and gain their support to implement this Strategic Plan.

Process

The development of a successful Strategic Plan requires the participation of the WRD Board of Directors, District staff, groundwater basin stakeholders, and members of the public.

Recognizing both the importance and impacts of the Strategic Plan, the WRD Board of Directors created a Strategic Planning Ad Hoc Committee (Committee) to oversee the development of the Strategic Plan update. Five meetings were held between staff and the Committee to review and refine elements of the Plan. Several stakeholder workshops were held, including two Board Workshops, to ensure all concerns were heard and addressed.

The completion and adoption of the Plan is just one element of the strategic planning cycle. It is the intent of the District to regularly review and update the Strategic Plan to keep pace with an ever-changing environment. The figure below summarizes the WRD's strategic planning cycle.

Participation

Participation among interested parties is integral to the successful development of any strategic plan. Throughout the development of this Strategic Plan update, District staff carried out several meetings with Board members and basin stakeholders.

In addition to the Ad Hoc Planning Committee meetings with District staff to review and update the Strategic Plan document, the District's Technical Advisory Committee, composed of water rights holders from the Central and West Coast basins, reviewed and commented on many of the specific projects and programs identified as priorities to the District. In order to solicit comments from all basin stakeholders, two special Board of Directors meetings were held to provide a forum for Board members to discuss the goals of the District and to take into consideration concerns and comments of basin stakeholders.

WRD Mission Statement

A key element in WRD's strategic plan is the development of a Mission Statement that clearly defines the purpose of the District. Based on engineering, environmental, institutional and financial demands upon WRD, the following Mission Statement has been developed:

"To provide, protect and preserve high quality groundwater through innovative, cost-effective and environmentally sensitive basin management practices for the benefit of residents and businesses of the Central and West Coast Basins."

The Mission Statement provides the framework from which the District developed its goals, corresponding objectives, and ultimately the projects and programs required to meet the District's goals and objectives.

Chapter II – District Overview

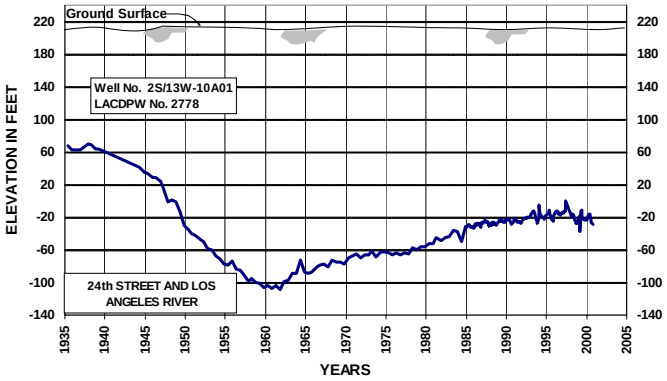
Background and History

The Water Replenishment District of Southern California (WRD) was formed by a vote of the people in 1959 for the purpose of protecting the groundwater resources of the Central and West Coast groundwater basins in southern Los Angeles County.

WRD manages the groundwater supply for nearly four million residents in 43 cities of south Los Angeles County. The 420 square mile service area uses about 250,000 acre-feet of groundwater per year, which equates to almost 40% of the total demand for water. Prior to the formation of the District, overpumping of both basins caused many wells to go dry and seawater to intrude into the potable water aquifers. In order to mitigate this seawater intrusion, a series of seawater barrier wells were constructed to maintain a pressure ridge to protect against further intrusion. The barrier wells were successful in halting this intrusion; however, the pressure ridge effectively trapped a saline plume in the West Coast Basin, which is currently being remediated by the District's desalination program. There are currently three seawater barrier systems within the District boundary; the Alamitos Barrier, the Dominguez Gap Barrier and the West Coast Basin Barrier.

In 1957, the accumulated overdraft in the Central Basin was almost 1 million acre-feet, and groundwater levels had dropped to below sea level in both basins. During the 1950's, the Los Angeles County Flood Control District purchased 500,000 acre-feet of imported water to artificially replenish the basins. The Central Basin Water Association and West Basin Water Association, comprised of the major groundwater producers from each basin, jointly proposed and obtained voter approval for the formation of the Water Replenishment District of Southern California to manage the Central and West Coast groundwater basins.

In ensuing years, WRD developed programs to capture storm water, recharge recycled wastewater, monitor water quality and derive benefit from evolving Metropolitan Water District of Southern California (MWD) water rates. The graph shown to the right illustrates the dramatic drop in groundwater levels prior to WRD's creation and the subsequent increases as a result of replenishment



operations. In 1990, legislation was passed to strengthen WRD's role in groundwater quality protection and to provide the District authority to levy a special assessment to fund clean water programs. The Water Replenishment District Act provides for local financing of the District's operations by empowering WRD to charge and collect a replenishment assessment on water extracted from the Central and West Coast groundwater basins.

The District's funding mechanisms include:

a) *"Water Purchase Assessment" on all pumping from the groundwater basins to fund the purchase of water to replenish and protect the Central and West Coast groundwater basins.*

b) *"Clean Water Assessment" to fund programs designed to clean up existing groundwater contamination and prevent future contamination to the vital groundwater supply in the Central and West Coast Basins.*

With the increased engineering, environmental and institutional complexities of water resource management in the 1990's and 2000's, WRD has significantly expanded the scope of its activities. In order to achieve maximum benefit from future District activities, the WRD Board of Directors requested the development of an updated District Strategic Plan. The current Strategic Plan was adopted in 1998.

Statutory Mandates

Division 18 of the California Water Code grants the District statutory authority to provide, protect and preserve groundwater resources in the Central and West Coast basins. Specifically, Section 60221 provides:

> *Without being limited to the following enumerations, a district may, among other things but only for the purposes of replenishing the groundwater supplies within the district:*
> *a) Buy and sell water;*
> *b) Exchange water;*
> *c) Distribute water to persons in exchange for ceasing or reducing ground water extractions;*
> *d) Spread, sink and inject water into the underground;*
> *e) Store, transport, recapture, recycle, purify, treat or otherwise manage and control water for the beneficial use of persons or property within the district.*
> *f) Build the necessary works to achieve ground water replenishment.*

Additionally, for purposes of replenishment, Section 60224 provides:

> *For the purpose of protecting and preserving the groundwater supplies within the district for beneficial*

uses, a district may take any action, within the district, including, but not limited to, capital expenditures and legal actions, which in the discretion of the board is necessary or desirable to accomplish any of the following:

a) Prevent contaminants from entering the groundwater supplies of the district, whether or not the threat is immediate.
b) Remove contaminants from the groundwater supplies of the district.
c) Determine the existence, extent, and location of contaminants in, or which may enter, the groundwater supplies of the district.
d) Determine persons, whether natural persons or public entities, responsible for those contaminants.
e) *Perform or obtain engineering, hydrologic, and scientific studies for any of the foregoing purposes.*

Conjunctive use authority of WRD is defined by Section 60230 (f).

For the purposes of replenishing the groundwater supplies within the district, a district shall have power:

f) For the common benefit of the district, to store water in underground water basins or reservoirs within or outside of the district, to appropriate and acquire water and water rights within or outside of the district, to import water into the district, and to conserve water within or outside of the district.

These excerpts from the California Water Code are the statutory basis for WRD's basin management responsibilities. It is a WRD Board priority to ensure a safe and adequate supply of groundwater for basin rights holders. Recent court decisions have upheld WRD's statutory authority to manage storage in the groundwater basins and to address accumulated overdraft.

WRD Environmental Scan

Water from outside the Southern California area is imported from the Sacramento and Colorado River systems. Mountain snow pack provides the source of water for these rivers. During the season when snow melts, additional, or "surplus" water is generally available for a limited time each year. With significant storage capacity in the groundwater aquifers, this surplus water can be brought into Southern California and stored for later use. The storage capacity of the groundwater basins provides a storage buffer to even out the swings of water availability. In effect, increasing the use of groundwater storage increases the reliability of local water resources. In this respect, WRD is in a unique position since it manages two large groundwater basins located in Southern California. These basins, the Central and West

Coast groundwater basins, have a combined storage capacity of over 22 million acre-feet and a useable capacity currently of approximately 600,000 acre-feet. The useable capacity is essentially the volume of the basins that can be used as a reservoir to store "surplus" water when available. Additionally, the District has access to spreading basins owned and operated by the Los Angeles County Department of Public Works that can be used to place surplus imported water, local storm water, and recycled water that is currently unused into the groundwater aquifers for later use. This combined, or "conjunctive" use of various sources, seasonal availability and pricing of surface water in conjunction with the storage and operation of groundwater basins will play a vital role in the future health of water supplies in Southern California.

As the population of California, particularly Southern California, continues to swell, the need for increasing supplies of reliable, inexpensive and high quality water becomes more and more critical. It is in this environment that the District will be operating for the foreseeable future. Opportunities to build significant dams and reservoirs to store large quantities of water in our state are nearly non-existent and very costly. WRD and the water community are looking to better utilize groundwater basins to safely store drinking water for use during times of shortage or interruption of imported water supplies.

Decreasing Firm Water Supplies and Increasing Demand Require Innovative Methods of Water Resource Management

The water community is changing and impacted by the dynamics of California's regulatory and political environment. Water issues are by their very nature, highly politicized. Regulatory decisions are sometimes made without scientific basis and all too often, the public is assaulted by sensationalistic reports or barraged by conflicting and confusing information in the media. It is in this environment that the WRD seeks to position itself as a leader in groundwater and water quality management. It is in such an environment that the WRD needs to establish a more informed presence with our lawmakers and serve as a reliable source of objective information for the public and newsmakers.

Southern California is a semi-arid environment with a burgeoning population. WRD, along with other members of the water community, is looked upon to do more with less, to find new and innovative ways to meet increasing demands for water in the face of decreasing traditional water sources.

WRD Today

From the mid-1990's to present, WRD exercised many of its statutory powers through the development of various projects and programs. The following section describes the significant implementation of projects and programs identified in the 1998 Strategic Plan.

Key Accomplishments Since 1998 Strategic Plan for WRD

Construction of the Robert W. Goldsworthy Desalter

The Robert W. Goldsworthy Desalter, located in the West Coast Basin within the City of Torrance, began operation in 2001. The goal of the desalter is to treat the saline plume located in the West Coast Basin that was trapped as a result of barrier operations designed to halt seawater intrusion. In order to put the water from the desalter to beneficial use, the District made the decision to sell the "product" water to the City of Torrance for distribution in their potable water distribution system. Currently, the facility is extracting and treating approximately two and a half million gallons per day.

Construction of the Leo J. Vander Lans Advanced Water Treatment Facility

The Leo J. Vander Lans Advanced Water Treatment Facility, located in the City of Long Beach, is expected to begin operations by late 2003. The goal of this project is to provide a reliable, local source of injection water for the Alamitos Barrier, which is one of three barrier systems within the District and provides protection against seawater intrusion in the Alamitos Gap area of the Central Basin. The source water for this facility is tertiary treated recycled water from the Long Beach Recycled Water Plant. This water is further treated in the Leo J. Vander Lans AWTF through microfiltration, reverse osmosis and ultraviolet disinfection. When operations begin in late 2003, the facility will treat approximately two and a half million gallons per day.

The Leo J. Vander Lans Water Treatment Facility Will Treat and Inject 3,000 Acre-Feet Per Year that Would Otherwise Be Wasted to the Ocean

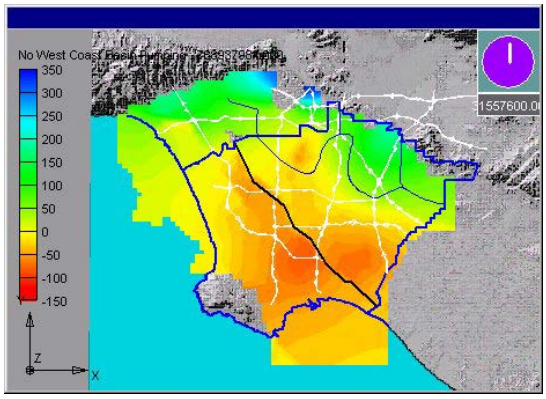
Caltrans Pumping Rights Resolution

WRD has developed a pipeline project concept that will conserve water extracted by Caltrans from beneath the 105 Freeway by placing it back into the groundwater aquifers through injection wells at the Dominguez Gap Barrier facility. A feasibility and cost estimate study of the pipeline was completed in 2002 and an economic analysis of the project shows a favorable benefit-to-cost ratio. WRD and Caltrans have reached an agreement under which Caltrans will provide $8 million of funding to WRD for the $14.5 million project. In exchange, WRD will exempt Caltrans from the Central Basin Judgment and the associated replenishment assessment.

Groundwater Resources Development Program

WRD completed the *Preliminary Plan for Groundwater Resources Development Program* in May 2000. Key elements of this plan are currently undergoing further evaluation, such as increased utilization of the spreading grounds and reduced extraction in the areas of the basin that directly influence barrier operations. A significant component of this program is the District's Regional Groundwater Model that is utilized to evaluate and analyze alternative basin management scenarios. Information gained as a result of the modeling effort is being used to further evaluate methods to manage the groundwater resources of the Central and West Coast basins in a manner to increase cost effectiveness, reliability and quality of these resources.

WRD's Regional Groundwater Model Provides a Means to Efficiently Analyze Alternative Groundwater Management Scenarios



Seawater Barrier Improvement Program

In July 1999, WRD completed the *Alternative Seawater Barrier Feasibility Study* in which alternatives to injection for protecting the basins from seawater intrusion were evaluated. Two of the alternatives identified in the report are currently under further evaluation. Those projects are nitrogen injection in the West Coast Barrier Project and a deep soil mixed wall to create a physical barrier at the Alamitos Barrier Project.

Safe Drinking Water Program

The District's Safe Drinking Water Program continues to assist pumpers with developing cost-effective methods to treat groundwater contamination. To date, WRD has provided funding assistance to 12 treatment projects that are currently online, with eight additional projects in the planning and design phase. Combined, these projects have removed ## gallons of contaminants from the basins that would otherwise have remained in the aquifers.

San Gabriel Valley Contamination Remediation

The United States Environmental Protection Agency (EPA) has constructed and is operating the Whittier Narrows Remediation Project. The purpose of this project is to halt the migration of contaminants from the San Gabriel Valley into the Central Basin. WRD continues to work closely with project participants as the final elements of the project are completed. Currently, water from the EPA project is being conserved in the Montebello Forebay until a permit can be obtained for distributing the water to customers in the City of Whittier.

Regional Groundwater Monitoring Program

The District's Regional Groundwater Monitoring Program continues to provide District staff and basin stakeholders with invaluable information on overall basin health, including water quality and groundwater levels. Since the development of the 1998 Strategic Plan, the District has installed 136 monitoring wells at 24 locations. In order to disseminate the vast amounts of information collected as part of the Regional Groundwater Monitoring Program, the District began in-house development and publishing of an annual Regional Groundwater Monitoring Reports in 1998.

WRD's Regional Groundwater Monitoring Program Provides Water Quality Information From Over 250 Wells

Key Challenges

Groundwater Quality Concerns

While the groundwater quality in several groundwater basins throughout the state has been severely degraded, the Central and West Coast Basins remain of comparatively high quality. In order to ensure the continued utility of the basins as both a groundwater conveyance system and underground reservoir, the District has made protection of the basins from existing and future contamination a high priority. Areas of major concern to the District are the mitigation of seawater intrusion where the aquifers meet the coast and the treatment of volatile organic compounds throughout the basins, particularly in the Whittier Narrows area, where the San Gabriel basin flows into the Central Basin. The expeditious treatment of existing groundwater quality problems greatly reduces the potential for groundwater contamination to migrate throughout the basins and negatively impact additional production wells.

High Cost of Spreading and Injection Water

One of the more pressing issues facing the District today is the high cost of spreading and injection water that WRD must purchase in order to replenish and protect the basins. All imported water used by the District has historically been purchased through either West Basin Municipal Water District (WBMWD) or Central Basin Municipal Water District (CBMWD), both of which are Metropolitan Water District of Southern California (MWD) member agencies. Because WRD is not an MWD member agency, and therefore cannot purchase water directly from them, the District is subject to increasing surcharges that are included in the price of imported water purchased from WBMWD and CBMWD. In FY2003/04, it is estimated that approximately 85% of the District's revenues will be used for water purchases, and more than $2,000,000 will be paid to WBMWD and CBMWD in surcharges alone.

The large sums of money currently expended by the District on water purchases presents an opportunity to institute cost saving measures through innovative approaches to basin management. Many of the functions that WRD fulfills today, such as purchasing imported water for injection at the seawater intrusion barriers, were implemented during periods when imported water was more readily available and relatively inexpensive. Indeed, the cost of imported water used for injection at the West Coast Barrier has increased more than 2,500% since 1961. Because the economics of injection, as well as other WRD functions, have seen such a significant shift since the District was formed, a comprehensive reevaluation of basin management strategies could result in significant savings to the District. These savings can then be passed on to pumpers or invested in additional projects and programs that increase the quality, reliability and cost effectiveness of groundwater.

The Cost of Imported Injection Water Has Increased 2500% Since 1961

Supply and Reliability Concerns

The continued supply and reliability of imported water is a primary concern to the District. In Water Year 2001/02, the District purchased more than 66,000 acre-feet of imported water. Water imported by the Metropolitan Water District from the Sacramento and Colorado rivers is a relatively fixed resource. As demand for this fixed resource continues to increase, the reliability of these imported water sources will decrease. The availability of seasonal water, which is considered surplus water and sold to the District at a reduced cost, is likely to decrease.

This reduction in supply and reliability motivates the District to evaluate alternative management practices that emphasize the optimization of existing local water resources and the more efficient management of imported water sources. Additionally, the District is motivated to increase the use of underground storage to take advantage of narrow windows of opportunity to receive surplus water.

Relationships and Communication with Basin Stakeholders

One of the keys to WRD's continued success is the development and maintenance of cooperative relationships and regular communication with basin stakeholders. Support from basin stakeholders, particularly water rights holders, will help the District more effectively implement projects and programs intended to improve the utility of the groundwater basins.

The list of basin stakeholders is extensive and includes the residents and businesses within the service area, groundwater purveyors and water rights holders, cities, water agencies, and industry associations, as well as environmental organizations, legislators, and regulatory and governmental agencies. Many stakeholders, including those in the water community, remain unaware of the WRD and its role in this region's water quality and supply management. Misinformation left uncorrected or allowed to linger can lead to erroneous conclusions or undeserved fear and criticism. The need to ensure that the water needs of the region are met demand that all involved are provided with, or have access to, accurate information in order to make the appropriate decisions.

Chapter III – Strategic Goals and Objectives

Based on the challenges facing the District, WRD has developed goals and objectives to guide the District in its continuing effort to achieve its mission. While not identified as a specific goal, it should be noted that research is a vital component to the District successfully achieving each of the four goals. A summary of the District's goals and the accompanying objectives is given below.

WRD Goals

Goal 1: Protect and Preserve Water Quality in the Central and West Coast Basins

Continued high groundwater quality in the Central and West Coast basins is of the utmost importance to the District. As Southern California enters a period of reduced imported water supplies from the Colorado River and reliance on this valuable resource becomes more and more vital, ensuring the continued high quality of groundwater becomes even more important.

The importance of water quality to the District was demonstrated in the early 1990's, when the District instituted the Clean Water Fund to raise money for projects to protect and enhance the groundwater quality of the basins.

A major component of ensuring high water quality in the basins is the development of cooperative working relationships with basin stakeholders. The need for a unified voice on water quality issues is important to ensure that appropriate groundwater quality regulations are promulgated by agencies charged with regulating water quality in the Central and West Coast basins. Additionally, it is important that the District work cooperatively with regulatory agencies and assist them wherever possible.

As new treatment technologies become available and groundwater testing becomes more sophisticated, it is imperative that the District continue with projects and programs instituted in the 1990's.

Throughout the course of several meetings with the Ad Hoc Planning Committee and basin stakeholders, the following three objectives were identified in order to help the District meet its water quality goal.

Objective 1: Monitor Water Quality of the Basins

The continued monitoring of the Central and West Coast basins is integral to the District's ability to ensure the health of the basins. Information obtained through basin monitoring supports the development and implementation of new projects and also provides the data required to continually reevaluate ongoing projects.

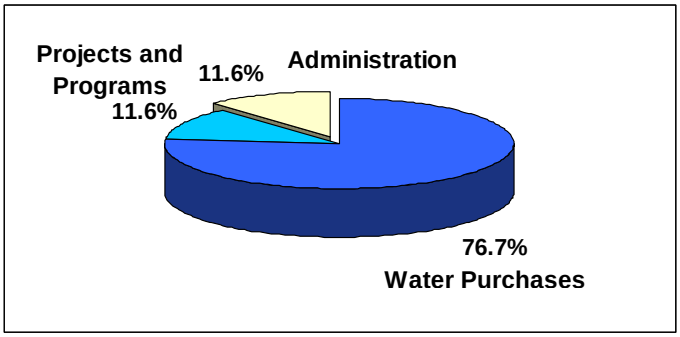
Objective 2: Mitigate Seawater Intrusion

The mitigation of seawater intrusion resulting from over pumping in the past is of utmost importance to WRD. Mitigation of seawater intrusion is necessary to preserve the existing groundwater quality of the basins and to maintain the basins as valuable resources for conjunctive use.

Objective 3: Address Groundwater Contamination and Prevention Issues

Existing groundwater contamination in the Central and West Coast basins can hamper future innovative projects and programs. Without treatment, existing contamination may migrate, thereby rendering a greater portion of the basins useless for future groundwater storage projects. As a regional groundwater manager, the District recognizes the importance of removing existing contamination and, therefore, is interested in projects and programs intended to make groundwater contamination treatment economically feasible to water rights holders.

Goal 2: Provide Basin Replenishment



The primary mandate of WRD is to manage basin replenishment. Replenishment operations, including water purchased for injection at the seawater barrier projects, account for a significant portion of WRD's annual budget. Given the large sums of money WRD spends on replenishment activities, it is imperative that the District do everything in its power to ensure that the water purchased is the least expensive available. This goal relates to the resources that WRD will balance to achieve its mission of basin replenishment.

The following three objectives were developed to ensure that the District's basin replenishment goal is efficiently met.

Objective 1: Reduce Replenishment and Barrier Water Costs

One way to ensure that basin replenishment operations are being carried out cost-effectively is to work with basin stakeholders to ensure that the price paid

for replenishment and barrier water is as low as it can be. Secondly, it should be an ongoing program of the District to periodically evaluate current operations to make sure they still make sense in the prevailing economic climate.

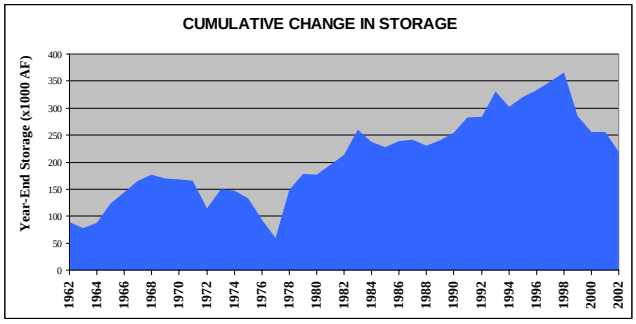
Objective 2: Ensure Available Water Sources for Purpose of Replenishing Groundwater Supply

Historically, the WRD has replenished the basins using imported water purchased from northern California and the Colorado River, and locally available storm water and recycled water. Increasing demands on each of these sources, particularly non-interruptible imported water, require that the District ensure their continued availability. If the availability of existing replenishment water sources cannot be secured, it is imperative that the District secure alternative supplies to provide replenishment of groundwater supplies.

A primary consideration in securing replenishment water sources is the unit cost of the water and its availability. It is projected that the supply of non-interruptible imported water will decrease in the future, thereby increasing the cost. Seasonally available imported supplies, which cost considerably less than non-interruptible imported water, will likely remain at the current level. Therefore, a key component of ensuring future water supplies will be maximizing replenishment using seasonally available imported water. Additionally, recycled water will also play a more significant role in basin replenishment in the future. The District must continue to work with the public and regulatory agencies to maximize the use of this important water resource.

Objective 3: Develop Optimum Groundwater Level

In order to clearly establish a plan for future water purchases, to efficiently carry out replenishment of the groundwater basins, and to implement storage programs, the development of optimum groundwater levels is essential. Historically, WRD has successfully managed groundwater replenishment in the basins using procedures described in the Engineering Survey and Report and based on close monitoring of target water levels in the Montebello Forebay and on water level hydrographs in other areas in the basin.



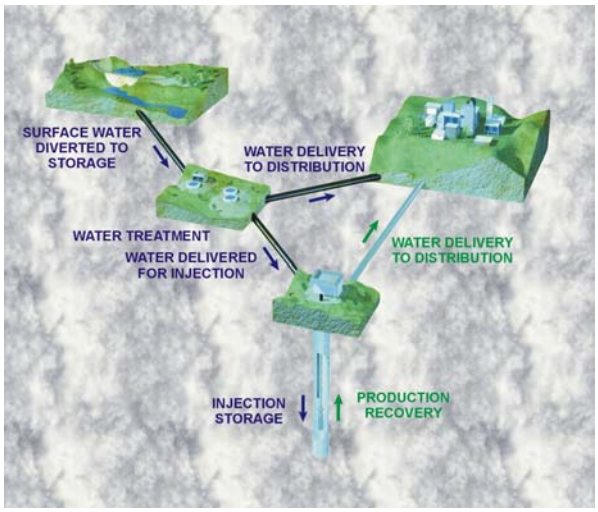
Past management practices by the District have resulted in a decrease in the accumulated overdraft. When the District was formed in 1959, the Department of Water Resources estimated the accumulated overdraft in the Central Basin at nearly 1,000,000 acre-feet. Based on values provided in

the District's 2003 Engineering Survey and Report, the accumulated overdraft is now approximately 650,000 acre-feet. This reduction in accumulated overdraft and the general consensus among the District and basin stakeholders that the basins are in good health have put focus on the need for the District to establish optimum groundwater levels.

Development of this quantity will provide the district with a clear objective when determining the direction and extent of its activities. A minimum groundwater quantity provides the District an early alert when usage and replenishment factors combine to stress the conditions of the basins.

Goal 3: Manage the Basins through Environmentally Sensitive Practices

While Goal 2 relates to the fundamental operations of the District, it is a separate goal of the District to continue development of new projects and programs to more efficiently manage the basins. As previously discussed, the State of California is entering a period of reduced imported water supplies, particularly with recent decisions by the Department of the Interior to reduce deliveries of Colorado River water by approximately 800,000 acre-feet per year.



The Central and West Coast groundwater basins are invaluable public assets that must be managed efficiently in order to ensure a continued supply of reliable water for residents of southern Los Angeles County and all of Southern California. By looking at the basins as reservoirs rather than simply groundwater conveyance systems, the District can play a more active role in dealing with California's water problems. Additionally, increased utilization of the basins for storage will result in cost savings to the District. This goal relates to WRD's efforts to optimize the benefits of the Central and West Coast Basins for the public.

The following three objectives were developed in order to ensure the District meets its goal to develop projects and programs to manage the basins more efficiently

Objective 1: Develop Storage Programs to Increase Reliability and Reduce Basin Operating Cost

A primary objective of this goal is to develop projects and programs that allow the District to store seasonally available surplus water. In addition to utilizing water that would otherwise be wasted to the ocean, storage programs also have the benefit of reducing basin operating costs by increasing groundwater levels.

Objective 2: Maximize Use of Water Sources

In order to use the Central and West Coast groundwater basins to their full potential, strong relationships with all basin stakeholders is crucial. Currently, there are 141 water rights holder in the Central Basin and 24 in the West Coast Basin. Additionally, there are six MWD member agencies (CBMWD, WBMWD, Long Beach, Los Angeles, Torrance, and Compton). While at first glance coordination among basin stakeholders may seem difficult, there exists a tremendous potential when all of these stakeholders are working together. It is an objective of WRD to coordinate the efforts of these stakeholders toward common goals.

Objective 3: Maximize Use of Seasonally Discounted Imported Water

The development of new projects and programs are needed to efficiently manage the basins. As the demand for water increases, so does its price. For example, imported barrier water that was once almost free has increased by 2,500% since 1961. The economics of many of WRD's ongoing basin management functions requires reevaluation, as do the District's projects. Along with this reevaluation of projects, the District requires a mechanism for the ongoing development of new projects and programs.

Goal 4: Develop and Foster Effective Relationships and Communications for the Benefit of Residents and Businesses of the Central and West Coast Basins

Issues facing the water community in California are increasingly complex and frequently interconnected. Over 150 groundwater producers and nearly four million residents rely on the WRD to replenish the groundwater supply and protect the quality of groundwater in the Central and West Coast basins. The District's relationships and interactions with political, legislative, business, environmental, and consumer interests directly impact its ability to implement projects and programs to fulfill its mission.

It should be noted that Goal Four, while being discussed as a separate goal, is integral to the successful implementation of the other three goals. The establishment of mutually beneficial relationships between the District and basin stakeholders is critical to the efficient execution of District operations.

The following three objectives were developed to ensure that the District meets its goal to develop and foster effective relationships and communications with basin stakeholders.

Objective 1: Enhance and Maintain Relationships With Elected and Appointed Representatives and Regulators Who Influence Policies of Interest and Relevance.

This objective will position the District with elected and appointed representatives as well as representatives of regulatory agencies who shape policies of interest to the WRD. The focus is to continue to cultivate and nurture relationships with local, state, regional, and federal elected and appointed officials to advocate District concerns, address critical water issues, and provide information regarding District policies and priority activities.

Objective 2: Enhance and Maintain Relationships With Stakeholders

This objective will enhance and maintain relationships with WRD stakeholders to create a favorable climate for the District to accomplish its programs and activities. This objective focuses on successfully positioning the District with its stakeholders and on practicing responsible public agency citizenship. Additionally, the program will create opportunities for the WRD to become more visible within the service area.

Objective 3: Enhance and Maintain Contacts and Mediums to Communicate District Policies, Programs and Board Actions

This objective will enhance and maintain contacts and mediums to provide information about District policies, programs, and Board actions to stakeholders. This strategy focuses on utilizing selected media outlets and distribution tools to communicate consistent and effective information about the District's mission and programs.

WRD Strategic Priorities

WRD's strategic priorities are considered essential to WRD achieving its mission and goals. They warrant close scrutiny by the Board of Directors and require the greatest level of stakeholder input. These priorities were evaluated and further screened to pinpoint the most critical priority tasks to be accomplished.

Using the current goals and objectives as a guide, District staff reevaluated existing projects and programs to ensure they continue to achieve their desired intent. Additionally, new projects and programs were identified in order to ensure the goal can be adequately met.

The table below summarizes the top priority and high priority projects. A complete description of each of these projects follows.

Top Priorities

- ✓ Implement Groundwater Storage Arrangements in Central and West Coast Basins
- ✓ Complete Construction and Begin Operation of Leo J. Vander Lans Water Treatment Facility
- ✓ Implement the Caltrans 105 Freeway to the Dominguez Gap Barrier Pipeline Project
- ✓ Implement Alamitos Physical Barrier Project
- ✓ Construct Goldsworthy Desalter Horizontal Well
- ✓ Help the County Department of Public Works Develop the Whittier Narrows Conservation Pool Project
- ✓ Help the County Department of Public Works Develop the San Gabriel River Rubber Dams Project
- ✓ Work with the County Department of Public Works to Develop Opportunities for Increased Spreading in the Dominguez Gap Spreading Grounds
- ✓ Convert the Sepulveda Wells to Injection Wells
- ✓ Work with State and Local Agencies to Increase the Use of Recycled Water in the Montebello Forebay
- ✓ Continue Safe Drinking Water Program
- ✓ Work with the City of Los Angeles Department of Water and Power to Evaluate Methods for Utilization of Los Angeles River Water for Groundwater Replenishment
- ✓ Develop Seasonal Injection Scenarios at Barriers
- ✓ Develop ASR Wells for Cost-Effective Seasonal Water Injection Inland of Seawater Barriers

High Priorities

- ✓ Construct a Desalter Brine Line
- ✓ Expand the Goldsworthy Desalter
- ✓ Revise In-Lieu Program to Reduce Pumping Near Barriers
- ✓ Work with the County Department of Public Works to Enhance the Effectiveness of the Spreading Grounds and Barrier Injection Facilities

Top Priorities

Implement Groundwater Storage Arrangements in Central and West Coast Basins

Mission

The implementation of storage arrangements will provide the framework to cost effectively put to beneficial use the available storage space in the Central and West Coast basins.

Description

Groundwater storage arrangements are designed to provide cost savings to the District and pumpers and to improve the health of the basins by utilizing available storage capacity. Groundwater basins allow for the storage of water in the ground for use at a later time. This underground storage provides a reliable supply of high quality, low cost water. Many groundwater basins currently under-utilize their storage capabilities. With the increasing cost to store water above ground, there is added motivation to better utilize the storage capabilities of groundwater basins.

The development of storage programs provides the framework for negotiating "Put and Take" agreements with third parties, such as MWD. The development of a "Put and Take" program, one in which a third party "puts" water into the basin during times of surplus and "takes" water out of the basin during times of drought, can provide basin stakeholders with an economic benefit and improve the health of the basin by storing water in areas with low groundwater levels and extracting water from areas with high groundwater levels.

The development of storage programs would provide individual pumpers with an option to store and recover water from their aquifer storage and recapture (ASR) wells. Storage programs provide a method for individual pumper storage within the current adjudication. More importantly, such programs provide storage to capture seasonally available surplus water for later use.

Complete Construction and Begin Operation of Leo J. Vander Lans Water Treatment Facility

Mission

The purpose of the Leo J. Vander Lans Water Treatment Facility is to provide advanced treatment to recycled water through microfiltration, reverse osmosis, and UV disinfection for injection in the Alamitos Gap Barrier.

Description

The District is in the final construction phase of this project which will provide advanced treatment to recycled water through microfiltration, reverse-osmosis, and UV disinfection. The advanced treated water will replace 50% of the imported water now supplying the nearby Alamitos Gap Barrier, thereby improving the reliability and quality of supply to the barrier.

The project will supply 3,000 acre-feet per year for the Alamitos Barrier. The Long Beach Water Department will operate and maintain the new treatment plant for WRD. Treatment cost per acre-foot is expected to equal the current cost of the imported water used for the barrier. As the cost of imported water rises, the Leo J. Vander Lans Water Treatment Facility will become increasingly more cost effective.

Implement the Caltrans 105 Freeway to Dominguez Gap Barrier Pipeline Project

Purpose

The purpose of the Caltrans 105 Freeway to Dominguez Gap Barrier Pipeline Project is to cost effectively put to beneficial use water that is currently lost to the ocean as a result of dewatering operations at the 105 Freeway.

Description

The California Department of Transportation is dewatering an area of the 105 Freeway to limit negative impacts of groundwater on the structure of the freeway. Caltrans is currently pumping from four of 20 wells installed to control groundwater levels. This water is being pumped from the ground and discharged in the Los Angeles River.

The 105 Freeway is located in the Central Basin, which is adjudicated. The adjudication established rights and limitations on groundwater extractions. Because Caltrans is not a party to the adjudication, and therefore, not a water rights holder, the water rights for the estimated 3,000 to 5,000 acre-feet per year that need to be extracted must be either purchased or leased. Additionally, water extracted from the Central Basin is subject to an assessment that is used to purchase water to replenish the groundwater supplies.

WRD has reached an agreement with Caltrans and is currently developing a method of returning the extracted water to the groundwater aquifer by transporting the water via a dedicated pipeline to an existing seawater intrusion barrier – the Dominguez Gap Barrier. WRD is obligated to purchase all of the water injected into this barrier system, which has an annual average demand of 6,000 acre-feet. By the start of WRD Fiscal

Year 2003-04, the demand at the Dominguez Gap Barrier is estimated to increase to over 7,100 acre-feet per year as a result of new wells being installed by the Los Angeles County Department of Public Works.

The total estimated cost for this project is $14.5 million based on a report generated for Caltrans by CH2MHill. Caltrans has agreed to provide $8 million to WRD toward this project. The balance of $6.5 million will be funded by WRD. WRD has performed an economic analysis that shows this project will result in costs savings to the District.

Implement Alamitos Physical Barrier Project

Mission

The purpose of the Alamitos Physical Barrier Project is to construct a physical barrier at the Alamitos Gap to provide a more cost effective method of seawater intrusion protection.

Description

The Alamitos Physical Barrier Project was first identified as a viable project in the 1999 *Alternative Seawater Feasibility Study.* The purpose of the study was to identify feasible alternative barrier technologies for each of the three barrier locations, rate the barrier alternatives in terms of cost, reliability and environmental impacts and recommend pilot studies applicable to the most promising barrier technology. For the Alamitos Gap Barrier, a physical barrier consisting of the construction of a subterranean deep soil mixed wall was identified as the most promising alternative.

The proposed Alamitos Physical Barrier Project (APBP) will consist of 11,000 feet of an impermeable barrier, approximately 100 feet deep. It will extend from a point about 2,000 feet southwest of the northwest end of the existing injection well system to a point approximately 4,000 feet south of the south end of the existing system. The APBP will create a physical barrier to protect against seawater intrusion.

Goldsworthy Horizontal Well

Mission

The Goldsworthy Horizontal Well will enhance the remediation of the saline plume trapped in the West Coast Basin inland of the West Coast Basin Barrier Project.

Description

The Goldsworthy Horizontal Well project involves the construction of a horizontal well designed to extract the high saline water concentrated at the bottom of the deep aquifers located in the West Coast basin. The

construction of this well will greatly increase the chloride concentration of extracted groundwater, thereby expediting the treatment of the trapped saline plume. This well differs from the existing well at the Goldsworthy Desalter project since extracted water will be pumped only from the high saline portion of the aquifer.

Whittier Narrows Conservation Pool Project

Mission

The Whittier Narrows Conservation Pool Project will provide for the capture and conservation of approximately 2,900 acre-feet per year of local stormwater that would otherwise be wasted to the ocean.

Description

The Whittier Narrows Dam provides flood control, recreation and water conservation for residents of Los Angeles County. Of particular interest to WRD is the water conservation aspect of the dam's operations. During storm events, the dam is used to conserve local stormwater for later release into the Rio Hondo and San Gabriel River Spreading Grounds. Current operational constraints, however, limit the quantity of water that can be stored for water conservation purposes.

The Whittier Narrows Conservation Pool Project involves increasing the conservation flood pool elevation from 201.6 feet to 209 feet, thereby allowing for the conservation of an additional 2,900 acre-feet of local stormwater per year. Components of this project include increasing the elevation of nearby roads and modifications to the nearby Whittier Narrow Wastewater Reclamation plant to mitigate impacts to the plant when the flood pool elevation reaches 209 feet.

San Gabriel River Rubber Dams

Mission

The San Gabriel River Rubber Dams project will allow for the capture and conservation of an additional 3,600 acre-feet per year of local stormwater that would otherwise be wasted to the ocean.

Description

In Spring 2002, the Los Angeles County Department of Public Works received notification from the California Department of Water Resources that it had been selected to receive Proposition 13 funding for the construction of two rubber dams in the San Gabriel River. The construction of the rubber dams, known as San Gabriel Boulevard Dams 2 and 3, will provide for the conservation of an additional 3,600 acre-feet per year of stormwater, thereby reducing the quantity of imported water WRD must purchase for replenishment in the spreading grounds.

Implementation of this project will result in a savings of nearly $1 million annually to WRD.

Develop Opportunities for Increased Spreading in the Dominguez Gap Spreading Grounds

Mission

The development of spreading grounds in the Dominguez Gap area will allow for the capture and infiltration of water from the Los Angeles River that is currently being wasted to the ocean.

Description

The Dominguez Gap Spreading Grounds are located adjacent to the Los Angeles River and consist of three unlined spreading basins. Considerable work has been done to evaluate the recharge potential of these basins to increase the conservation of local water resources.

In February 2003, WRD consultants completed a study that indicated portions of the spreading grounds were suitable for use in conservation of local water resources and recommended improvements to the basin in order to optimize their recharge capacity. In particular, the infiltration capacity of the basin known as the West Basin could be significantly increased through slight changes in management and minor physical modifications including minor improvements to the basins to enhance recharge capacity.

Convert Sepulveda Wells to Injection Wells

Mission

The conversion of the Sepulveda Wells to Injection Wells will allow the District to purchase seasonally available imported water from MWD, thereby reducing the demand for more expensive non-interruptible water required at the nearby West Coast Basin Barrier.

Description

WRD developed two wells in the West Coast Basin in the vicinity of the West Coast Basin Barrier project to provide high saline water for the proposed Orduña Desalter. Despite the fact that these wells were producing high saline water, it was the consensus of the desalter working group to move forward only with the Goldsworthy Desalter. In order to utilize these wells for cost-effective and beneficial use of the basins, the District proposes to convert these wells to injection wells.

Because the Sepulveda wells are located in the vicinity of the West Coast Basin Barrier, injection of water through these wells will have a direct impact on the quantity of water required for injection at the barrier.

WRD's Regional Groundwater Model suggests the reduction in barrier demand would be approximately ¾ acre-foot for each acre-foot of injection at these wells. This anticipated reduction in injection demand was reviewed and agreed to by District Staff and WRD's Technical Advisory Committee.

The financial benefit to the District of injecting water at these wells is achieved by the ability to utilize less expensive seasonal water for injection at these wells. Currently, seasonal water is approximately 60% the cost of more expensive non-interruptible water which must be injected into the barrier.

Increase Use of Recycled Water in the Montebello Forebay

Mission

The increased use of recycled water in the Montebello Forebay will reduce the overall replenishment costs of the basins by offsetting the District's expensive imported water purchases with increased usage of readily available, highly treated and inexpensive recycled water.

Description

The blend ratio and quantity of recycled water that may be used for replenishment in the Montebello Forebay is limited by a permit issued by the Los Angeles Regional Water Quality Control Board to the Los Angeles County Sanitation Districts. It is WRD policy to maximize recycled water use up to the permitted limit in order to provide for the least expensive replenishment of the basins. Currently, the cost of tertiary treated recycled water is only 5% of the cost of imported water.

The District has completed health effects studies and continually monitors water quality in the vicinity of the Montebello Forebay to ensure the continued safety of recycled water and to confirm that public health is not jeopardized. The results of these studies and the extensive monitoring suggest that incrementally increasing the use of recycled water would not adversely affect groundwater quality. The State Department of Health Services is awaiting the results of additional studies before considering any adjustments in the cap or the blend ratio.

Continue Safe Drinking Water Program

Mission

The Safe Drinking Water Program provides basin water rights holders with incentives to construct wellhead treatment facilities to extract, treat and put to beneficial use contaminated groundwater that would otherwise be left in the ground.

Description

For wells with high VOC concentrations, WRD has established the Safe Drinking Water Program. This program provides pumpers with treatment equipment to remove VOCs from the groundwater, thereby encouraging pumpers to keep wells in production and provide treatment of contaminated groundwater.

Recently, WRD has expanded the program to include treatment alternatives for non-VOC primary and secondary standard constituents such as iron and manganese as well as a pilot study for constituents such as arsenic. With this expanded format, many more pumpers have expressed an interest in installing such treatment facilities.

Evaluate Methods for Utilization of Los Angeles River Water for Groundwater Replenishment

Mission

The evaluation of methods for utilization of Los Angeles River water will explore opportunities to conserve a portion of the approximately 100,000 acre-feet per year of water that is currently lost to the ocean via the Los Angeles River. Any evaluation must be in cooperation with the appropriate City of Los Angeles departments.

Description

The District is continually evaluating projects and programs to reduce reliance on imported water and increase utilization of local water resources. Baseflow in the Los Angeles River represents a possible opportunity for the District to capture water that is currently lost to the ocean. Potential opportunities for use of this water include the development of spreading grounds adjacent to the river, utilization of the water in the existing Rio Hondo and San Gabriel River spreading grounds, or advanced treatment of the water for injection into deeper, potable aquifers.

Develop Seasonal Injection Scenarios at Barriers

Mission

The development of seasonal injection scenarios at the barriers will provide the District with cost savings on imported water purchases at the West Coast, Dominguez Gap and Alamitos Barriers by allowing the District to offset costly non-interruptible imported water with less expensive seasonally available imported water.

Description

WRD is currently purchasing imported water for the three barrier systems at the MWD non-interruptible rate, which is the most expensive

classification of water that MWD offers. Because the continuous supply to the barriers is not as vital as the continuous supply to those purveyors that serve municipal and industrial users, WRD is in a position to negotiate a reduced price from MWD in exchange for granting MWD the ability to interrupt deliveries to the barrier for short periods of time.

Develop ASR Wells for Cost-Effective Seasonal Water Injection Inland of Seawater Barriers

Mission

The development of ASR wells inland of the seawater barriers will provide the District with opportunities to take advantage of less expensive seasonally available water thereby reducing the demand for more expensive firm demand water at the barriers.

Description

Imported water for the three barrier systems is purchased by WRD from MWD member agencies at the non-interruptible rate, which is MWD's most expensive classification. Due to this high cost, the District continues to evaluate methods of reducing injection demand at the barriers. Modeling results have shown that the development of ASR wells inland of existing barrier systems significantly reduces the quantity of non-interruptible water that must be purchased for seawater intrusion protection. Additionally, because the ASR wells would not need to be operated continuously, the water purchased for injection through these wells could be purchased at MWD's seasonal rate, which is approximately two-thirds of the non-interruptible rate.

High Priorities

Construction of Desalter Brine Line

Mission

The purpose of the desalter brine line is to provide a cost effective method to discharge brine from the Goldsworthy Desalter and other desalination and RO treatment plants adjacent to the pipeline alignment.

Description

The Robert W. Goldsworthy Desalter currently discharges brine generated at the facility into a Los Angeles County Sanitation District (LACSD) sewer line. The fees for this discharge include a "one-time" connection fee of nearly $1.7 million and a monthly service fee of $3,600. To date, the District has paid approximately $200,000 of the "one-time" connection fee, with the remaining balance due by June 2006. If the District develops an alternative to discharge into the LACSD sewer line prior to June, 2006,

it will be exempt from paying the remaining balance of the "one-time" connection fee of $1.2 million.

The construction of the Desalter Brine Line would provide the District with an alternative to brine disposal in the LACSD sewer line, and therefore would not be obligated for the remaining $1.2 million balance of the "one-time" connection fee. Additionally, the District may receive revenue from other users located near the proposed pipeline alignment for their discharge into the brine line.

Expansion of Goldsworthy Desalter

Mission

The expansion of the Goldsworthy Desalter would increase the quantity of high saline water treated in the West Coast basin and would expedite the remediation of the trapped saline plume.

Description

The Robert W. Goldsworthy treatment facility currently pumps and treats approximately two and a half million gallons per day of high saline water from the West Coast basin. The existing project was designed with the intent of a future expansion which would double the capacity of the facility. This expansion would be required to treat additional high saline water extracted as a result of the development of new wells or the conversion of existing wells which would provide water to the plant.

Revise In-Lieu Program to Reduce Pumping Near Barriers

Mission

Revisions to the In-Lieu Program that encourage pumping reductions in the vicinity of the barriers will result in cost savings to the District due to the reduced demand for costly injection water.

Description

WRD's modeling efforts have shown that reductions in pumping in the vicinity of the barrier systems reduce demands on the barrier. Extensive review of the modeling results by District staff and WRD's Technical Advisory Committee led to a general consensus that for each reduction in pumping, barrier demand decreases approximately ¾ acre-foot. It is this benefit of reduced injection that will be used to evaluate the economic feasibility of implementing revisions to the In-Lieu Program near the barriers.

Work with the County Department of Public Works to Enhance the Effectiveness of the Spreading Grounds and Barrier Injection Facilities

Mission

The District staff needs to more thoroughly understand the operational constraints of the spreading grounds and barrier facilities in order to identify potential opportunities to reduce replenishment costs. The District will gain that understanding by working as cooperative partners with the staff of the County Department of Public Works.

Chapter IV – Implementation and Actions Plans

This Strategic Plan provides goals and objectives to guide WRD into the future. As the water environment changes, the District may develop new projects and programs to achieve these goals and objectives.

Our existing projects and programs need to be re-evaluated on a regular basis to determine if they continue to help WRD achieve its goals and objectives. Additionally, this Strategic Plan Update process identified additional projects and programs necessary to complement existing efforts to achieve WRD goals and objectives.

WRD staff and Board will compare all existing projects and programs to the goals and objectives developed in this Strategic Plan Update process to determine if any additional efforts are required. Through this process, new projects and programs may be identified. These efforts will be assigned priorities and schedules. The new and continuing projects and programs, along with their schedules and associated benefit-costs analysis, will make up the WRD Five Year Capital Improvement Program.

Staff will develop a process by which future proposed District activities will be compared to WRD goals and objectives. The process will also include how a conceptual project or program will be presented to the Board, evaluated on an economic basis, and reviewed by stakeholders as may be required.