ATTACHMENT F

SANDAG Growth Management Strategy

REGIONAL GROWTH MANAGEMENT STRATEGY

January 1993

(Consistency Checklist Revised
January 1994)

San Diego
ASSOCIATION OF
GOVERNMENTS

San Diego Association of Governments
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The 18 cities and county government are SANDAG serving as the forum for regional decision-making. The Association builds consensus, makes strategic plans, obtains and allocates resources, and provides information on a broad range of topics pertinent to the region's quality of life.

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Revised July 24, 2001

ABSTRACT

TITLE:	Regional Growth Management Strategy
AUTHOR:	San Diego Association of Governments
SUBJECT:	Policies and Recommended Actions to Address the Adverse Impacts of Growth in the San Diego Region
DATE:	January 1993
LOCAL PLANNING AGENCY:	San Diego Association of Governments 401 B Street, Suite 800 San Diego, CA 92101
NUMBER OF PAGES:	139
ABSTRACT:	The January 1993 Regional Growth Management Strategy was prepared by SANDAG staff and the Regional Growth Management Technical Committee. The Strategy takes a quality of life approach to growth management, and contains standards and objectives and recommended actions for nine quality of life factors: air quality, transportation/congestion management, water, sewage disposal, sensitive lands and open space preservation and protection, solid waste management, hazardous waste management, housing, and economic prosperity. Recommendations regarding public facilities financing and siting, and growth rate, phasing and land use distribution are also included. The Strategy also contains a self-certification process for determining local and regional agency consistency.

ACKNOWLEDGEMENTS

The Regional Growth Management Strategy was prepared with the cooperation and assistance of the Regional Growth Management Technical Committee. The members of the Technical Committee are listed below:

REGIONAL GROWTH MANAGEMENT
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RESOLUTION
No. 93-31

ADOPTING THE REGIONAL GROWTH
MANAGEMENT STRATEGY - JANUARY 1993

WHEREAS, the San Diego Association of Governments (SANDAG) serves as the Regional Planning and Growth Management Review Board (Regional Board) for the San Diego region; and

WHEREAS, SANDAG, serving as the Regional Board, is authorized to prepare a regional strategy for managing growth, including any required environmental analysis; and

WHEREAS, a Negative Declaration for the Regional Growth Management Strategy was certified by the Regional Board by Resolution No. 92-31 on January 24, 1992; and

WHEREAS, the cities, the County of San Diego and various regional agencies have participated in the preparation of the Regional Growth Management Strategy; and

WHEREAS, the Regional Growth Management Technical Committee has recommended approval of the Regional Growth Management Strategy; NOW THEREFORE

BE IT RESOLVED that the SANDAG Board of Directors, serving as the Regional Planning and Growth Management Review Board for the San Diego region, hereby adopt the Regional Growth Management Strategy, dated January, 1993.

PASSED AND ADOPTED this 22nd day of January 1993.

Gloria E. McColl
CHAIRPERSON

ATTEST: _____
SECRETARY

San Diego
ASSOCIATION OF
GOVERNMENTS
First Interstate Plaza, Suite 800
401 B Street
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(619) 595-5300 Fax (619) 595-5305

RESOLUTION
No. 92-31

CERTIFICATION OF THE NEGATIVE DECLARATION FOR
THE REGIONAL GROWTH MANAGEMENT STRATEGY

WHEREAS, the San Diego Association of Governments (SANDAG) serves as the Regional Planning and Growth Management Review Board (Regional Board) for the San Diego Region; and

WHEREAS, SANDAG, serving as the Regional Board, is authorized to prepare a regional strategy for managing growth, including any required environmental analysis; and

WHEREAS, an Environmental Initial Study has been prepared for the Draft Regional Growth Management Strategy (dated July, 1991), as directed by the California Environmental Quality Act (CEQA); and

WHEREAS, based on the Environmental Initial Study, it has been determined that the Regional Growth Management Strategy will not have a significant impact on the environment and the preparation of an Environmental Impact Report is not required; and

WHEREAS, a Draft Negative Declaration was prepared for the Regional Growth Management Strategy (dated July, 1991) and circulated for public review and comment both locally and through the State Clearinghouse Review process; and

WHEREAS, the California Environmental Quality Act requires that the Regional Board approve the Negative Declaration, after considering the proposed Negative Declaration and comments, prior to approval of the Regional Growth Management Strategy; and

WHEREAS, the review and evaluation procedures required by the California Environmental Quality Act have been met; NOW THEREFORE

BE IT RESOLVED, that the SANDAG Board of Directors, serving as the Regional Planning and Growth Management Review Board for the San Diego Region, hereby certifies the Negative Declaration prepared for the Regional Growth Management Strategy.

PASSED AND ADOPTED this 24th day of January, 1992.

CHAIRPERSON

ATTEST: SECRETARY

INTRODUCTION

INTRODUCTION

The San Diego region, its people and its environment, is about as diverse as a place can be. We come from all walks of life, and this fact, plus the sheer size of the area, contributes to our varied points of view.

But most of us agree about at least one thing -- we don't want the region's growth to make living here a hassle, to hurt our "quality of life". That is what this Regional Growth Management Strategy is all about -- deciding what we are going to do together to manage our growth.

"Together" is a key principle of this Strategy. The actions proposed here will have to be carried out by all of us -- individuals, families, and workers, and by government and business as well.

Managing growth together has the endorsement of the region's voters. In November, 1988, they approved Proposition C, the Regional Planning and Growth Control Initiative, advising local government to jointly prepare a regional plan for growth. This Strategy responds to the voters' wishes.

Our actions in carrying out the Strategy should be aimed at preserving or improving our "quality of life" -- a frequently-used term that is often hard to define.

When they endorsed regional growth management, the voters helped define "quality of life" for us. As a regional community, we should work to improve such things as our air, water, transportation, and waste management.

The Regional Growth Management Strategy presented on the following pages identifies basic factors that help determine the quality of our lives in this region. It also describes what we should do to ensure that we will enjoy the region as much in the future as we do now.

There are at least two ways that the Regional Growth Management Strategy is different from what we have done in the past. These differences also distinguish our area from most other metropolitan areas in the United States.

First, the Regional Growth Management Strategy will be the one place where multiple actions affecting growth and the region's quality of life will be looked at together. In the past, building highways, locating a new landfill site, or preserving open space have been handled primarily by individual agencies. The Strategy pulls a number of the important quality of life issues together in one place to help us better understand what we need to do to maintain and improve our quality of life.

Second, the Strategy establishes a framework for managing growth in the region; a way for everyone in the region to agree and cooperate on the best ways to manage growth and improve our quality of life. All of the region's local governments, the 18 cities and the County of San Diego, will have to approve the Strategy and agree to carry out the actions necessary to make it work. In some cases every community in the region will have to agree to do similar things, for example, recycling 50% of the trash in each local jurisdiction by the year 2000. In others, however, there will be trade-offs where one community will have to do more in one quality of life area, while another community takes the lead in another. Locating region-serving facilities such as sewage treatment plants, landfills and jails are examples of such trade-offs.

The Strategy sets forth a vision for regional growth management which is contained in the objectives. These objectives are to:

- clean up our air
- ensure a sufficient supply of water and improve the quality of our surface and groundwater
- preserve and protect sensitive lands and open space while protecting private property rights and providing public access
- measure the impacts of the region's growth rate on the standards and objectives
- work toward a prosperous economy
- provide an adequate supply of housing for all income levels throughout the region
- reduce average travel times and trip lengths for the region's residents
- provide alternatives to single-occupant vehicle use and reduce traffic congestion
- provide adequate funding and siting for regional public facilities
- meet federal sewage treatment standards and use by-products as resources
- recycle and reduce solid waste and provide adequate disposal facilities
- reduce hazardous wastes and treat and dispose of them properly

The level of cooperation, and the commitment to working together on regionwide growth issues is a challenge. Our future quality of life depends on our success.

AN OVERVIEW OF THE REGIONAL GROWTH MANAGEMENT STRATEGY

AN OVERVIEW OF THE REGIONAL GROWTH MANAGEMENT STRATEGY

By 2015 the San Diego Association of Governments (SANDAG) forecasts a total population for the region of 3.63 million. This means an average increase in population of 44,500 people per year, or about as many people as currently live in the City of Poway. This is an increase of about 1.13 million over the 2.5 million counted in the 1990 Census, and represents a 44 percent increase. Associated with the population growth is an increase of about 316,000 new jobs and 445,000 new housing units. This forecast is preliminary and may be revised in the future based on new economic and demographic information.

The Regional Growth Management Strategy is intended to help ensure that the impacts of this projected growth do not cause our quality of life to suffer. The Strategy is made up of four basic components: the quality of life factors, standards and objectives; recommended actions; consistency with local/regional plans; and monitoring of the growth forecast and Strategy (see chart on page 5).

Quality of Life Factors

To maintain and improve our quality of life as the region continues to grow, the Strategy focuses on nine important environmental and economic factors. These quality of life factors are:

- Air Quality
- Transportation System and Demand Management
- Water
- Sewage Treatment
- Sensitive Lands and Open Space Preservation and Protection
- Solid Waste Management
- Hazardous Waste Management
- Housing
- Economic Prosperity

They were chosen because each addresses issues that affect the whole San Diego region, not just individual jurisdictions. Most were also included in the ballot initiative, Proposition C (a copy of which may be found in Appendix 3). During the preparation of the Strategy other potential quality of life factors such as crime, energy, and schools were discussed. These factors, and others such as historic and cultural resources, may be included in updates of the Strategy.

Quality of Life Standards and Objectives

To determine how well we're doing with respect to maintaining or improving our quality of life, standards and objectives were assigned to each factor. These standards and objectives are the goals of the Strategy. Our ability to achieve the quality of life standards and objectives will be the primary measure of the Strategy's success.

The standards and objectives are set in various ways, through federal or state mandates, or by regional initiative. Examples include state and federal air quality standards, regional open space preservation policies, and the region's Trip Reduction Program to reduce drive alone auto trips.

The standards and objectives are, as a rule, measurable so that we can monitor how well we're doing in meeting them each year. Our success in achieving these quality of life standards and objectives will depend on everyone, including government agencies, businesses and individuals doing their part. And if we succeed, the region will be a better place to live, work and play.

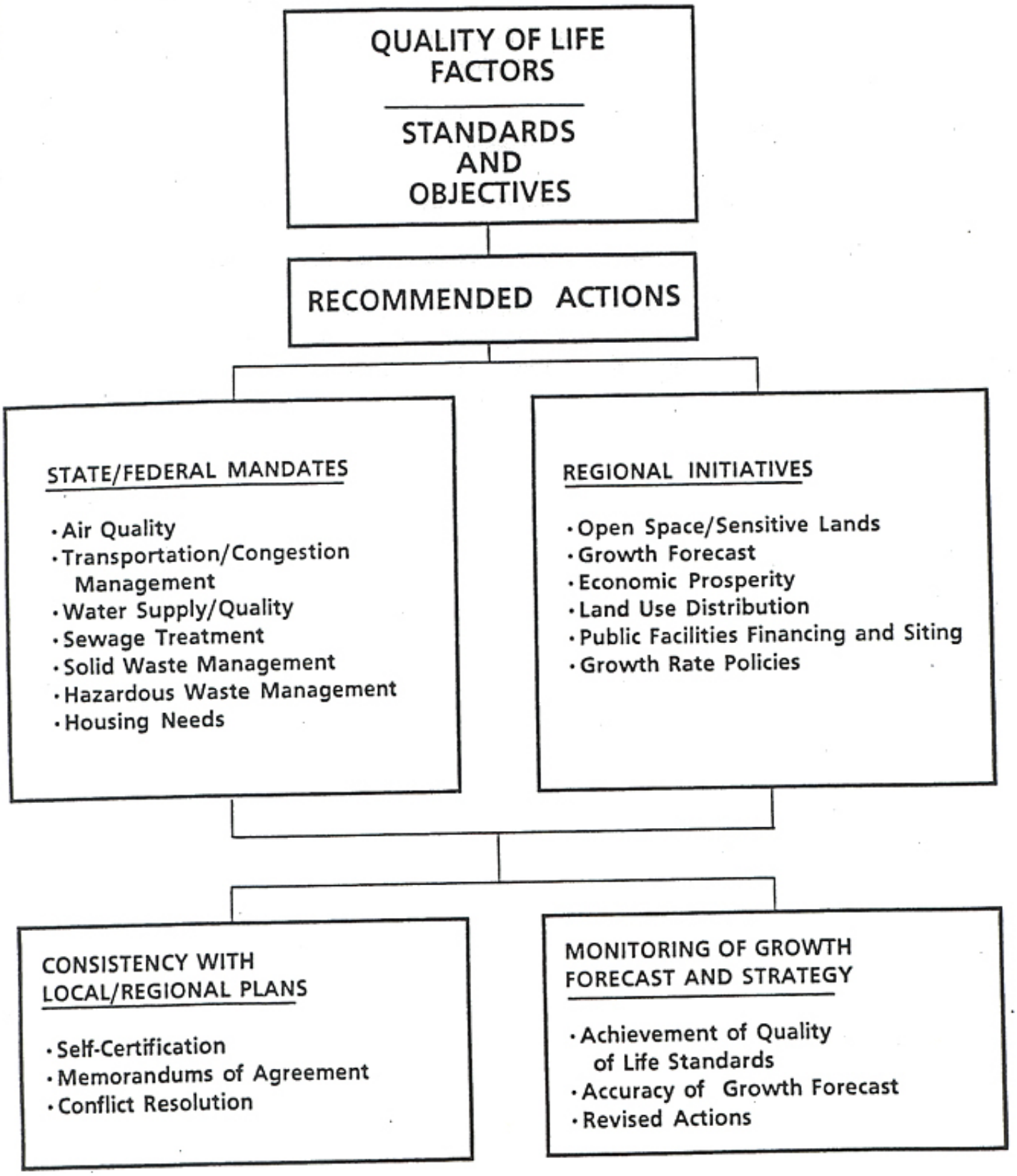
Recommended Actions

The actions recommended to achieve the quality of life standards and objectives can be divided into two categories: state and federal mandates and regional initiatives, i.e., those things the region has decided to do on its own. Recommended actions associated with state/federal mandates are included in SANDAG's Regional Housing Needs Statement, Transportation Control Measures, and Congestion Management Program; the Air Pollution Control District's Regional Air Quality Strategy; the County of San Diego's Hazardous Waste Management Plan; and local jurisdiction Source Reduction and Recycling Elements and general plan housing elements. These documents make up most of the recommended actions now contained in the Strategy.

Work has not been completed on most of the regionally initiated plans and programs. A Definition of Regionally Significant Open Space has been completed, but work is continuing on the Regional Open Space Element. Work is also being done on the issues of regional public facilities financing, the addition of an economic prosperity quality of life factor, regional land use distribution (jobs/housing balance), and growth rate policies.

Our work towards meeting the quality of life standards and objectives will likely result in some conflicts between standards, and implementation difficulties. The resolution of these coordination and implementation problems will require the cities and the County to work closely with each other, regional agencies (e.g., the County Water Authority and Regional Water Quality Control Board), and in some cases state and federal agencies. Two examples of potential coordination and implementation issues are noted below.

THE REGIONAL GROWTH MANAGEMENT STRATEGY



- The objective of increasing water reclamation for use in irrigation and stream enhancement may be inhibited by the groundwater quality standards.

- Funding sources for open space acquisition will need to be found to help achieve the sensitive lands/open space quality of life objectives.

Local/Regional Consistency and Monitoring of Growth Forecast and Strategy

This section describes how we will monitor our progress in meeting the quality of life standards and objectives, and how local jurisdictions and regional single-purpose agencies will be involved in the implementation of the Strategy. A consistency/monitoring checklist will be used by local jurisdictions and regional single-purpose agencies to determine whether their policies, plans and ordinances are consistent with the Strategy.

AIR QUALITY

AIR QUALITY

POLICY: CLEAN UP OUR AIR

Introduction

Clean air is one of the most important factors determining the quality of life in the San Diego region. Although the quality of our air has gradually improved over the past ten years primarily because of controls on motor vehicles which have reduced tail pipe pollutants, the region exceeded the state standard for ozone on 96 days in 1989, 86 days in 1990 and 52 days in 1991, due to local sources.

Quality of Life Standards and Objectives

The California Clean Air Act of 1988 requires each air district to prepare and adopt a plan showing how that district will achieve the state's clean air standards. The plan is supposed to address both additional controls on stationary sources of pollution such as manufacturing and consumer products, and transportation control measures to reduce emissions from motor vehicles. The Act requires the San Diego region to achieve a 5 percent yearly reduction in emissions until state air quality standards are met.

SANDAG is responsible for developing and adopting the Transportation Control Measures (TCMs) to be included in the revised Regional Air Quality Strategy, based on the criteria adopted by the Air Pollution Control Board. The Air Pollution Control Board will approve the TCMs if they are consistent with the criteria.

The TCM Plan is designed to increase the number of people per motor vehicle during commuting hours to an average of at least 1.5 persons per car by 1999 (today we're at 1.1); achieve no net increase in vehicle emissions after 1997; reduce the rate of increase in vehicle trips to no more than the rate of increase in population; and implement all feasible transportation control measures.

SANDAG is also responsible for the preparation and adoption of the Congestion Management Program (CMP) required by state law. The CMP addresses both air quality and transportation issues. Traffic level of service and transit performance standards are established in the CMP. Design standards for new development and redevelopment to improve accessibility for pedestrians, bicycles and transit, and the TCMs will also be included in the CMP.

Recommended Actions

The Strategy includes recommended actions for land use and transportation to reduce traffic congestion and improve air quality. These actions will be, or are already, part of the Transportation Control Measures (TCMs) of the revised Regional Air Quality Strategy and the Congestion Management Program.

The most important recommended actions are summarized below.

1. Land Use Actions

   a. The Strategy will recommend local and regional actions intended to reduce trip lengths and improve accessibility for the region's urban residents to jobs, shopping and other regional activities.

   b. The Strategy also will recommend design guidelines for new development and redevelopment to improve accessibility for pedestrians, bicycles and transit. The cities and County will add air quality programs (or elements) to their general plan which will include these guidelines.

   c. The state-required Congestion Management Program, which is an element of the Strategy, contains a "Land Use Analysis Program." The purpose of the Congestion Management Program is to improve the coordination among local land use actions, transportation improvements and the Regional Air Quality Strategy. The purpose of the Land Use Analysis Program is to reduce congestion by achieving "Level of Service" standards for streets and highways and performance standards for transit.

      The Land Use Analysis Program has three parts:

      - an enhanced California Environmental Quality Act (CEQA) review of large development projects by the local jurisdiction/project sponsor to ensure traffic analysis and mitigation for project impacts on the regional transportation system, including state highways, regional arterials, and transit;

      - a regional cumulative impact analysis of all projects by SANDAG through the Regional Growth Forecast (Series 8); and

      - the design criteria for new development mentioned in item 1b. above.

2. Regional Trip Reduction Program

   The Regional Trip Reduction Program is one of the Transportation Control Measures in the Regional Air Quality Strategy. It attempts to reduce air pollution emissions

from motor vehicles by decreasing home-to-work and other vehicle trips, and shifting away from use of the single-occupant auto to carpools, transit and other alternatives.

Trip reduction involves government and business working together to encourage and make it easier to carpool, use transit, walk and bicycle, and telecommute. Examples of these types of actions are staggered work hours, employer provided vanpools, and cash incentives for ridesharing and using transit.

3. Transportation System Management

The primary Transportation System Management actions recommended in the Strategy are:

a. Optimizing the timing of the traffic signals in the region to reduce congestion on streets and roads and help reduce air pollution from motor vehicles;

b. Metering all freeway ramps in the urbanized area, where physically feasible, by 2000 to reduce traffic congestion; and

c. Setting up a Regional Traffic Control Center at CALTRANS to inform motorists of traffic problems and alternate vehicle routes.

4. Transportation Capacity Expansion to Help Provide Alternatives to Driving Alone

These recommended actions are Transportation Control Measures in the Regional Air Quality Strategy. They provide alternatives needed to support the Trip Reduction Program summarized in item 2., above. The actions include:

a. Expansion of transit capacity by about 17 percent over the capacity already planned for 2000;

b. Vanpool programs for expanded suburban commuter express capacity;

c. Designated lanes on freeways for carpools and buses;

d. More parking spaces for park-and-ride commuters; and

e. More bicycle facilities oriented to home-to-work travel.

TRANSPORTATION/ CONGESTION MANAGEMENT

TRANSPORTATION/CONGESTION MANAGEMENT

POLICY: PROVIDE ALTERNATIVES TO SINGLE-OCCUPANT VEHICLE USE AND REDUCE TRAFFIC CONGESTION

Introduction

The region's transportation system is a key to our quality of life. Freeways, streets and roads, buses, trolleys, trains, bikeways and walkways are all necessary to accommodate our needs and desires to travel. Our work, recreation, education, health care and many more daily activities are all dependent on our ability to get around. The region's vibrant economy has led to more and more travel in recent years - travel has been increasing at a rate higher than population growth over the past decade. However, people's needs and desires to travel are starting to create problems.

First, the region is running out of money and space to build the facilities to accommodate all this travel. Congestion is increasing, making travel less enjoyable and efficient. When we use up too much of our time trying to get from here to there, our quality of life suffers.

Second, the growing amount of travel in the region is causing problems in other areas important to our quality of life. Air quality is one example. The air quality section of the Regional Growth Management Strategy contains a program of transportation actions to help improve air quality by reducing the use of motor vehicles. The transportation section of the Strategy concentrates on standards, objectives and actions that will better manage our transportation system to provide people with as much mobility as possible, while trying to limit traffic congestion.

Quality of Life Standards and Objectives

The quality of life standards and objectives for transportation are being developed locally. These objectives emphasize managing existing transportation facilities to meet increasing travel need, rather than simply building more and more facilities. There are four transportation standards and objectives included in the Congestion Management Program (CMP).

1. A level of service standard for the region's arterial roads. Level of service is a measure of the traffic congestion on a road. Arterial streets and roads carry a significant amount of traffic traveling from one community to another. They supplement freeways or substitute for them in travel corridors where no freeways exist. The arterial level of service standard is Level of Service D. Mitigation measures should be employed

to maintain Level of Service D unless overriding social or economic circumstances exist which make such measures infeasible.

2. A level of service standard for the region's freeways. This standard is Level of Service D.

   The 1985 Highway Capacity Manual delay method should be used to measure levels of service on arterials and freeways. Descriptions of the level of service standards are contained in the Congestion Management Program. Level of Service D is characterized by restrictions on speed and the freedom to manuever on arterials and freeways, and intersection delays of 25 to 40 seconds on arterials. Generally, Level of Service D is considered to be acceptable in urban areas. Many urban areas in the San Diego region have streets and freeways that are currently at LOS E and F; therefore, LOS D is an improvement.

3. Level of service standards for the region's transit systems. These standards are:

   a. The frequency with which buses and trolleys arrive at bus stops and trolley stations -- 10 to 45 minutes depending on the type of transit service involved and the area served;

   b. The proportion of the region's residents served by transit - 50% of the region's housing units should be located within 1/4 mile of a transit route and 80% within 1/2 mile of a transit route; and

   c. Standards to minimize any inconvenience to transit passengers when they are transferring between areas served by different transit operators.

4. The Trip Reduction Program objective of achieving an average vehicle occupancy of 1.5 or more persons during weekday commute hours by 1999.

Meeting these standards and objectives will require many of us to change our travel habits. Carpooling and transit service will be much more accessible and efficient to use in many areas of the region, and many more people will choose them. While traffic problems will not go away, increases in congestion will be minimized despite continuing population and economic growth.

Recommended Actions

The recommended actions necessary to achieve the transportation/congestion management quality of life standards and objectives are, or will be included in the Regional Transportation Plan. There are four major recommended actions for achieving the transportation standards and objectives. These are the same recommended actions that are described in the preceding Air Quality section: Land Use Actions, the Regional Trip Reduction Program, Transportation System Management, and Transportation Capacity Expansion to Help Provide Alternatives to Driving Alone.

In addition, the recommendations included in regional transportation studies (e.g., the Route 78 Corridor Study and Mid-County Transportation Study) should be incorporated into local general plans. Note: The recommendations in these studies do not apply to all jurisdictions.

WATER

WATER

POLICY: ENSURE A SUFFICIENT SUPPLY OF WATER, AND IMPROVE THE QUALITY OF OUR COASTAL WATERS, BAYS, RESERVOIRS, STREAMS AND GROUNDWATER

Introduction

The San Diego region's economic wellbeing and quality of life depend heavily upon importing a reliable supply of water and maintaining clean coastal waters, bays, reservoirs, streams, and groundwater. More than 90 percent of the region's water supply is imported by the San Diego County Water Authority (CWA) from the Metropolitan Water District. This water comes from the Colorado River and northern California, and is distributed to the CWA's member agencies, which supply water to 98 percent of the people who live and work in San Diego County.

Because of our dependence on imported water, the availability of a sufficient supply of water to serve the residents, businesses, institutions and agricultural uses of the region is very important to our quality of life. This fact has become more apparent as the drought has led to the adoption of regulations and restrictions on the use and delivery of water.

After steadily rising over the past 20 years, water use per person has leveled off in the past few years. In the future, the amount of water used per person should continue to remain steady as the development occurring in warm inland areas is offset by long-term conservation measures.

Water quality issues are also important to the region's quality of life. State and federal government agencies are responsible for ensuring that the region's coastal waters, reservoirs, underground aquifers, bays and estuaries, and year-round streams are clean and safe for recreational and other uses. Groundwater supplies should be protected and enhanced, and production of reclaimed water which can be used for irrigation purposes or environmental enhancement (e.g., wetlands restoration) should be increased.

Quality of Life Standards and Objectives

The water standards and objectives can be divided into two categories, supply and quality. The standards and objectives for supply are set locally, primarily by the County Water Authority, based in part on decisions made by the Metropolitan Water District and other agencies such as the wastewater treatment agencies which produce reclaimed water. Water quality standards are set by the federal and state governments.

Water Supply

The supply of water depends on three components: water resources, infrastructure (pipelines, pumps and reservoirs) and demand management. Because of periodic drought and our dependence on imported water, we must be concerned with both the short-term and long-range aspects of water supply. Both are addressed in the following standards and objectives.

1. A safe and reliable supply of water should be provided to serve the residents, businesses, institutions and agricultural uses in the region.

2. Annual per capita increases in water use should be stabilized and, if possible, reduced through the implementation of the Memorandum of Understanding Regarding Urban Water Conservation in California (i.e., Best Management Practices), and other means. (Per capita water use calculations exclude agriculture.) (Approximately .22 acre feet of water is used annually per person.)

3. Local and regional programs and projects should be pursued to achieve a goal of producing 100,000 acre feet of water per year by 2010 within the County Water Authority service area in five-year increments as follows: 30,000 acre feet by 1995, 50,000 acre feet by 2000, 75,000 acre feet by 2005 and 100,000 acre feet by 2010.

4. Retail water agencies dependent upon the County Water Authority should be able to operate without water service from the CWA's aqueducts for up to 10 consecutive days to allow for CWA aqueduct maintenance and short-term operational outages.

5. To mitigate for the potential loss of imported water supplies due to an earthquake, emergency water storage facilities should be provided south of major faultlines sufficient to meet a minimum of 75 percent of normal demands for the duration of expected aqueduct outages.

6. Where groundwater is the source of water, sufficient availability should be assured before additional development is approved. Groundwater supplies should not be overdrafted in municipal or unincorporated areas.

Water Quality

Water quality is regulated by federal and state agencies. Inland and coastal surface waters such as reservoirs, bays, streams and the ocean, and groundwater are required to meet certain water quality standards, as is water reclaimed (from the wastewater treatment process) for irrigation purposes, or discharged into streams or other bodies of water.

Although the Regional Water Quality Control Board, in cooperation with the County and state health departments, is responsible for making sure these standards and objectives are met, surface and ground water quality is not regularly monitored by the Board (or any other agency) due to a lack of funding. Problems are, however, known to exist. For example, recent studies indicate the existence of water quality problems in San Diego's bays, estuaries and the coastal waters of the Pacific Ocean. We need a regular monitoring program to help determine the actions that should be taken to solve these problems.

Recommended Actions

To achieve the water supply standards and objectives, the following actions will need to be taken by the County Water Authority, its member agencies, and users, such as residents, businesses, institutions, and agriculture.

1. The County Water Authority should prepare, maintain and implement a Water Resources Plan and a Capital Improvement Program to provide a safe and reliable water supply for the region. The Water Resources Plan should be reviewed by the local agencies, SANDAG and the public prior to incorporation into the Regional Growth Management Strategy. Components of the plans should include but not be limited to:

    a. The construction of delivery, treatment and storage facilities, balancing costs, environmental and economic needs;

    b. Management of demand through Best Management Practices and other measures contained in the Conservation and Demand Management element of the Water Resources Plan;

    c. Support continued Metropolitan Water District policy of providing its service area with adequate supplies of water;

    d. Development of local supplies such as reclamation, groundwater basin rehabilitation and desalination, as are determined to be necessary in consideration of cost, environmental impact, reliability and other policy considerations; and

    e. Reviewing and seeking appropriate changes to state and federal law and policies as they relate to the region's water supply; e.g., legislation which would allow voluntary transfers of water between agriculture and urban areas.

2. SANDAG should pursue a legislative program which follows and takes positions on bills consistent with the quality of life standards and objectives and recommended actions for water availability.

3. Local jurisdictions should adopt water conservation ordinances including:

   a. Xeriscape (low water use landscaping) ordinances for all new construction except single family residential with privately installed and maintained landscaping, and agricultural uses. These should be adopted by 1993, and comply with the State Department of Water Resources' model ordinance.

   b. The addition of plumbing requirements, e.g., requiring the insulation of hot water pipes in unheated spaces, installation of ultra-low flush toilets, etc., for new construction and remodelling projects.

4. Retail water agencies should implement systems to compile water use information by customer class to help track the effectiveness of conservation measures. All agencies should have these systems in place by 1993.

5. The CWA, its member agencies and the local jurisdictions should implement the Best Management Practices (water conservation and demand management programs and projects) contained in the Water Resources Plan. The actions of residents, businesses, institutions, and agricultural users will also be important in managing our demand for water.

6. Retail water agencies with more than 200 customers should maintain drought response plans to cope with potential future water shortages. The use of greywater may be considered under emergency circumstances in conformance with the regulations of the County Department of Health Services.

7. Member agencies, cities and the County should adopt a water reclamation ordinance based on the model ordinance approved by the San Diego County Water Authority.

8. In addition to the storage facilities included in the Capital Improvement Program, member agencies should pursue interagency connections and agreements to share water for short-term emergencies. These emergency water agreements and interagency connections should be incorporated into the Emergency Water Annex of the San Diego County Emergency Plan.

9. A resource development offset program should be considered which would require new development to pay a fee for the development of new regional resources or otherwise offset their contribution to the increase in water use in the region.

10. For development dependent on groundwater, ordinances should be adopted which ensure that groundwater supplies will not be overdrafted.

SEWAGE TREATMENT

SEWAGE TREATMENT

POLICY: MEET FEDERAL SEWAGE TREATMENT STANDARDS, AND VIEW THE WATER AND SLUDGE BY-PRODUCTS AS RESOURCES RATHER THAN WASTE

Introduction

Sewage treatment has received a great deal of attention in the San Diego region. Of particular interest are the court proceedings between the City of San Diego and the Environmental Protection Agency relating to the level of sewage treatment required by the federal Clean Water Act. The City of San Diego's Metropolitan Sewerage System provides advanced primary treatment of sewage prior to discharge into the ocean at the Point Loma outfall. The federal Clean Water Act requires secondary treatment. The City of San Diego is seeking relief from the requirement to provide secondary treatment based on evidence that the advanced primary treatment is not harmful to the ocean waters. The City of San Diego Clean Water Program's mission is "to provide the public with a safe and efficient regional sewer system that protects our ocean water quality, supplements our limited water supply, and meets federal standards at the lowest possible cost."

All other ocean outfalls in the region, Encina, Oceanside and San Elijo, provide secondary sewage treatment.

Quality of Life Standards and Objectives

Compliance with the federal Clean Water Act is the primary quality of life standard for sewage treatment. Secondary treatment has been the level of treatment prescribed by federal law. However, scientific studies are being undertaken to determine whether advanced primary or the chemical equivalent of secondary treatment at the Point Loma facility will harm the environment.

Adequate sewage treatment capacity should be provided for new development concurrent with need.

The Regional Water Quality Control Board requires the disposal of sludge, a by-product of the sewage treatment process, at an authorized site, and the Environmental Protection Agency is in the process of developing regulations for its disposal or use. The Integrated Waste Management Plan described under Solid Waste Management will also provide standards relating to sludge recycling and disposal.

Reclamation of the water produced by the treatment process, is an objective which is linked with the need to develop additional water resources, and is discussed in more detail in the preceding section on Water.

Cost is the primary factor associated with providing secondary treatment, reclaiming water and disposing of or composting sludge for use. The cost of the Clean Water Program which includes secondary treatment and water reclamation facilities is estimated to range from $2.4 billion to $8 billion.

Recommended Actions

Two other quality of life factors, water and solid waste, are directly related to sewage disposal. Reclaimed water which can be used for irrigation, and sludge which is considered solid waste, are by-products of the sewage treatment process.

Recommended actions for sewage disposal include:

1. Agree on the level of treatment required for the Point Loma treatment facility;

2. Establish a one year pilot program to determine whether additional chemicals, new treatment methods or other changes could enable the Pt. Loma facility to comply with the Clean Water Act.

3. Include water reclamation plants, storage and distribution systems in the capital improvement programs of local sewage treatment plant operators to help meet the local water production objectives found in the Water section; and

4. Provide adequate facilities for recycling sludge for agricultural uses and landscaping, or its disposal if markets for these uses are not available.

5. Each agency should have guaranteed treatment capacity, or have contracted with another agency for capacity, prior to approving development projects.

SENSITIVE LANDS AND OPEN SPACE PRESERVATION AND PROTECTION

SENSITIVE LANDS AND OPEN SPACE PRESERVATION AND PROTECTION

POLICY: PRESERVE AND PROTECT OUR SENSITIVE LANDS AND OPEN SPACE AREAS

Introduction

The protection and preservation of open space in the region is one of the public's top priorities. As the region continues to develop, public pressure will increase on local governments and developers to plan for a comprehensive regional open space system. Open space means different things to different people. To some it means regional parks and beaches for picnics and ballgames, while to others it means protecting endangered plant and animal species. From a regional perspective open space means both of these things and more.

An integral part of this quality of life factor includes the integration of various habitat conservation activities within the region through the identification, design and management of a regional open space system. These efforts will create habitat areas that will be responsive to the need for preserving the ecological systems and enhancing the biologically diverse habitats necessary to support a variety of sensitive plants and animals.

A Regional Open Space Element is being prepared as a part of the Strategy to ensure that we protect and preserve a variety of open space types while protecting private property rights and providing public access.

Quality of Life Standards and Objectives

A "Definition of Regionally Significant Open Space" has been prepared to help identify the types of open space we want to preserve in the San Diego region. This definition is the first section of the Regional Open Space Element now being prepared as a part of the Strategy.

Regionally significant open space includes bodies of water and land which should remain natural, or remain relatively undeveloped or rural in character. The purpose of these areas is to define and separate the region from surrounding regions (Region-Defining), preserve natural resources (Natural Resource Areas), serve recreational needs (Region-Serving) and provide a contrast to the urbanized areas of the region (Rural Lands). Specific definitions for sensitive lands (Natural Resource Areas) such as steep slopes, floodplains and wetlands,

and the other types of significant open space are provided in the "Definition of Regionally Significant Open Space."

Our beaches, one of our greatest natural assets and recreation areas, are being studied as a part of a separate project, the Regional Shoreline Preservation Management Strategy. This strategy will establish standards and objectives for beach preservation, enhancement and access.

Recommended Actions

To protect and preserve our open space areas, the local jurisdictions and other affected agencies should:

1. Adopt ordinances for steep slopes, floodplains and wetlands that are consistent with the recommendations contained in the Definition of Regionally Significant Open Space.

2. Reach a consensus regarding how our remaining open space will be used, preserved and managed;

3. Acquire areas designated for use as regional parks;

4. Encourage agricultural uses as appropriate, but not in resource sensitive areas;

5. Assist in the mapping of regionally significant open space;

6. Participate in the coordination and implementation of regionwide comprehensive habitat conservation planning efforts; and

7. Identify programs and funding sources for the acquisition/protection of sensitive lands and open space.

The recommended actions contained in the Regional Shoreline Preservation Management Strategy will also be included in the Strategy once adopted.

SOLID WASTE MANAGEMENT

SOLID WASTE MANAGEMENT

POLICY: RECYCLE AND REDUCE OUR SOURCES OF SOLID WASTE AND PROVIDE ADEQUATE DISPOSAL FACILITIES

Introduction

Solid waste, or trash, is familiar to all of us because we set it out at our homes once a week to be picked up and hauled to a landfill. Most of us are also familiar with recycling because a number of communities in the region have curbside pick-up of aluminum, glass, plastic, newspaper and white or mixed paper, and other people recycle at buyback centers. Less well known are the recycling activities of business and industry; for example, cardboard packaging, wooden pallets and scrap metal are widely recycled. Technologies, like recovering recyclables at material recovery facilities and composting wastes and sewage sludge are now being evaluated as a partial alternative to using landfills.

Solid waste management is a prominent issue for the San Diego region, as well as the rest of the state. Today, our region generates about 4 million tons of trash per year, over 1½ tons per person. Population and economic growth over the next 20 years is expected to more than double the region's solid waste by 2010. We're starting to run short of landfill space, and a number of factors are increasing the costs of managing our trash at a dramatic rate. One example is the additional costs of stronger environmental controls, such as lining landfills to minimize water pollution.

The siting of solid waste facilities is a difficult challenge. There are many political and environmental constraints involved that will need to be overcome to successfully site these facilities.

Quality of Life Standards and Objectives

The state established solid waste management objectives for each local jurisdiction and the region when the California Integrated Waste Management Act of 1989 (AB 939) became law in 1990. This law was passed in response to the state's solid waste crisis. The objectives of the law are to:

1. Have each city and county reduce and recycle 25% of the solid waste it generates by 1995, increasing to 50% by the year 2000; and

2. Have all of the 18 cities and the county jointly identify and agree on the facilities (including new and expanded landfills, transfer stations, recycling and composting facilities) needed to manage the region's solid waste for at least the next 15 years.

Meeting these quality of life objectives will mean that by the year 2010 the region will be reducing and recycling about 4 million tons of solid waste per year, an amount equal to the total we generate today. It is estimated that in our region, about 10-15% of the solid waste is now being recycled.

Recommended Actions

State law requires the preparation and adoption of action plans -- called Integrated Waste Management Plans -- by local governments to achieve the two quality of life objectives for solid waste. These plans include:

1. Source Reduction and Recycling Elements and Household Hazardous Waste Elements which have been approved by each city and the county.

2. A cooperatively developed facilities siting element of the Plan which must be approved by a majority of local governments. It is anticipated that action on this element will occur during 1994/95.

The region has organized a policy task force (the SANDAG Board) and technical and citizens advisory committees to prepare these elements.

The policies and actions in the plan elements will be very specific. For example, each city and the county will have to identify the programs, facilities and funding sources needed to meet the 25% and 50% recycling objectives. Reaching these objectives will most likely require:

- Continuation and expansion of current curbside pickup of recyclables from households;
- More recycling by businesses and industries;
- Major increases in the collection and composting of both household and non-residential landscape cuttings;
- More organized and effective efforts at solid waste source reduction, for example, using less packaging and more two-sided copying because our objectives cannot be achieved by recycling alone;
- Increased regional and local efforts to provide demand for products using recycled materials (market development); and
- Increasing the level of public education/public awareness efforts regarding recycling, reuse and source reduction.

In addition, it is expected that at least two new landfills will be have to be built within the next ten years, to serve the northern and southern parts of the county. Other types of disposal facilities like material recovery facilities and composting facilities will also be considered. The ongoing siting studies for these facilities include the minimum 15 year planning period required by state law, and frequently consider capacity needs for much longer time periods.

HAZARDOUS WASTE MANAGEMENT

HAZARDOUS WASTE MANAGEMENT

POLICY: REDUCE THE USE AND PRODUCTION OF HAZARDOUS WASTES, AND TREAT AND DISPOSE OF THEM PROPERLY

Introduction

The treatment and disposal of hazardous waste is a difficult task facing the San Diego region, the state and the nation. Certain types of wastes are harmful to people and the environment and need to be handled separately, and much more carefully than other waste. Examples of hazardous waste include used oil, paint, cleaning fluids and pesticides -- all commonly found in households and businesses -- as well as a number of chemical by-products and wastes from industrial processes.

Currently, it is estimated that our region generates 135,000 tons per year of hazardous waste, about 120 pounds per person. While this is much less than the 1½ tons per person of non-hazardous waste generated every year, it is pound-for-pound much more difficult and costly to dispose of. Over 90% of the region's hazardous waste is created by business and industry, and the military.

Quality of Life Standards and Objectives

Hazardous waste standards and objectives are set by federal and state legislation, and locally through the San Diego County Hazardous Waste Management Plan. They are:

1. Treatment of hazardous waste (as specified in federal and state law) prior to disposal in specially designed landfills called "residuals repositories" and "designated landfills";

2. Reduction of hazardous waste generation by 30% through the substitution of non-hazardous chemicals and through more efficient industrial operations;

3. Siting one (large size) to five (small size) hazardous waste facilities by the year 2000. This objective corresponds to regional and Southern California-wide fair share policies for providing the facilities to meet San Diego County's hazardous waste management needs. The fair share policies require that the facility(ies) be located within this region, or as an alternative, some or all of them can be located in other areas of Southern California if jurisdictions in our region enter into formal agreements with those other jurisdictions.

Recommended Actions

State law requires each County to prepare comprehensive plans and programs for meeting the hazardous waste quality of life standards and objectives. This County-wide plan, formally known as the San Diego County Hazardous Waste Management Plan has been approved by all of the region's cities and the County, and the state.

There are two types of actions for local governments in the Plan. The first type affects local government decisions on hazardous waste management facility development proposals by the private sector. There are five actions that should be taken by each of the 18 cities and the County:

1. Use the policies and information in the San Diego County Hazardous Waste Management Plan when evaluating applications for facility siting;

2. Adopt the facility siting criteria in the Plan;

3. Use the general areas identified in the Plan as the basis for accepting facility applications;

4. Establish a procedure to process permits on a case-by-case basis (e.g., Conditional Use Permit); and

5. Use the Southern California Hazardous Waste Management Plan and intergovernmental agreements and incentives program in evaluating facility proposals.

In addition, local governments, led by the County of San Diego, will have to work more closely with the private sector to provide information, technical assistance and incentives so that the 30% waste minimization objective can be reached.

HOUSING

HOUSING

POLICY: PROVIDE AN ADEQUATE SUPPLY OF HOUSING FOR ALL INCOME LEVELS

Introduction

Adequate housing, for all income levels, is a basic need of the region's residents. It is an area where local governments work with the private sector to provide for the region's quality of life. Based upon its model and in response to state requirements, SANDAG has projected that without public policy intervention the San Diego area will require 445,000 new housing units to house the additional people projected to live here in the year 2015. This is an average of almost 18,000 new houses, condominiums and apartments each year. Whether or not public policy should attempt to influence the growth rate will be considered as part of the Series 8 Regional Growth Forecast process. Making sure that the less affluent members of our communities have a decent place to live is also a part of the region's housing responsibility, and a much bigger challenge than getting the total housing stock in place.

Local governments have the main responsibility for providing for the housing needs of the region. State law both provides and limits local discretion in meeting this responsibility. They must also ensure that housing is built in a way that supports other quality of life goals, things such as preserving environmentally sensitive lands and minimizing traffic congestion.

Quality of Life Standards and Objectives

The region's housing objectives as determined by SANDAG in response to state law are contained in the Regional Housing Needs Statement which SANDAG prepares every five years. These objectives do not add responsibilities for housing beyond state law. There are two objectives in the Regional Housing Needs Statement. Both objectives are measured over a five-year period, and may change when the Statement is updated. The two objectives are:

1. The total number of new housing units the region will need to add by July 1996 as determined by SANDAG in accordance with State law -- called the regional share objective. This number is 162,299.

2. The total number of new and existing lower income households the region should assist by July 1996 in conformance with SANDAG policy -- called the fair share objective. This number is 21,728. Assistance can occur through low interest loans, public

acquisition and preservation, increased densities that will guarantee affordable home prices and rental rates, and similar measures.

Meeting the regional share objective will mean continuation of the coordinated efforts of local governments and housing developers to identify land to accommodate new housing through local planning and zoning, and to build the various types and prices of housing that respond to the region's housing market. The region has been effective in meeting total new housing stock needs in the past, but has had a more difficult time responding to the needs of lower income households. The region's cities and county, and the state and federal governments, will have to increase the commitment and resources devoted to low income household assistance to meet the fair share objective.

Recommended Actions

State law imposes certain regional share obligations on the County and the cities. Adoption by the County or a city of the Regional Growth Management Strategy shall not impose any housing obligations in addition to those mandated by state law nor does such adoption authorize SANDAG to limit by any means the local exercise of discretion in how they will meet those requirements.

There are two actions that should be taken by each city and the County:

1. The cities and County shall each prepare and adopt a general plan housing element which shall consist of an identification and analysis of existing and projected housing needs and a statement of goals, policies, quantified objectives, and scheduled programs for housing in accordance with state law.

2. Each local jurisdiction shall have a Comprehensive Housing Affordability Strategy (CHAS) -- a five-year housing plan -- to obtain federal housing funds. (The CHAS contains actions which will help meet the fair share objectives of the local jurisdictions.)

ECONOMIC PROSPERITY

WORK ON THE ECONOMIC PROSPERITY QUALITY OF LIFE FACTOR OF THE STRATEGY IS BEING UNDERTAKEN BY A COMMITTEE APPOINTED BY THE REGIONAL BOARD. THE INFORMATION BELOW HAS BEEN DISTRIBUTED FOR REVIEW AND COMMENT.

ECONOMIC PROSPERITY

POLICY: PROVIDE THE PUBLIC SUPPORT AND COOPERATION NECESSARY TO MAINTAIN A STRONG AND STABLE LOCAL ECONOMY THROUGH THE PROVISION OF JOB OPPORTUNITIES THAT RESULT IN A RISING STANDARD OF LIVING FOR THE REGION'S RESIDENTS.

Introduction

Achieving economic prosperity may provide the foundation for accomplishing many of the Regional Growth Management Strategy's goals and objectives. Economic prosperity locally could mean successfully creating a sufficient number of high-skilled, high-paying jobs that would result in higher real income growth. In turn, these high-skilled jobs would require that our labor force be properly educated and trained. The availability of high-skilled high-paying job opportunities may be the economic incentive necessary to improve our labor force's productivity and earnings potential. In addition, the rising incomes would provide the funding basis and support for local government to afford to provide the public facility and services at the standards that we have set and are planning for as part of the Regional Growth Management Strategy.

Quality of Life Standards and Objectives

The quality of life standards and objectives for economic prosperity are developed locally. Currently, however, there is not a "single" economic prosperity plan for the region. Rather, the fate of economic prosperity is in the hands of many businesses, organizations and agencies that for the most part do not coordinate their planning efforts. As a first step in developing local standards and objectives, SANDAG's Regional Economic Development Strategy Advisory Committee produced a report that evaluated the condition of economic prosperity in the region. This evaluation procedure was in part based upon identifying other metropolitan areas that could be used to compare against the San Diego region. Of the 333 metropolitan areas in the United States, 19 with characteristics most similar to the San Diego region were chosen for comparison. Also, in order to evaluate how the region has fared over time, with respect to larger economic forces, the comparison process included state and national trends. Thus, an integral part of the Committee's report is a system designed to judge economic prosperity, and from that assessment the quality of life standards and objectives for economic prosperity were developed.

As with the Strategy's other factors, the standards and objectives for economic prosperity are measurable, so we can monitor how well we're doing in meeting them each year. A consistency/monitoring checklist will be used by local jurisdictions and regional single-purpose agencies to determine whether their policies, plans and ordinances are consistent with the standards and objectives of each factor, that together make up the Regional Growth Management Strategy.

Ensure a rising standard of living for the region's residents, that is equal to or above other comparable metropolitan areas. Changes in standard of living can be measured by real per capita income.

Encourage the expansion of locally owned businesses that will create job opportunities that require skilled labor. A general measure of success in this area will be maintaining an unemployment rate equal to or below comparable metropolitan areas. More specifically, our success can be measured by the number of jobs created in industries with wage rates equal to or above the average for the manufacturing sector.

Ensure a more productive labor force by properly educating, training, and preparing new entrants. Initially, our success in increasing labor force productivity can be measured by our ability to reverse the rising trends in births to unwed mothers, the status school dropout rate, and the number of crimes committed per 1000 residents. These indicators should be lowered to a level below or equal to other comparable metropolitan areas.

Reduce the rise in the region's cost of living to a level equal to or below other comparable metropolitan regions. Our success can be measured by the rate of change in the consumer price index for each area.

Maintain the cost of local government facilities and services at a level equal to or below other comparable metropolitan regions. This can be measured as a percent, determined by the ratio of local government expenditures per capita over personal income per capita.

Encourage the enhancement and development of regional capital facilities (infrastructure) that are necessary to encourage the expansion and retention of local businesses. Initially, our success can be measured by the region's ability to implement the standards and objectives listed under each factor of the Regional Growth Management Strategy.

Recommended Actions

1. Develop a Regional Economic Development Strategy designed to achieve the economic prosperity standards and objectives, as well as identifying agencies responsible for carrying them out. This document should include a "vision statement" addressing the question "what kind of a region do we want to be?" Results from the Regional Economic Development Strategy will form the basis for the recommended actions of the economic prosperity factor.

2. Update, on a periodic basis, the economic prosperity evaluation and monitoring system. A system designed to track the changes in the region's quality of life standards and objectives that measure economic prosperity.

REGIONAL PUBLIC FACILITIES FINANCING AND SITING

REGIONAL PUBLIC FACILITIES FINANCING AND SITING

POLICY: PROVIDE ADEQUATE FUNDING AND SITING PROCESSES FOR REGIONAL PUBLIC FACILITIES

The financing and siting of regional public facilities is critical to our quality of life. If we don't have money to pay for needed facilities, or can't find acceptable places to locate them, our quality of life will suffer. Paying for these facilities is expensive and becoming more so, and the siting of facilities such as landfills, and sewage treatment and water reclamation plants pose serious difficulties.

A Regional Public Facilities Financing Plan is being prepared with the assistance of the Regional Revenues Advisory Committee. The Advisory Committee is reviewing the sources of revenue currently used to pay for regional public facilities, and evaluating potential new sources including regional development impact fees. Thirteen regional facilities/services are being studied: water, sewerage, solid waste, energy, hazardous waste, transportation, justice facilities, regional parks and open space, health, libraries, animal control, social services and fire communications. The unfunded needs of these facilities/services over the next twenty years are the focus of the plan. The Advisory Committee has not completed its work. When complete, their recommendations for funding regional public facilities will be brought to the Regional Board for inclusion in the Strategy.

The purpose of addressing facilities siting in the Strategy is to determine whether we need to improve existing siting processes and procedures through additional cooperative regional efforts. Local and regional siting processes for region-serving facilities in the areas of water, sewerage and transportation are well established, and have proven workable and adaptable to changing conditions. This is not to say that siting is not often a lengthy, costly and contentious process. However, these processes do ultimately work most of the time, so changes are not recommended at this time.

Siting difficulties have, however, been much more extensive and intractable for solid waste and hazardous waste facilities. In recognition of this situation, the jurisdictions and agencies responsible for the siting of these types of facilities have initiated efforts to improve siting processes. For hazardous waste, a fair share siting policy was approved as part of the San Diego County Hazardous Waste Management Plan and Southern California Hazardous Waste Management Plan in 1989. For solid waste, the region's Integrated Waste Management Task Force (SANDAG Board and Technical and Citizens Advisory Committees) is working on siting issues now.

It is recommended that the efforts to improve the siting processes for solid waste and hazardous waste, as well as ongoing efforts in the areas of water, sewerage and transportation, be encouraged and recognized by the Regional Growth Management Strategy. Similar siting processes to those for solid and hazardous waste, and cooperative agreements may need to be worked out for other regional public facility siting issues. The important contribution of habitat management and conservation programs to siting these facilities should also be recognized.

GROWTH RATE, PHASING AND LAND USE DISTRIBUTION

GROWTH RATE, PHASING AND LAND USE DISTRIBUTION

When the voters passed Proposition C, the Regional Planning and Growth Control initiative, they called for the consideration of growth rate, phasing and land use distribution issues as part of the work on the Regional Growth Management Strategy.

The region's growth rate, its phasing and distribution are described in the regional growth forecasts prepared by SANDAG. The forecasts are reviewed by everyone in the region, and approved by SANDAG and the 18 cities and the County of San Diego. This growth forecasting process has been used for over 15 years in the San Diego region. The forecasts are used by all local governments, state and federal agencies, and the private sector to guide planning and project decisions.

POLICY: ANALYZE REGIONAL GROWTH RATE FACTORS FOR THE YEARS 1990 THROUGH 2015 AS PART OF THE SERIES 8 REGIONAL GROWTH FORECAST

The regional growth forecasting process has two phases. In the first phase, regionwide totals of population, housing and employment are forecast over a 25-year period. The second phase distributes the regionwide forecast to jurisdictions, communities and to a wide variety of geographic areas within the region in accordance with local general/community plans.

The development of the regionwide totals requires decision-makers to agree on the factors -- such as the economy and new jobs -- that cause the region to grow.

Like the other elements of the Strategy, the region's growth should help improve our quality of life. So, the factors that cause growth will be evaluated as the Series 8 Forecast are prepared. The final Forecast will include the decisions made by the region to improve our economy and our standard of living as the region grows.

POLICY: MAXIMIZE TRAVEL CONVENIENCE - AS MEASURED IN TIME, COST AND DISTANCE - THROUGH THE DISTRIBUTION AND DESIGN OF FUTURE DEVELOPMENT

To help manage the region's growth, the Strategy should contain standards to reduce travel times and trip lengths for the region's residents. The Regional Growth Management

Technical Committee has developed a draft Land Use Distribution element that proposes these standards.

The actions recommended in the draft element to reduce travel times and trip lengths respond to the issues of "regional land use distribution" and "jobs/housing balance" identified in Proposition C.

The draft element contains the three items summarized below.

Access to Employment, Shopping and Services measures travel times and distances by auto and transit for the region's communities. Based on this information, quality of life standards for travel times and trip lengths have been recommended. The differences in travel times and trip lengths among communities is being evaluated through the Series 8 Growth Forecast process. Strategies will be developed to minimize travel times and more closely balance accessibility opportunities in the region.

Transit Corridor Development is evaluating the effects of focusing some of the region's new development within walking distance of transit stations and bus transit corridors, specifically addressing the quality of life standards including the travel times and trip lengths noted above. Proposed actions should increase transit use and walking in the region. These actions will be directed primarily toward the cities, County and transit agencies.

Design Guidelines to Facilitate Walking and the Use of Bicycles and Transit have been drawn from studies being undertaken by the County, the City of San Diego, the Metropolitan Transit Development Board, the Air Pollution Control District and others. The primary objective is to provide a set of design guidelines for adoption by the cities and the County to assist in implementing the Strategy.

This growth management work is being coordinated with the Series 8 Growth Forecast process, SANDAG's long-range transit planning study and the 1993 Regional Transportation Plan (RTP).

APPENDICES

LOCAL/REGIONAL CONSISTENCY

LOCAL/REGIONAL CONSISTENCY

POLICY: LOCAL AND REGIONAL PLANS, POLICIES AND REGULATIONS AND THE REGIONAL GROWTH MANAGEMENT STRATEGY SHOULD BE CONSISTENT AS DETERMINED BY THE SELF-CERTIFICATION PROCESS

In the amendment to the SANDAG Joint Powers Agreement that established the Regional Planning and Growth Management Review Board, local jurisdictions agree to certify the consistency of the pertinent elements of their general plans with the Regional Growth Management Strategy. Regional single-purpose agencies involved in the Strategy are entering into memorandums of agreement to: use the Series 8 Regional Growth Forecasts for planning purposes; adopt the Strategy; participate in the self-certification process; and agree to implement the relevant recommended actions called for in the Strategy. These agencies include the Air Pollution Control District, Local Agency Formation Commission, County Water Authority, Regional Water Quality Control Board, Metropolitan Transit Development Board, North County Transit District, Port District, Department of Defense and CALTRANS.

The following three points are incorporated into the self-certification process:

- Local jurisdictions should review their plans, policies, ordinances and regulations for consistency with the recommendations contained in the Strategy.

- Local jurisdictions should have flexibility in determining their consistency with the Strategy, with the ability to substitute effective alternative means for achieving the objectives.

- There should be consistency between the Strategy and the plans and programs of single-purpose regional agencies.

The self-certification process has two parts. The first part, the initial self-certification process, will occur after the adoption of the Regional Growth Management Strategy. The following is a list of the steps involved in this part of the process:

1. A checklist will be provided to the local jurisdictions to help them evaluate their consistency with the Strategy. (The consistency checklist is contained in Appendix 1.)

2. Following a public hearing, each local jurisdiction should file a status report with the Regional Board within 6 months of the adoption of the Strategy.

APPENDIX 1
LOCAL/REGIONAL CONSISTENCY CHECKLIST

LOCAL/REGIONAL CONSISTENCY CHECKLIST FOR THE REGIONAL GROWTH MANAGEMENT STRATEGY AND CONGESTION MANAGEMENT PROGRAM

January, 1994

This checklist is to be used by local and regional agencies to determine the consistency of their general and community plans, policies and regulations/ordinances with the Regional Growth Management Strategy and Congestion Management Program. It will also be used to monitor implementation of the recommended actions and the achievement of the quality of life standards and objectives. Local and regional agencies will describe what actions they have taken or will take to achieve consistency with the Strategy and evaluate their performance with respect to the quality of life standards and objectives.

The questions are organized according to the nine quality of life factors as follows:

- Air Quality and Transportation/Congestion Management

  Regional Trip Reduction Program

  Transportation Capacity Expansion to Help Provide Alternatives to Driving Alone/Transit Performance Standards

  Land Use Actions/Level of Service Standards for Arterials and Freeways

  Transportation System Management

- Water
- Sewage Treatment
- Sensitive Lands and Open Space Preservation and Protection
- Solid Waste Management
- Hazardous Waste Management
- Housing
- Economic Prosperity (Questions regarding Economic Prosperity will be added when the work on that factor has been completed.)

The questions are categorized according to the parties responsible for answering them; i.e., the cities and the County, the transit boards, the County Water Authority, etc. The transportation questions have also been designed to enable the cities and County to self-certify conformance with the Congestion Management Program (CMP) requirements.

There are two types of questions in the Checklist: self-certification questions and monitoring questions. The monitoring questions are noted with an asterisk, and are intended to provide SANDAG with information to monitor the region's progress toward implementing the Strategy. The responsible agency should answer the questions by checking "Yes", "No" or "Not Applicable", or by providing the requested information and noting its source. A "yes" answer indicates consistency with the Strategy, and should be documented by noting the ordinance number and date of adoption, the element of the General/Community Plan(s), or other policy or regulation. A "No" answer indicates inconsistency with the Strategy, and requires the reporting agency to indicate what actions will be taken, and a schedule to achieve consistency. A "Not Applicable" answer should be used when the question does not apply to a particular agency. Each question is followed by a line where "Yes" answers can be documented, and several lines for comments or explanations. If more space is needed to explain a "No" or "Not Applicable" answer, please attach additional sheets. Explanations should be provided for all answers.

A list of the documents which can be used in answering the checklist questions is attached. Copies of these documents are available from SANDAG.

AIR QUALITY AND TRANSPORTATION/CONGESTION MANAGEMENT

Regional Trip Reduction Program

Cities and County

1. Has the Regional Trip Reduction Ordinance, or an equivalent ordinance, been adopted? Note: The Congestion Management Program (CMP) statutes require that each city and the County adopt and implement a Trip Reduction Ordinance.

   Yes _____ No _____ Not Applicable _____

   If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

   Documentation: **

   Comments: **

* 2. Has your jurisdiction achieved the regional trip reduction targets contained in the Trip Reduction Ordinance?

   Yes _____ No _____ Not Applicable _____

   Documentation: **

   Comments: **

SANDAG

* Does the region's current vehicle occupancy meet the regional targets contained in the Trip Reduction Program?

   Yes _____ No _____ Not Applicable _____

   Documentation: **

   Comments: **

Transportation Capacity Expansion to Help Provide Alternatives to Driving Alone/Transit Performance Standards

Cities and County

1. Are the High Occupancy Vehicle (HOV) lanes shown in the current Regional Transportation Plan (RTP) along local streets and roads located in your jurisdiction shown in your General/Community Plan(s)? Note: This currently applies only to National City and the City of San Diego.

   Yes _____ No _____ Not Applicable _____

   If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year ____

   Documentation: **

   Comments: **

2. Does your General/Community Plan(s) identify existing and proposed bicycle facilities and coordinate with other bicycle facility projects included in the current RTP and Regional Transportation Improvement Program?

   Yes _____ No _____ Not Applicable _____

   If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year ____

   Documentation: **

   Comments: **

* 3. List the total number of miles of bicycle facilities by type (Class 1 Bike Path, Class 2 Bike Lane and Class 3 Bike Route) that have been built in your jurisdiction and the number built during the last year.

   Documentation: **

   Comments: **

* 4. How many park-and-ride spaces are located within your jurisdiction, and how many additional spaces were provided last year?

Documentation: **

Comments: **

SANDAG

* 1. How many miles of HOV lanes were constructed last year?

Documentation: **

Comments: **

2. Has the transit service increase (+17% by the year 2000) included in the Transportation Control Measures been added to the RTP and what is the status of implementing the service increase?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 3. What percentage of dwelling units are located within a quarter mile and half mile of a transit route?

Documentation: **

Comments: **

Transit Boards

1. Are the peak-period transit route frequency standards and objectives contained in your short-range plans consistent with those specified in the Regional Growth Management Strategy and CMP?

   Yes _____ No _____ Not Applicable _____

   If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

   Documentation: **

   Comments: **

* 2. Are existing peak-period transit route frequencies consistent with the transit performance standards and objectives set by the Strategy and CMP?

   Yes _____ No _____ Not Applicable _____

   Documentation: **

   Comments: **

* 3. Was transit capacity increased last year in accordance with the 17% increase in service adopted in the TCM plan for air quality, and if so, by how much; e.g., new bus routes, light rail miles constructed, etc.?

   Yes _____ No _____ Not Applicable _____

   Documentation: **

   Comments: **

* 4. Are the transit coordination standards contained in the Congestion Management Program and Regional Growth Management Strategy being met?

Yes _____ No _____ Not Applicable _____

Documentation: **

Comments: **

5. Has the vanpool program been implemented in accordance with the goals of the TCM plan?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

Land Use Actions/Level of Service Standards for Arterials and Freeways

Cities and County

1. Are the traffic level of service objectives contained in your General/ Community Plan(s) equal to or better than those specified in the Strategy, i.e., LOS "D" for the freeways and the Regional Arterial System identified in the 1990 RTP?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

2. Has a traffic forecast been prepared based on the land uses and circulation system contained in the General/Community Plan(s)?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

3. Do your traffic forecasts make use of a SANDAG-approved traffic forecasting model and incorporate SANDAG's Regional Growth Forecasts as a uniform benchmark for population and land use data? Note: This is a requirement of the CMP statutes.

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

4. Is the projected future level of service on the regional arterial system routes consistent with the level of service objective "D" in the Strategy?

NOTE: If a roadway will not be able to meet the Strategy's regional level of service objectives for specific reasons such as preservation of landscaping, inadequate room to widen, or other overriding considerations, these exceptions should be explained.

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

5. Does your jurisdiction have a program(s) to achieve the traffic level of service objectives identified in the Strategy?

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

6. Has your agency adopted and implemented a process to evaluate and mitigate the traffic impacts of large projects on the regional transportation system, including the level of service standards and objectives of the CMP and Strategy? (The definition of a "large" project as described in the CMP is any project that upon its completion would be expected to generate either an equivalent of 2,400 or more average daily trips or 200 or more peak hour vehicle trips.) Note: The CMP statutes require that each city and the County adopt and implement a program to analyze the impacts of land use decisions, including mitigation costs, on the regional transportation system.

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

7. Does the process include the traffic impacts on all freeways and the regional arterial system affected by the project (including arterials and freeways in adjacent jurisdictions)?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

8. Does the process consider existing and future planned land uses, and reasonably foreseen projects within the jurisdiction, and adjoining jurisdictions?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

9. Does your agency prepare and adopt CMP Deficiency Plans for any state highway or CMP principal arterials within your jurisdiction that are forecast to fall below the CMP traffic level of service standards? Note: The development and adoption of Deficiency Plans is a requirement of the CMP statutes.

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 10. Is the existing traffic level of service on the regional arterial system routes in your jurisdiction consistent with the Strategy's level of service objective of LOS "D"?

Note: If a roadway does not meet the Strategy's regional level of service objectives for specific reasons such as preservation of landscaping, inadequate room to widen, or other overriding considerations, these exceptions should be explained.

Yes _____ No _____ Not Applicable _____

Documentation: **

Comments: **

CALTRANS/SANDAG

* 1. Is the existing traffic level of service on the region's state highways and freeways consistent with the Strategy's objective of LOS "D"?

Yes _____ No _____ Not Applicable _____

Documentation: **

Comments: **

2. Is the projected future (2015) traffic level of service on the region's freeways consistent with the Strategy's objective of LOS "D"?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

Transportation System Management

Cities and County

1. Is there a plan in place to optimize the traffic signals in your jurisdiction to improve traffic flow through a centralized traffic control system?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 2. What is the status of the traffic signal optimization plan?

Documentation: **

Comments: **

CALTRANS/SANDAG

* 1. Have all freeway ramps in the urbanized area been metered where physically feasible to reduce traffic congestion?

Yes _____ No _____ Not Applicable _____

Documentation: **

Comments: **

* 2. Indicate the implementation status of the Regional Traffic Control Center, the purpose of which is to inform motorists of traffic problems and alternate vehicle routes.

Documentation: **

Comments: **

Miscellaneous

Cities and County

Have the recommendations included in regional transportation studies (e.g., the Route 78 Corridor Study and Mid-County Transportation Study) been incorporated into local general plans?

NOTE: The recommendations in these studies do not apply to all jurisdictions.

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

Air Pollution Control District

* Indicate the status of the region's air quality last year based on the state and federal standards.

Documentation: **

Comments: **

WATER

Water Supply

County Water Authority

1. Has the County Water Authority adopted a Water Resources Plan and a Capital Improvement Program which have been reviewed by the local jurisdictions, SANDAG and the public, and include:

   a) The construction of delivery, treatment and storage facilities, balancing costs, environmental and economic needs;

      Yes _____ No _____ Not Applicable _____

      If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

      Documentation: **

      Comments: **

b) Management of demand through Best Management Practices and other measures contained in the Conservation and Demand Management element of the Water Resources Plan;

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

c) Support of continued Metropolitan Water District (MWD) policy of providing its service area with adequate supplies of water;

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

d) Development of local supplies such as reclamation groundwater basin rehabilitation and desalinization as are determined necessary in consideration of cost, environmental impact, reliability and other policy considerations; and

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

e) Review of state and federal law and policies as they relate to the region's water supply.

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 2. What was the region's per capita water use last year?

Documentation: **

Comments: **

* 3. How many acre feet of water did the region produce locally and what percentage does this amount comprise of the region's total water use?

Documentation: **

Comments: **

4. Have emergency water storage facilities been provided south of major faultlines sufficient to meet a minimum of 75 percent of normal demands for the duration of expected aqueduct outages?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

5. Has a resource development offset program been considered by the CWA which requires new development to pay a fee or otherwise offset its contribution to the increase in water use in the region? What is the status of this potential program?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

6. Do member agencies with maintain drought response plans to cope with potential future water shortages?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

7. Are member agencies able to operate without water service from the Authority's aqueducts for up to ten consecutive days?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

8. Have member agencies implemented a system to compile water use information by customer class to help track the effectiveness of conservation measures?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

9. Have member agencies implemented the Best Management Practices (water conservation and demand management programs and projects) contained in the CWA's Water Resources Plan?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

10. Have water reclamation ordinances based on the County Water Authority's model ordinance been adopted by member agencies?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

SANDAG

Has SANDAG undertaken a legislative program which follows and takes positions on bills consistent with the quality of life standards and objectives, and recommended actions for water availability?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

Cities and County

1. Has a water reclamation ordinance based on the County Water Authority's model ordinance been adopted?

   Yes _____ No _____ Not Applicable _____

   If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

   Documentation: **

   Comments: **

2. Has the State Department of Water Resources model xeriscape ordinance, or an equivalent ordinance, been adopted for all new construction? (This also applies to landscaping for single-family residential units installed by developers prior to occupancy.)

   Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

3. Have your local plumbing requirements been amended to be in compliance with the minimum state requirements for water conservation?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

4. Has an ordinance been adopted to ensure that a sufficient supply of water is available for development dependent on groundwater and that groundwater supplies will not be overdrafted? (This question applies only to those jurisdictions with development that is dependent on groundwater.)

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

5. Have the Best Management Practices (water conservation and demand management programs and projects) contained in the CWA's Water Resources Plan been implemented?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

6. Has the County incorporated the short-term emergency water agreements and interagency connections between water agencies into the Emergency Water Annex of the San Diego County Emergency Plan?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

Water Quality

Regional Water Quality Control Board

* 1. What is the status of water quality in the region's coastal waters, bays, reservoirs, streams and groundwater with respect to state and federal water quality standards?

Documentation: **

Comments: **

SEWAGE TREATMENT

City of San Diego

1. Has the level of sewage treatment for the Point Loma facility been agreed upon?

   Yes _____ No _____ Not Applicable _____

   If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

   Documentation: **

   Comments: **

2. Has a one year pilot program been established to determine whether additional chemicals, new treatment methods or other changes could enable the Point Loma facility to comply with the Clean Water Act?

   Yes _____ No _____ Not Applicable _____

   If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

   Documentation: **

   Comments: **

Sewage Treatment Agencies

Have plans for water reclamation plants, storage and distribution systems and adequate sludge disposal/recycling facilities been included in the capital improvement programs of the sewage treatment agencies?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

Cities and County

Does your jurisdiction have guaranteed sewage treatment capacity, or does it contract with another agency for capacity, prior to approving development projects.

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

Guidelines for answering the questions below are provided in Attachment 1.

SENSITIVE LANDS AND OPEN SPACE PRESERVATION AND PROTECTION

Information may be provided for each item in the guidelines, but provision of this additional information is optional.

Cities and County

1. Have ordinances been adopted that are consistent with the recommendations contained in the Strategy's Definition of Regionally Significant Open Space for:

   a. Steep slopes

      Yes _____ No _____ Not Applicable _____

      If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

      Documentation: **

      Comments: **

b. Floodplains

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

c. Wetlands

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

2. Are actions being taken to acquire lands within your jurisdiction designated in your General/Community Plan(s) for regional parks?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 3. How many acres of regional open space parks exist in your jurisdiction in accordance with the Definition of Regionally Significant Open Space? (Please list parks and acreages.)

Documentation: **

Comments: **

4. Are actions being taken to encourage the preservation of agricultural uses and rural lands?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 5. List the current and proposed funding sources/programs being used to acquire/protect sensitive lands, and regional parks and open space.

Documentation: **

Comments: **

6. Have coastal jurisdictions incorporated the following three objectives from the Shoreline Preservation Strategy into their Local Coastal plans. The objective should be modified to reflect each jurisdiction's participation in a cooperative, regionwide program.

a. Manage the region's shoreline to provide environmental quality, recreation and property protection.

b. Develop and carry out a cost-effective combination of shoreline management tactics that will have a positive impact on the region's economy.

c. Develop a program to pay for the shoreline management strategy which equitably allocates costs throughout the region, and among local, state and federal sources.

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

SOLID WASTE MANAGEMENT

Cities and County

1. Has a Source Reduction and Recycling Element been adopted to achieve the 25 percent reduction in 1995, and 50 percent reduction in 2000 goals of AB 939 as a part of the county's Integrated Waste Management Plan?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 2. Estimate the percentage of solid waste diverted last year.

Documentation: **

Comments: **

3. Has a Household Hazardous Waste Element which meets the requirements of AB 939 been adopted?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 4. Estimate the percentage of Household Hazardous Waste diverted last year.

Documentation: **

Comments: **

5. Have any permanent Household Hazardous Waste collection facilities been located in your jurisdiction?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

6. Has the Siting Element for solid waste disposal facilities required by AB 939 been approved? (The Siting Element is required to be approved by the County of San Diego and a majority of the cities by the beginning of 1994.)

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

HAZARDOUS WASTE MANAGEMENT

Cities and County

1. Has the San Diego County Hazardous Waste Management Plan or an equivalent been adopted as required by state law?

   Yes _____ No _____ Not Applicable _____

   If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

   Documentation: **

   Comments: **

2. Have facility siting criteria that are consistent with the San Diego County Hazardous Waste Management Plan been adopted?

   Yes _____ No _____ Not Applicable _____

   If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

   Documentation: **

   Comments: **

3. Has a procedure to process permits on a case-by-case basis (e.g., Conditional Use Permit) been established for siting hazardous waste facilities?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

4. Are the Southern California Hazardous Waste Management Plan and intergovernmental agreements and incentives programs being used in the evaluation of facility proposals?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

5. Is your jurisdiction, with the assistance of the County of San Diego, working with the private sector to provide information, technical assistance and incentives to achieve the 30 percent waste minimization goal of the Plan?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 6. How many hazardous waste facilities have been sited in your jurisdiction? One (large size) to five (small size) facilities should be sited to meet San Diego's hazardous waste management needs by the year 2000.

Documentation: **

Comments: **

County of San Diego

* 1. What percentage of hazardous wastes are being treated and disposed of properly?

Documentation: **

Comments: **

* 2. Has the 30 percent reduction in hazardous waste generation been achieved?

Yes _____ No _____ Not Applicable _____

Documentation: **

Comments: **

HOUSING

Cities and County

1. Has the Housing Element of your General Plan been updated as required by State law?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

2. Has your Housing Element been found to be in substantial compliance with state law?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

3. Does your Housing Element include the regional share objective from the Regional Housing Needs Statement which indicates the number of new units needed by July, 1996 for all economic segments of the community consistent with state law?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

4. Does your Housing Element contain policies to achieve the regional share objective for all economic segments of the community consistent with state law?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 5. What was your jurisdiction's progress toward meeting the regional share objective last year? Please note the number of units constructed by income level.

Documentation: **

Comments: **

6. Does your Housing Element include the fair share objective from the Regional Housing Needs Statement which indicates how many new and existing lower income households should be assisted by July, 1996?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

7. Does your Housing Element contain policies to achieve the fair share objective?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

* 8. What was your jurisdiction's progress toward meeting the fair share objectives last year? Please note the number of households assisted.

Documentation: **

Comments: **

9. Has a Comprehensive Housing Affordability Strategy (CHAS) been prepared and approved for your jurisdiction?

Yes _____ No _____ Not Applicable _____

If compliance has been previously achieved and documented, enter the year in which it was reported to SANDAG, and include any new information, if applicable. Year _____

Documentation: **

Comments: **

ATTACHMENT 1

Guidelines for Responding
to the
Regional Growth Management Strategy
Consistency Checklist

SENSITIVE LANDS PRESERVATION AND OPEN SPACE PROTECTION

1. Have ordinances been adopted which require the consistent treatment of steep slopes, floodplains, and wetlands as specified in the Definition of Regionally Significant Open Space? Please provide documentation for each response.

Steep Slopes

Ordinance should include the following elements:

a. Intent - topography and native vegetation should be preserved

b. Definition - review development on 25 % or greater slopes; optional threshold - - height of 25 feet and 200 cubic yards excavation

c. Grading, grubbing, and clearing permit required (some exemptions allowed). Indicate if conflicts with fuel management requirements have been resolved, working with the fire department or local fire district.

d. Zoning - lower density or density transfer to recognize steepness; hillside review - - local agency's guidelines; consider landscape ordinance

Specific Requirements: design guidelines; encroachment limitations; natural appearance of manufactured slopes following landscaping; open space easement or similar; penalty for violations

Consider monitoring and maintenance requirements

Floodplains

a. Has the agency adopted an ordinance requiring conformance with the Federal Emergency Management Agency (FEMA) regulations to protect life and property?

b. Has the agency adopted other ordinances, including a statement of intent to further protect the floodplains' environmental values, and ensuring that the following concerns are addressed:

Does the ordinance require a hydraulics study which limits encroachment into the floodplain so that:

(1) The 100-year floodflow will not exceed 6 feet per second (considered a non-erodible velocity, which does not require riprap) at the floodway fringe;

(2) The 10-year low-flow channel will not be reduced; and

(3) Existing riparian growth will be accommodated in the study.

Does the ordinance(s) set forth additional requirements, including:

(1) Concrete or riprap channels will be permitted only to protect existing buildings;

(2) Floodplain fill should be limited so that the water surface will not increase along any of the following rivers: San Luis Rey, San Dieguito, San Diego, Sweetwater, and Otay;

(3) Floodway buffers will be required (San Diego County uses 15% of the floodway width, with 100 feet maximum); and

(4) Wetlands and other environmental values will be protected.

Has the agency mapped floodplains other than those included on the FEMA maps?

Has the agency adopted an ordinance allowing only limited uses in floodplains?

Wetlands

a. Has the agency adopted the wetlands definition used by the U.S. Fish and Wildlife Service, shown on the National Wetlands Inventory maps, and included in the Definition of Regionally Significant Open Space?

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric

soil; and (3) the substrate is nonsoil and is saturated at some time during the growing season.

b. Has the agency adopted an ordinance(s) which addresses the preservation and protection of wetlands that includes:

(1) A statement of intent that, at a minimum, there should be no net loss of wetlands acreage or value, and that a net gain is the long-term goal;

(2) The wetlands definition as stated by the U.S. Fish and Wildlife Service;

(3) Review requirements for all proposed projects involving wetlands, using the 100-year floodplain and the National Wetlands Inventory maps to assist in their identification;

(4) Grading, grubbing, and clearing requirements as part of the local grading ordinance, to ensure no destruction of wetlands or wetlands values occurs; and

(5) A requirement for a significant buffer, usually 100-feet minimum, around each wetland to protect and maintain the wetland values.

2. Are actions being taken to acquire lands within your jurisdiction designated in your General Plan/Community Plans(s) for regional open space parks? Please correct the information on regional open space parks contained in the Definition if necessary.

a. Has the agency adopted a policy or ordinance to permit public access to major portions of regional open space parks, while preserving the natural features?

b. Has the agency acquired Bureau of Land Management parcels and improved access to them and provided trails as required by BLM?

c. Has the agency adopted a policy or ordinance to ensure "urban greenways" within the community?

d. Have such "greenways" been identified on the general plan or the open space element map?

3. Are actions being taken to encourage the preservation of agricultural uses and rural lands?

a. Has the agency adopted an ordinance(s) that establishes an urban boundary beyond which urban services will not be provided in order to protect rural/agricultural areas?

b. Does the agency encourage establishment and continuation of Williamson Act contracts?

c. Does the agency indicate "agricultural preserves" on the general plan map?

d. Does the agricultural zoning (if any) permit farm worker housing, packing houses, and other agricultural activities?

e. Does the agency encourage agricultural use of reclaimed water -- by pricing policy, other?

f. Does the agency require a condition notifying buyers of a farm adjacent to a new subdivision? Or distribute "right to farm" information to adjacent buyers?

g. Does the agency encourage farmers to use all environmentally suitable practices?

h. Are actions being taken to protect rural lands from urban and suburban encroachment -- rural lands being those lands outside general plan planning areas, LAFCO spheres, and the County's urban limit line, as well as outside urban utility service areas (LAFCO), and especially, outside the San Diego County Water Authority's boundary?

i. Does the agency prohibit industrial land uses and basic economic generators, while allowing extractive or agriculture-related uses and tourist uses which are dependent upon and maintain the rural function and character of the land and its rural villages?

j. Does the agency permit only the lowest planned densities associated with rural and land-extensive agricultural land uses in areas outside rural villages?

k. Does the agency limit commercial development in rural areas to rural villages, providing for community-serving and tourist-serving and rural area needs?

l. Has the agency identified "rural villages" within its jurisdiction?

ATTACHMENT 2

List of documents available at SANDAG as resources for the checklist. Most local jurisdictions are in possession of these documents.

1. Regional Transportation Demand Management Program - Model Employer Trip Reduction Program
2. Transportation Control Measures for the Air Quality Plan
3. 1991-98 Regional Transportation Improvement Program (November 1990)
4. 1990 Regional Transportation Plan (December 1990)
5. 1991 Congestion Management Program (November 1991)
6. Memorandum of Understanding Regarding Urban Water Conservation in California/Best Management Practices
7. County Water Authority's Model Water Reclamation Ordinance
8. State Department of Water Resources Model Xeriscape Ordinance
9. Definition of Regionally Significant Open Space
10. San Diego County Hazardous Waste Management Plan
11. Southern California Hazardous Waste Management Plan
12. Regional Housing Needs Statement

APPENDIX 2
SELF-CERTIFICATION PROCESS AND SCHEDULE

SELF-CERTIFICATION PROCESS AND SCHEDULE REGIONAL GROWTH MANAGEMENT STRATEGY

INTRODUCTION

The SANDAG Joint Powers Agreement Amendment that established the Regional Planning and Growth Management Review Board requires the Board to adopt rules to implement a self-certification process for member agencies. Member agencies agree to "... determine (self-certify) the pertinent elements of their general plans with regional plans." The attached three-part outline and schedule is intended to carry out the self-certification process.

The following three points should be incorporated in self-certification:

- The parts of the Regional Growth Management Strategy (RGMS) subject to consistency determination should include more than plans and policies. Important implementation actions recommended in the Strategy, such as ordinances, should also be included in local determination of consistency. The Strategy will identify recommended actions that should be included in self-certification.

- Local jurisdictions should have flexibility in determining their consistency with the Strategy. If a jurisdiction has not adopted the exact policy or implementation action identified in the Strategy, it should be able to certify its consistency if it can document an alternative means it is using to achieve the objectives of the Strategy's recommended actions.

- There should be consistency between the Strategy and the plans and programs of appropriate single-purpose regional agencies. The single-purpose regional agencies including the Air Pollution Control District, San Diego County Water Authority, Regional Water Quality Control Board, Local Agency Formation Commission, Department of Defense, Port District, Metropolitan Development Transit Board, North County Transit District, and CALTRANS have been involved in the preparation of the Strategy, and their plans, or elements of their plans, have been included as part of the Strategy. To ensure consistency the agencies will:

  1) Review the draft Strategy for consistency with their plans and programs, and suggest changes to the Strategy as appropriate. Plans and programs may also be revised to achieve consistency;

  2) Review the adopted Strategy annually for consistency with their plans and programs, and report in a similar manner as local jurisdictions to the Regional Board on the results of that review; and

3) Participate in the annual quality of life standards and objectives monitoring report.

This participation, in conjunction with local jurisdiction self-certification with the Regional Growth Management Strategy, will provide for comprehensive local/regional cooperation. In the event of a dispute, single-purpose regional agencies may request that SANDAG initiate the Conflict Resolution Procedure available to member agencies.

PART I: INITIAL SELF-CERTIFICATION PROCESS

1. Regional Board adopts initial Regional Growth Management Strategy after holding a public hearing.

2. Regional Board prepares and distributes model self-certification resolution and checklist as guidance to local jurisdictions. — 1ST MONTH FOLLOWING ADOPTION

   The checklist will be modeled after the CEQA initial study checklist. The checklist will identify the Strategy's recommended actions requiring self-certification. Each jurisdiction will be asked to indicate full consistency, partial consistency, or inconsistency with the Strategy's recommended actions. Space will be provided to explain the response for each recommended action, including documentation of how consistency may have been achieved through alternative actions to those recommended in the Strategy. This feature of the checklist will provide for local flexibility in self-certification.

3. Local jurisdictions file status report with the Regional Board (the completed checklist) regarding consistency with the Strategy after holding a public hearing. — BY END OF 6TH MONTH FOLLOWING ADOPTION

   The status report should identify where the jurisdiction is consistent, and identify actions the jurisdiction intends to take to achieve consistency. If a jurisdiction anticipates that the actions necessary to achieve consistency will take more than twelve months it will notify the Board in the status report and provide an estimated completion date.

4. Local jurisdictions take actions to achieve consistency. — 6TH MONTH THROUGH 18TH MONTH FOLLOWING ADOPTION

5. Local jurisdictions adopt self-certification resolution and file with Regional Board after holding a public hearing. A revised checklist is attached to resolution. — BY END OF 19TH MONTH FOLLOWING ADOPTION

6. Regional Board issues status report on self-certification at a public hearing. The status report is a compilation of local jurisdiction self-certification documentation provided in step 5. — BY END OF 20th MONTH FOLLOWING ADOPTION

PART II: CONTINUING SELF-CERTIFICATION PROCESS

1. After adoption of the initial Strategy by the Regional Board, all local jurisdiction plan amendments, regulations and other actions related to the Strategy should be subject to a self-certification finding. A copy of each finding should be forwarded to the Regional Board, placed on their agenda as an information item, and made available to the public. — CONTINUING

2. Regional Board prepares and distributes annual report monitoring growth and the implementation of the Strategy. — ANNUALLY

   This report is the regional "report card" on progress toward meeting the quality of life standards and objectives in the Strategy. It highlights any changes that may be necessary in the Strategy to account for changes in quality of life standards and objectives or for problems encountered in making progress towards their achievement. The annual monitoring report should be issued to the Regional Board at a public hearing.

3. Regional Board adopts any appropriate changes or additions to the Strategy, based on local jurisdiction/regional agency review and comment on the monitoring report and after holding a public hearing. — ANNUALLY

4. Regional Board prepares and distributes model self-certification resolution and checklist as guidance to local jurisdictions. — ANNUALLY

   The checklist will have the same format as the checklist developed for the initial self-certification process. However, it will only concern changes and additions to the Strategy adopted the previous month.

5. Local jurisdictions adopt self-certification resolution and file with Regional Board after holding a public hearing. The checklist is attached to resolution. — ANNUALLY

   If the jurisdiction is unable to complete the actions necessary to achieve consistency within six months, it will notify the Board of the date when it expects to file its consistency resolution.

6. Regional Board issues status report on self-certification at a public hearing. The status report is a compilation of local jurisdiction self-certification documentation provided in Steps 1 and 5. ANNUALLY

PART III: SELF-CERTIFICATION DISPUTES AMONG MEMBER AGENCIES - CONFLICT RESOLUTION PROCEDURE

The SANDAG Joint Powers Agreement Amendment establishing the Regional Board includes provisions for resolving self-certification disputes:

> *Upon request by a Member Agency, the Regional Board will review these self-certifications, and make findings regarding consistency. Where determined by the Regional Board to be appropriate, the Regional Board shall use SANDAG's Conflict Resolution Procedure for resolving disputes among Member Agencies.*

The SANDAG Conflict Resolution Procedure follows:

1. Education

In order to provide member agencies with a working knowledge of dispute resolution options, to provide information on the methods and techniques for resolving disputes that require neutral intervention, and to reduce the frequency of unresolved disputes between local agencies, SANDAG shall provide an education program to Board members and staff in conflict management techniques.

2. Agreement to Participate

Local government agencies involved in an interjurisdictional conflict which cannot be resolved among the agencies may, through formal action of their policy bodies, agree to participate in resolving the dispute in accordance with this procedure. Evidence of the agreement to participate shall be forwarded by the local agencies to SANDAG, and shall describe the issue(s) for which review is requested. SANDAG's role shall be limited to providing assistance to the agencies in accordance with this procedure.

Participation in the conflict resolution process shall be voluntary, but is strongly encouraged prior to initiation of litigation by an agency. All parties involved in the dispute shall be requested to participate.

3. Implementation

The Conflict Resolution Procedure may be initiated by:

- one or more involved local agencies
- the SANDAG Board of Directors
- the SANDAG Executive Committee (where timing requires)

4. Confidentiality

The process set forth in Section 5, below, shall be subject to the provisions of California law relating to confidentiality, and specifically the provisions of Section 1152.5 of the Evidence Code.

5. Process

a. SANDAG staff meets with the affected agencies for purposes of interviewing them regarding the nature and scope of the conflict and to request all necessary information. Such interviews shall be undertaken as soon as possible, but in no case later than 30 days from the date of agreement by the agencies to participate.

b. SANDAG staff facilitates the selection of a neutral third-party to recommend an appropriate facilitation and negotiation model to be used in resolving the dispute which may include, but not be limited to:

- Mediation
- Arbitration

c. SANDAG staff serving, where appropriate, as a resource to the agencies, and a neutral third-party convene the conflict resolution conference using the model agreed to by the agencies.

The conference should generally consist of the following elements:

Stage I.	Introduction
Stage II.	Opening statement by the agencies
Stage III.	Exchange (for purposes of developing an understanding of each agency's issues and positions)
Stage IV.	Development of options
Stage V.	Draft and execute agreement

d. The agreement is implemented by the agencies. Follow-up of implementation of the agreement is done by SANDAG.

e. The Executive Director shall report to the Board at regular intervals on the use of the procedure by local agencies.

APPENDIX 3
TEXT OF PROPOSITION C - NOVEMBER 1988

TEXT OF PROPOSITION C - NOVEMBER 1988

REGIONAL PLANNING AND GROWTH CONTROL MEASURE

Section A. Statement of Purpose and Intent

The purpose of this measure is to demonstrate public support for the concept that certain impacts associated with growth should be resolved on a regional basis. This Measure proposes the establishment of a Regional Planning and Growth Management Review Board (the "Regional Board") which will formulate a regional growth management plan for resolving problems associated with transportation management, solid waste disposal, water reclamation, sewage disposal, air quality and growth inducing industrial zoning. Each city within the San Diego region (the "cities") and the County of San Diego (the "County") shall participate in the formulation of, and shall comply with, the adopted regional growth management plan. This Measure contains the following components:

Section B. Regional Planning and Growth Management Review Board

The Regional Board shall be established by the County and the cities to prepare a regional growth management plan which addresses transportation management, solid waste disposal, water reclamation, sewage disposal, air quality, and determines a fair allocation of industrial land use for each jurisdiction. The Regional Board shall have the authority to require that the County and the cities adopt the necessary legislation to implement the regional growth management plan.

In addition to its authority to formulate and enforce a regional growth management plan, the Regional Board shall be an advisory agency empowered to inform the cities and the County of any regional impacts that might result from any proposed legislative action and to propose revisions to a particular project or proposal or to recommend mitigation measures. The Regional Board may also present proposals to the cities and County, and encourage the inclusion of such proposals in their respective General Plans, in order to resolve regional problems associated with traffic circulation patterns, land use allocations (with particular emphasis on job-generating land uses), timing and phasing of development, resource protection, community character, and any other regional land use issues. Such proposals may be advisory in nature and will become enforceable only upon adoption of the proposals by the cities and the County.

The Regional Board shall be comprised of at least one representative of each city and of the County who is an elected official. A Blue Ribbon Committee shall be established, consisting of representatives from the cities and the County, to determine how the Regional Board should be established, the form of State legislation required, and whether a joint powers agreement would be necessary between the cities and the County. This Blue Ribbon Committee shall formulate its recommendation by no later than June 30, 1989.

Section C. Regional Growth Management Plan

The regional growth management plan shall establish guidelines for certain regional growth issues and formulate legislation for the cities and the County to implement. The plan shall contain the following elements:

1. Quality of Life Standards: To be adopted for the region as a whole and for the cities and County. The quality of life standards shall be limited to transportation management, solid waste disposal, water reclamation, sewage disposal, and air quality.

2. Regional Facilities: To identify needed regional facilities necessary for attainment of the quality of life standards, the cost of such facilities, and possible financing mechanisms.

3. Holding Capacities: To be established for the region as a whole and for the cities and County, to be based on facilities adequacy and the ability to attain and maintain the quality of life standards.

4. Transportation System Management: To contain mandatory regional techniques such as ride sharing, flexible work hours, and to promote public transportation services along major corridors.

5. Growth Rate Component: To identify and address those causes of growth which are subject to local or regional control, with the objective of assuring attainment of the quality of life standards by, if necessary, reducing overall growth within the region.

6. Growth Phasing Component: To tie the rate of development to the provision of adequate regional facilities as needed to attain the quality of life standards.

7. Regional Land Use Distribution Component: To develop regional policies concerning the allocation of industrial land use to promote a better balance between employment and residential land uses, with the objectivity of reducing traffic congestion, air pollution and energy usage.

The regional growth management plan shall be prepared and adopted by the Regional Board within one year of the formal establishment of the Regional Board. The cities and County shall amend all appropriate elements of their General Plans to include the previously mentioned seven elements within one year following adoption of the regional growth management plan to conform to its provisions.

Section D. Interim Development Constraints

Interim constraints to limit growth to 75 % of the San Diego Association of Governments population projections for each city, community or subregional area may be placed on all development activity within the region until the Regional Growth Management Plan has been prepared and adopted by the Regional Planning and Growth Management Review Board, and implemented by the region's jurisdictions.

Section E. Regional Funding System

An equitable funding system shall be established for planning and implementation of these growth management strategies.

APPENDIX 4
NEGATIVE DECLARATION AND INITIAL STUDY

NEGATIVE DECLARATION

SUBJECT: Regional Growth Management Strategy

I. PROJECT DESCRIPTION: See attached Initial Study

II. ENVIRONMENTAL SETTING: The San Diego County region (San Diego County).

III. DETERMINATION:

The San Diego Association of Governments has conducted an Initial Study and determined that the proposed project will not have a significant impact on the environment, and the preparation of an Environmental Impact Report will not be required.

IV. DOCUMENTATION:

The attached Initial Study documents the reasons to support the above determination.

V. MITIGATION MEASURES:

Any projects that will result from the implementation of the Regional Growth Management Strategy will be subject to environmental review in accordance with the California Environmental Quality Act.

VI. PUBLIC REVIEW DISTRIBUTION:

Draft copies or notice of this Negative Declaration were distributed to the attached list of agencies and groups.

VII. RESULTS OF PUBLIC REVIEW:

To be added at the close of the review period.

Copies of the Draft Negative Declaration and any Initial Study material are available at the SANDAG offices, at the above address, for review, or for purchase for the cost of reproduction.

Stuart R. Shaffer
Deputy Executive Director

July 12, 1991
Date of Draft Report

ANALYST: Susan Baldwin

INITIAL STUDY

SUBJECT: Regional Growth Management Strategy

I. PURPOSE AND MAIN FEATURES:

In November, 1988, the voters of the San Diego region approved Proposition C which called for the establishment of a Regional Planning and Growth Management Review Board, and the preparation of a Regional Growth Management Strategy. SANDAG's Board of Directors now serves as the Regional Planning and Growth Management Review Board.

The Regional Growth Management Strategy contains policies and recommended actions to manage the adverse impacts of growth in the San Diego region. The Strategy takes a quality of life approach to managing growth. The actions contained in the Strategy are intended to preserve or improve the region's quality of life.

Eight Quality of Life Factors have been included in the Strategy: air quality, water, sewage treatment, sensitive lands preservation and open space protection, solid waste management, hazardous waste management, transportation system and demand management, and housing. These factors were chosen because they address issues that affect the whole San Diego region, not just individual jurisdictions.

Standards and objectives have been assigned to each Quality of Life factor. These standards and objectives are the goals of the Strategy. They are measurable so that we can monitor how well we are doing in meeting them each year, and their achievement will be the primary measure of the Strategy's success.

The Strategy contains recommended actions to achieve the quality of life standards and objectives. The plans and programs of several regional public agencies such as the Air Pollution Control District and the County Water Authority are included in the recommended actions.

In addition, the Strategy contains recommendations in two areas which relate to the achievement of the quality of life standards and objectives: (1) Regional Public Facilities Financing and Siting, and (2) Growth Rate, Phasing and Land Use Distribution. How we will pay for such things as transportation facilities and open space will be included in a Regional Public Facilities Financing Plan to be distributed at a later date. How we will site facilities like new landfills, and whether we should try and balance jobs and housing to reduce traffic congestion and improve air quality, are discussed in the Strategy.

The Strategy also describes how we will monitor our progress in meeting the quality of life standards and objectives, and how local jurisdictions and regional agencies will certify the consistency of their plans, policies and regulations with the Strategy.

II. ENVIRONMENTAL SETTING:

The San Diego County region (San Diego County).

III. ENVIRONMENTAL ANALYSIS:

The Initial Study Checklist is attached. The Checklist is designed to identify the potential for significant environmental impacts which could be associated with a project. Answers of "yes" and "maybe" indicate that there is a potential for significant environmental impacts, and these answers are discussed in Section IV.

IV. DISCUSSION:

The main purpose of the Regional Growth Management Strategy is to mitigate the adverse environmental impacts of growth in the San Diego region. The recommended actions in the Strategy will have, overall, a positive effect on the environment. While implementation of some of the recommended actions may have a significant effect on the environment, e.g. the construction of transportation, solid waste and other public facilities, these projects will be subject to environmental review at the project level before they are built.

"Yes" and "maybe" answers in the Initial Study Checklist indicate a potential for significant environmental impacts. These determinations are explained below.

G. 1, 2 and 3. Land Use - The Strategy makes recommendations regarding the protection of sensitive lands such as steep slopes, wetlands and floodplains. These recommendations may result in changes to land use designations, or the goals, objectives and recommendations contained in local land use plans. They may also be inconsistent with the adopted environmental plans for an area. Implementing the Strategy's recommendations in this case would, however, result in improvements to local plans and policies with respect to environmental issues.

J. Population - The Strategy could alter the planned location, distribution, density or growth rate of the population in the region. There are several recommendations included in the Strategy, or which may be included, which may result in changes of this type.

The sensitive lands and open space recommendations may cause population related changes as a result of changes to local plans and policies. These changes to local plans and policies would result from the protection of sensitive environmental resources, and would require environmental review at the time they are proposed.

There are several potential recommendations which may be included in the Strategy as it evolves which may also result in population related changes. These include potential recommendations to balance the location of jobs and housing, and increasing densities adjacent to transit stations and other access points to the transportation system. Although the Strategy does not include recommendations regarding these issues now, they are still being studied and recommendations may be added in the future. If changes like this are proposed they

could affect the Land Use category (G.), too. The major purpose of these potential changes would be to reduce traffic congestion and improve air quality, thus improving the environment. Specific environmental impacts relating to these potential land use and population changes would, however, be considered during the environmental review of specific projects.

M. Public Services - The Strategy could have an effect upon, or result in a need for new or altered governmental services for fire protection, police protection, schools, parks or other recreational facilities, maintenance of public facilities, or other governmental services. These changes could result from the potential land use or population effects discussed in G. and J. above. No specific changes are recommended in the Strategy, however, and any changes would require environmental review, when and if specific projects are proposed.

III. Environmental Analysis:

This Initial Study checklist is designed to identify the potential for significant environmental impacts which could be associated with a project. All answers of "yes" and "maybe" indicate that there is a potential for significant environmental impacts and these determinations are explained in Section IV.

	Yes	Maybe	No
A. Geology/Soils. Will the proposal result in:			
1. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	____	____	X
2. Any increase in wind or water erosion of soils, either on or off the site?	____	____	X
B. Air. Will the proposal result in:			
1. Air emissions which would substantially deteriorate ambient air quality?	____	____	X
2. The exposure of sensitive receptors to substantial pollutant concentrations?	____	____	X
3. The creation of objectionable odors?	____	____	X
4. The creation of dust?	____	____	X
5. Any alteration of air movement in the area of the project?	____	____	X
6. A substantial alteration in moisture, or temperature, or any change in climate, either locally or regionally?	____	____	X
C. Hydrology/Water Quality. Will the proposal result in:			

1.	Changes in currents, or the course of direction of water movements, in either marine or fresh waters?	____	____	X
2.	Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	____	____	X
3.	Alterations to the course or flow of flood waters?	____	____	X
4.	Discharge into surface or ground waters, or in any alteration of surface or ground water quality, including, but not limited to temperature, dissolved oxygen or turbidity?	____	____	X
5.	Discharge into surface or ground waters, significant amounts of pesticides, herbicides, fertilizers, gas, oil or other noxious chemicals?	____	____	X
6.	Change in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	____	____	X
7.	Exposure of people or property to water related hazards such as flooding?	____	____	X
8.	Change in the amount of surface water in any water body?	____	____	X

D. Biology. Will the proposal result in:

1.	A reduction in the number of any unique, rare, endangered, sensitive or fully protected species of plants or animals?	____	____	X
2.	A substantial change in the diversity of any species of animals or plants?	____	____	X
3.	Introduction of invasive species of plants into the area?	____	____	X

4.	Interference with the movement of any resident or migratory fish or wildlife species?	___	___	X
5.	An impact on a sensitive habitat, including, but not limited to streamside vegetation, oak woodland, vernal pools, coastal salt marsh, lagoon, wetland, or coastal sage scrub or chaparral?	___	___	X
6.	Deterioration of existing fish or wildlife habitat?	___	___	X
E.	Noise. Will the proposal result in:			
1.	A significant increase in the existing ambient noise levels?	___	___	X
2.	Exposure of people to noise levels which exceed the City's adopted noise ordinance?	___	___	X
3.	Exposure of people to current or future transportation noise levels which exceed standards established in the Transportation Element of the General Plan?	___	___	X
F.	Light, Glare and Shading. Will the proposal result in:			
1.	Substantial light or glare?	___	___	X
2.	Substantial shading of other properties?	___	___	X
G.	Land Use. Will the proposal result in:			
1.	A land use which is inconsistent with the adopted community plan land use designation for the site?	___	X	___
2.	A conflict with the goals, objectives and recommendations of the community plan in which it is located?	___	X	___
3.	A conflict with adopted environmental plans for the area?	___	X	___

4.	Land uses which are not compatible with aircraft accident potential as defined by a SANDAG (ALUC) Airport Land Use Plan?	____	____	X
H.	Natural Resources. Will the proposal result in:			
1.	The prevention of future extraction of sand and gravel resources?	____	____	X
2.	The conversion of agricultural land to nonagricultural use or impairment of the agricultural productivity of agricultural land?	____	____	X
I.	Recreational Resources: Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?	____	____	X
J.	Population. Will the proposal alter the planned location, distribution, density, or growth rate of the population of an area?	____	X	____
K.	Housing. Will the proposal affect existing housing in the community, or create a demand for additional housing?	____	____	X
L.	Transportation/Circulation. Will the proposal result in:			
1.	Traffic generation in excess of specific/ community plan allocation?	____	____	X
2.	An increase in projected traffic which is substantial in relation to the capacity of the street system?	____	____	X
3.	An increased demand for off-site parking?	____	____	X
4.	Effects on existing parking?	____	____	X
5.	Substantial impact upon existing or planned transportation systems?	____	____	X
6.	Alterations to present circulation movements including effects on existing public			

	access to beaches, parks, or other open space areas?	___	___	X
7.	Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?	___	___	X
M.	Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a.	Fire protection?	___	X	___
b.	Police protection?	___	X	___
c.	Schools?	___	X	___
d.	Parks or other recreational facilities?	___	X	___
e.	Maintenance of public facilities, including roads?	___	X	___
f.	Other governmental services?	___	X	___
N.	Utilities. Will the proposal result in a need for new systems, or require substantial alterations to existing utilities, including:			
a.	Power?	___	___	X
b.	Natural gas?	___	___	X
c.	Communications systems?	___	___	X
d.	Water?	___	___	X
e.	Sewer?	___	___	X
f.	Storm water drainage?	___	___	X
g.	Solid waste disposal?	___	___	X
O.	Energy. Will the proposal result in the use of excessive amounts of fuel or energy?	___	___	X

P. Water Conservation. Will the proposal result in:

1.	Use of excessive amounts of water?	____	____	X
2.	Landscaping which is predominantly non-drought resistant vegetation?	____	____	X

Q. Neighborhood Character/Aesthetics. Will the proposal result in:

1.	The obstruction of any vista or scenic view from a public viewing area?	____	____	X
2.	The creation of a negative aesthetic site or project?	____	____	X
3.	Project bulk, scale, materials or style which will be incompatible with surrounding development?	____	____	X
4.	Substantial alteration to the existing character of the area?	____	____	X
5.	The loss of any distinctive or landmark tree(s), or a stand of mature trees?	____	____	X
6.	Substantial change in topography or ground surface relief features?	____	____	X
7.	The loss, covering or modification of any unique geologic or physical features such as a natural canyon, sandstone bluff, rock outcrop or hillside with a slope in excess of 25 percent?	____	____	X

R. Cultural/Scientific Resources. Will the proposal result in:

1.	Alteration of or the destruction of a prehistoric or historic archaeological site?	____	____	X
2.	Adverse physical or aesthetic effects to a prehistoric or historic building, structure, object or site?	____	____	X

3.	Adverse physical or aesthetic effects to an architecturally significant building, structure, or object?	____	____	X
4.	Any impact to existing religious or sacred uses within the potential impact area?	____	____	X
5.	The loss of paleontological resources?	____	____	X

S. Human Health/Public Safety. Will the proposal result in:

1.	Creation of any health hazard or potential health hazard (excluding mental health)?	____	____	X
2.	Exposure of people to potential health hazards?	____	____	X
3.	A future risk of an explosion or the release of hazardous substances (including but not limited to gas, oil, pesticides, chemicals, radiation or explosives)?	____	____	X

T. Mandatory Findings of Significance.

1.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	____	____	X
2.	Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief,			

definitive period of time while long-term impacts will endure well into the future.)

3.	Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	____	____	X
4.	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	____	____	X

DISTRIBUTION
REGIONAL GROWTH MANAGEMENT STRATEGY
Negative Declaration

Draft copies or notice of this Negative Declaration were given a broad distribution. The following agencies, groups and individuals from SANDAG's mailing list were sent copies of the Draft Regional Growth Management Strategy and Negative Declaration:

Incorporated Cities (San Diego Region) - Mayors, Councilmembers, Planning Commissioners, City Managers, Planning Directors, Public Works/Utilities Directors
County of San Diego - Board of Supervisors, Chief Administrative Officer, Planning Commissioners, Planning Director, Public Works Director
City of San Diego Community Planning Groups
County of San Diego Community Planning and Sponsor Groups
State Legislators, San Diego Delegation
Department of Defense
CALTRANS
State Clearinghouse
Air Pollution Control District
Local Agency Formation Commission
Metropolitan Transit Development Board
North County Transit Development Board
Board of Port Commissioners
Regional Water Quality Control Board
County Water Authority
Water District Managers
Sewer District Managers
California Transportation Commission
California Council of Government Directors
League of Women Voters, Officers and Directors
Environmental Groups - Sierra Club, Citizens Coordinate for Century 3, Environmental Health Coalition, San Diego Ecology Centre, I Love a Clean San Diego, et al.
Chambers of Commerce (San Diego Region)
SANDAG Committees -
- Regional Growth Management Technical Committee
- Regional Transportation Advisory Committee (RTAC)
- Regional Transportation Demand Management Advisory Committee
- Regional Transportation Demand Management Technical Committee
- Shoreline Erosion Committee
- Regional Revenues Advisory Committee
- Open Space Technical Advisory Committee and Public Participation List
- Integrated Waste Management Citizens and Technical Committees

Copies were also sent to:
Serra Reference Library
Governmental Reference Library
University Libraries

WATER

(Updated January 2002)

POLICY: ENSURE A SAFE, SUFFICIENT AND RELIABLE SUPPLY OF WATER TO MEET THE EXISTING AND FUTURE WATER NEEDS OF THE SAN DIEGO REGION

Introduction

The San Diego region's economic wellbeing and quality of life depends upon securing a reliable supply of water to meet the existing and future water needs of the region. Since the 1940's, following formation of the San Diego County Water Authority (CWA), the San Diego region has relied upon water imported from outside the county due to limited local surface and groundwater supplies. Currently, 70 to 95 percent of the region's water supply is imported from the Colorado River and northern California. The CWA is a government agency comprised of cities, irrigation districts, municipal water districts, county water districts and the Pendleton Military Reservation, which is obliged by statute to provide its member agencies with adequate supplies of water to meet the increasing and expanding water needs within their respective boundaries.

The CWA and its 23 member agencies supply water to approximately 97% of San Diego County's population. With the exception of the City of Coronado, which relies upon local water via the City of San Diego, all San Diego County cities are served by the CWA. The area outside CWA's service area, but within San Diego County, is primarily rural lands and relies upon local supplies.

The CWA currently relies upon the Metropolitan Water District of Southern California (MWD) for imported water supplies. However, it is actively pursuing other imported water sources, including implementation of a historic agreement for the transfer of conserved water from the Imperial Irrigation District, to diversify its imported water supplies. In addition, the CWA and its member agencies have planned and are pursuing water conservation programs, water recycling, groundwater, seawater desalination, and emergency surface storage locally within the county. The CWA's present diversification program can be traced to the severe drought of 1987-92 when the San Diego region faced drastic cut backs in its imported water deliveries from MWD. In response to MWD actions the CWA developed a comprehensive plan to increase reliability and diversify supplies. This plan has been updated several times since the 1987-92 drought and is presently summarized in the CWA's 2000 Urban Water Management Plan.

In 1992, the CWA and SANDAG entered in a Memorandum of Agreement (MOA), which details how the two regional agencies coordinate in order to ensure the availability of water for future growth. Under the MOA, the CWA agrees to use SANDAG's most recent regional growth forecasts for regional water supply planning purposes, provide updated information on changes in plans or programs, and implement relevant actions contained in the water element of the Regional Growth Management Strategy. The MOA ensures that the water demand projections for the San Diego region are linked with SANDAG's growth forecasts and that water supply is a component of the overall growth management strategy.

Quality of Life Standards and Objectives

The objectives for water supply are set locally, primarily by the CWA, based in part on decisions made by MWD, CWA member agencies, and other agencies such as the wastewater treatment agencies that produce recycled water. In addition, the objectives are based on the most recent regional growth forecasts in use by SANDAG.

The supply of water depends on three components: water resources, infrastructure (pipelines, pumps and reservoirs) and demand management (water conservation). Achieving the following objectives would ensure a sufficient water supply to meet existing and future needs of the San Diego region.

1. A safe and reliable supply of water should be provided to serve existing and future residents, businesses, institutions and agricultural uses in the region.

2. The CWA and its member agencies should fully implement the existing and proposed Best Management Practices (BMPs) that are included in the Memorandum of Understanding Regarding Urban Water Conservation in California to obtain a conservation savings of approximately 93,000 acre-feet by 2020.

3. Local and regional water projects such as recycling, groundwater usage and seawater desalination should be pursued to achieve a goal of producing close to 140,000 acre-feet by 2020 within the CWA service area. The objective is to develop these supplies in five-year increments as follows: 64,000 acre-feet by 2005, 98,000 acre-feet by 2010, 109,000 acre-feet by 2015, and 138,000 acre-feet by 2020.

4. Evaluate other local supply options to determine whether these supplies are cost-effective and reliable sources of supply for the region.

5. Implement the 1998 CWA-Imperial Irrigation District (IID) Water Conservation and Transfer Agreement for the long-term transfer of conserved Colorado River water to San Diego County. Under the CWA-IID Agreement, Colorado River water will be conserved by Imperial Valley farmers, who voluntarily participate in the program, and then transferred to the CWA for use in San Diego County. Deliveries into San Diego County from the transfer are expected to begin by 2003. The CWA will receive between 130,000 and 200,000 acre-feet per year after an initial 10-year ramp-up in the water deliveries.

6. Seek clarification regarding the amount of water the CWA can legally depend upon from the MWD. As calculated by MWD, the CWA has a preferential right to less than 15% of Metropolitan's water, but on average purchases an estimated 25% of Metropolitan's supplies.

7. Continue implementation of the CWA's Capital Improvement Program that is designed to: 1) increase reliability and operational flexibility of the region's aqueduct system, 2) increase the capacity of the region's aqueduct system, and 3) provide the region with adequate emergency storage needs.

Recommended Actions

To achieve the water supply objectives, the following actions will need to be taken by SANDAG, local jurisdictions, the CWA, its member agencies and water users, such as residents, businesses, institutions, and agriculture.

1. To plan for a safe and reliable supply, the CWA and its member agencies should review and update their Urban Water Management Plans (UWMPs) in accordance with the California State Water Code. Implementation of the UWMPs should be coordinated for the benefit of the entire region.

2. SANDAG and CWA should pursue a legislative program that follows and takes positions on bills consistent with the quality of life standards and objectives and recommended actions for water availability.

3. Continue implementation of the existing and proposed BMPs to obtain the water conservation savings objective. One opportunity for future conservation savings is adoption of higher water conservation standards for commercial coin operated washing machines.

4. The CWA should continue to provide loans for studies of potential local supply projects through the Financial Assistance Program and grant funding for implementation of water recycling projects through the Reclaimed Water Development Fund.

5. The CWA, its member agencies and other local agencies should continue to pursue funding through existing and future federal, state and regional programs for development of local projects. The existing programs include, but are not limited to, U.S. Bureau of Reclamation Title XVI Grant Program, California Proposition 13 Funding, and MWD Local Resources Program and Seawater Desalination Funding Program.

6. The contingencies associated with implementation of the CWA-IID Water Transfer Agreement must be resolved by 2002 in order to allow deliveries to begin in 2003. One of the primary items is successful completion of the environmental documents associated with the transfer. State and federal legislation will be pursued to allow expeditious obtainment of the necessary environmental compliance.

7. The CWA adopted Seawater Desalination Action Plan should be completed with the goal of developing at least 25,000 acre-feet of supply provided it is determined to be cost-effective and feasible by 2020. The Action Plan calls for a comprehensive evaluation of the potential for development of seawater desalination within San Diego County. The plan consists of examining partnership opportunities with the city of Carlsbad for implementation of a potential seawater desalination facility adjacent to the Encina Power Plant in Carlsbad; initiating discussions with interested parties on seawater desalination opportunities near the South Bay Power Plant in Chula Vista; and conducting a study of other potential locations where seawater desalination facilities could be developed on a regional scale.

8. Local jurisdictions should review, update and adopt, if necessary, regulations that would require water conservation mechanisms such as separate irrigation meters for commercial

and large residential common-use areas to better manage landscape water use, installation of high efficiency dishwashers and coin-operated clothes washers in commercial businesses, and encourage the use of recycled water when this supply is available and meets all regulatory requirements.

9. The CWA should continue their efforts to clarify current application and legality of MWD preferential rights under the MWD Act.

10. The regional Emergency Storage Project (ESP) should be fully implemented by 2010, which is the expected completion date. The CWA in partnership with the Olivenhain Municipal Water District has initiated construction of the Olivenhain Reservoir, which is the first phase of the ESP. The ESP is a regional project with a system of reservoirs, pipelines and other facilities that will provide water to the county during prolonged interruption of imported water due to earthquake, drought or other disaster.

11. Following MWD's adoption of a shortage allocation formula as part of its Water Surplus and Drought Management Plan, the CWA and its member agencies, as soon as practicable, should review and adopt drought allocation plans to cope with potential future shortages within the region.

12. Complete the Regional Water Facilities Master Plan, which identifies what regional water facilities will be needed to serve San Diego County through 2030. Facilities identified through this planning process may become part of the Capital Improvement Program when it is updated to extend beyond 2010.

ATTACHMENT G

SANDAG 2020 Regional Forecast

2020 REGIONWIDE FORECAST

San Diego
ASSOCIATION OF
GOVERNMENTS
401 B Street, Suite 800
San Diego, CA 92101
(619) 595-5300

July 1998

2020 Regionwide Forecast
San Diego Region

CONTENTS

2020 Regionwide Forecast
San Diego Region

Table P4: Population by Ethnic Group

Year	H	W	B	AO	H,B,AO
1980	280,500	1,394,500	103,000	95,300	478,800
1990	513,500	1,642,000	150,700	205,100	869,300
1995	607,000	1,665,300	164,800	232,100	1,003,900
2000	738,200	1,750,100	175,100	283,100	1,196,400
2005	871,900	1,829,600	187,000	335,000	1,393,900
2010	1,000,000	1,858,100	196,300	383,400	1,579,700
2015	1,135,600	1,864,500	203,900	430,000	1,769,500
2020	1,287,000	1,877,900	210,900	477,400	1,975,300
'95-'20	112%	13%	28%	106%	97%

Table P5: Average Annual Population Change by Ethnic Group

Interval	H	W	B	AO	H,B,AO
'80-'90	23,300	24,750	4,770	10,980	39,050
'90-'95	9,350	2,330	1,410	2,700	13,460
'95-'00	13,120	8,480	1,030	5,100	19,250
'00-'05	13,370	7,950	1,190	5,190	19,750
'05-'10	12,810	2,850	930	4,840	18,580
'10-'15	13,560	640	760	4,660	18,980
'15-'20	15,140	1,340	700	4,740	20,580
'80-'95	21,767	18,053	4,120	9,120	35,007
'95-'20	27,200	8,504	1,844	9,812	38,856

Table P6: Share of Total Population by Ethnic Group

Year	H	W	B	AO	H,B,AO
1980	15%	74%	5%	5%	26%
1990	20%	65%	6%	8%	35%
1995	23%	62%	6%	9%	38%
2000	25%	59%	6%	10%	41%
2005	27%	57%	6%	10%	43%
2010	29%	54%	6%	11%	46%
2015	31%	51%	6%	12%	49%
2020	33%	49%	5%	12%	51%

Definitions

H	Hispanic population
W	Non-Hispanic White population
B	Non-Hispanic Black population
AO	Non-Hispanic Asian and Other population
H,B,AO	Total Hispanic, Black, and Asian and Other population

2020 Regionwide Forecast
San Diego Region

Table P7: Population by Age Group

Year	Under 18	18-34	35-64	65+	85+
1980	478,700	658,300	543,400	192,900	16,600
1990	613,200	841,400	782,200	274,600	25,200
1995	684,500	769,600	912,900	302,100	32,800
2000	764,200	761,400	1,096,200	324,700	42,500
2005	829,600	776,100	1,269,100	348,700	53,200
2010	850,900	831,900	1,365,000	389,900	66,100
2015	872,100	894,100	1,402,000	465,800	72,800
2020	914,900	942,000	1,431,000	565,400	78,300
'95-'20	34%	22%	57%	87%	139%

Table P8: Average Annual Population Change by Age Group

Interval	Under 18	18-34	35-64	65+	85+
'80-'90	13,450	18,310	23,880	8,170	860
'90-'95	7,130	-7,180	13,070	2,750	760
'95-'00	7,970	-820	18,330	2,260	970
'00-'05	6,540	1,470	17,290	2,400	1,070
'05-'10	2,130	5,580	9,590	4,120	1,290
'10-'15	2,120	6,220	3,700	7,590	670
'15-'20	4,280	4,790	2,900	9,960	550
'80-'95	13,920	7,687	24,853	7,360	1,087
'95-'20	9,216	6,896	20,724	10,532	1,820

Table P9: Share of Total Population by Age Group

Year	Under 18	18-34	35-64	65+	85+
1980	26%	35%	29%	10%	0.9%
1990	24%	33%	31%	11%	1.0%
1995	26%	29%	34%	11%	1.2%
2000	26%	26%	37%	11%	1.4%
2005	26%	24%	39%	11%	1.6%
2010	25%	24%	40%	11%	1.9%
2015	24%	25%	39%	13%	2.0%
2020	24%	24%	37%	15%	2.0%

2020 Regionwide Forecast
San Diego Region

Table H1: Summary of Housing Stock and Households

Year	HS	HSSF	HSMF	HSMob	HH	V Rate	HH Size
1980	724,000	440,800	245,300	37,900	673,900	6.9%	2.62
1985	801,600	485,400	274,700	41,500	746,000	6.9%	2.70
1990	950,300	556,400	347,900	46,000	891,300	6.2%	2.69
1995	996,700	581,900	368,200	46,500	934,400	6.3%	2.75
2000	1,057,500	620,700	389,900	46,900	999,800	5.5%	2.84
2005	1,153,700	671,200	435,400	47,200	1,088,700	5.6%	2.86
2010	1,245,100	704,200	493,300	47,500	1,170,700	6.0%	2.84
2015	1,323,800	732,100	543,900	47,800	1,244,600	6.0%	2.82
2020	1,404,200	761,900	594,200	48,100	1,325,700	5.6%	2.81
'95-'20	41%	31%	61%	3%	42%	-10%	2%

Table H2: Average Annual Change in Housing Stock and Households

Interval		ChgHS	ChgSF	ChgMF	ChgMob	ChgHH	SFShare
'80-'90		22,630	11,560	10,260	810	21,740	51%
'90-'95		9,280	5,100	4,060	100	8,620	55%
'95-'00		12,160	7,760	4,340	80	13,080	64%
'00-'05		19,240	10,100	9,100	60	17,780	52%
'05-'10		18,280	6,600	11,580	60	16,400	36%
'10-'15		15,740	5,580	10,120	60	14,780	35%
'15-'20		16,080	5,960	10,060	60	16,220	37%
'80-'95		18,180	9,407	8,193	573	17,367	52%
'95-'20		16,300	7,200	9,040	64	15,652	44%

Table H3: Share of Total Housing Stock by Structure Type

		Year	ShareSF	ShareMF	ShareMob		
		1980	61%	34%	5%		
		1990	59%	37%	5%		
		1995	58%	37%	5%		
		2000	59%	37%	4%		
		2005	58%	38%	4%		
		2010	57%	40%	4%		
		2015	55%	41%	4%		
		2020	54%	42%	3%		

Definitions

HS	Total housing stock
HSSF	Single family housing stock
HSMF	Multiple family housing stock
HSMob	Mobile homes
HH	Households (occupied housing units)
V Rate	Vacancy rate; VRate = 1 - (HH / HS)
HH Size	Household size (persons per household)

Note: The regionwide forecast of housing units, released in July 1998, has been revised to be consistent with the 2020 Cities/County Forecast, which incorporates higher residential densities within walking distance of existing and potential transit stations and in certain town centers. For the years 2006 to 2020, the revision lowers the forecast of single family units and raises the forecast of multiple family units, and slightly lowers the forecast of all housing units in 2020.

2020 Regionwide Forecast
San Diego Region

Table E1: Summary of Population, Labor Force, Employment and Income

Year	Pop	Civ LF	Civ ER	U Rate	CivJobs	R_Inc	R_PCInc
1980	1,873,300	775,300	722,600	6.8	697,600	40,652	21,700
1985	2,109,300	967,200	915,900	5.3	858,900	49,506	23,500
1990	2,511,400	1,201,800	1,145,700	4.7	1,074,100	60,231	24,000
1995	2,669,200	1,233,900	1,155,800	6.3	1,085,000	64,978	24,300
2000	2,946,500	1,429,600	1,359,200	4.9	1,279,200	76,027	25,800
2005	3,223,500	1,594,600	1,509,500	5.3	1,419,300	86,058	26,700
2010	3,437,700	1,649,600	1,566,000	5.1	1,471,900	95,553	27,800
2015	3,634,000	1,753,300	1,652,100	5.8	1,552,300	104,212	28,700
2020	3,853,300	1,839,400	1,733,100	5.8	1,627,800	115,516	30,000
'95-'20	44%	49%	50%	-9%	50%	78%	23%

Table E2: Average Annual Change in Population, Labor Force, Employment and Income

Interval	Pop	Civ LF	Civ ER	CivJobs	R_Inc	R_PCInc
'80-'85	47,200	38,380	38,660	32,260	1,771	360
'85-'90	80,420	46,920	45,960	43,040	2,145	100
'90-'95	31,560	6,420	2,020	2,180	949	60
'95-'00	55,460	39,140	40,680	38,840	2,210	300
'00-'05	55,400	33,000	30,060	28,020	2,006	180
'05-'10	42,840	11,000	11,300	10,520	1,899	220
'10-'15	39,260	20,740	17,220	16,080	1,732	180
'15-'20	43,860	17,220	16,200	15,100	2,261	260
'80-'95	53,060	30,573	28,880	25,827	1,622	173
'95-'20	47,364	24,220	23,092	21,712	2,021	228

Table E3: Average Annual Percent Change in Population, Labor Force, Employment and Income

Interval	Pop	Civ LF	Civ ER	CivJobs	R_Inc	R_PCInc
'80-'85	2.4%	4.5%	4.9%	4.2%	4.0%	1.6%
'85-'90	3.6%	4.4%	4.6%	4.6%	4.0%	0.4%
'90-'95	1.2%	0.5%	0.2%	0.2%	1.5%	0.2%
'95-'00	2.0%	3.0%	3.3%	3.3%	3.2%	1.2%
'00-'05	1.8%	2.2%	2.1%	2.1%	2.5%	0.7%
'05-'10	1.3%	0.7%	0.7%	0.7%	2.1%	0.8%
'10-'15	1.1%	1.2%	1.1%	1.1%	1.7%	0.6%
'15-'20	1.2%	1.0%	1.0%	1.0%	2.1%	0.9%
'80-'95	2.4%	3.1%	3.2%	3.0%	3.2%	0.8%
'95-'20	1.5%	1.6%	1.6%	1.6%	2.3%	0.8%

Definitions

P	Total population
Civ LF	Civilian labor force
Civ ER	Civilian employed residents
U Rate	Unemployment rate; U Rate = 1 - (Civ ER / Civ LF)
CivJobs	Civilian jobs; includes wage and salary employment and self-employed and domestic workers
R_Inc	Real aggregate personal income in millions of 1996 dollars
R_PCInc	Real per capita personal income in 1996 dollars

2020 Regionwide Forecast
San Diego Region

Table E4: Employment by Sector

Year	Ag & Min	Cons	Mfg	TCPU	Trade	FIRE	Serv	Gov	SEDW
1980	14,100	36,000	108,100	28,800	148,700	38,600	148,400	141,200	33,700
1985	12,600	41,700	118,800	30,800	184,200	50,000	198,000	145,700	77,100
1990	11,500	51,600	134,200	35,900	236,600	63,900	266,300	177,300	96,800
1995	11,100	43,600	114,900	37,400	229,500	55,800	310,900	186,100	95,700
2000	12,000	58,800	131,900	44,600	268,200	65,800	375,200	214,500	108,200
2005	12,400	64,900	139,200	48,100	304,000	76,500	422,500	229,900	121,900
2010	11,900	68,000	131,600	49,000	318,600	82,300	441,300	242,200	127,100
2015	11,800	72,400	129,800	50,900	338,600	89,600	471,500	252,800	135,000
2020	11,700	77,200	126,900	52,700	356,100	96,800	499,400	264,600	142,400
'95-'20	5%	77%	10%	41%	55%	73%	61%	42%	49%

Table E5: Share of Total Jobs by Sector

Year	Ag & Min	Cons	Mfg	TCPU	Trade	FIRE	Serv	Gov	SEDW
1980	2%	4%	13%	4%	18%	5%	18%	17%	4%
1985	1%	4%	12%	3%	19%	5%	20%	15%	8%
1990	1%	4%	11%	3%	20%	5%	22%	15%	8%
1995	1%	4%	10%	3%	19%	5%	26%	16%	8%
2000	1%	4%	10%	3%	20%	5%	27%	16%	8%
2005	1%	4%	9%	3%	20%	5%	28%	15%	8%
2010	1%	4%	8%	3%	20%	5%	28%	15%	8%
2015	1%	4%	8%	3%	21%	5%	29%	15%	8%
2020	1%	4%	7%	3%	21%	6%	29%	15%	8%

Table E6: Average Annual Percent Change in Employment by Sector

Interval	Ag & Min	Cons	Mfg	TCPU	Trade	FIRE	Serv	Gov	SEDW
'80-'85	-2.2%	3.0%	1.9%	1.4%	4.4%	5.3%	5.9%	0.6%	18.0%
'85-'90	-1.8%	4.4%	2.5%	3.1%	5.1%	5.0%	6.1%	4.0%	4.7%
'90-'95	-0.7%	-3.3%	-3.1%	0.8%	-0.6%	-2.7%	3.1%	1.0%	-0.2%
'95-'00	1.6%	6.2%	2.8%	3.6%	3.2%	3.4%	3.8%	2.9%	2.5%
'00-'05	0.7%	2.0%	1.1%	1.5%	2.5%	3.1%	2.4%	1.4%	2.4%
'05-'10	-0.8%	0.9%	-1.1%	0.4%	0.9%	1.5%	0.9%	1.0%	0.8%
'10-'15	-0.2%	1.3%	-0.3%	0.8%	1.2%	1.7%	1.3%	0.9%	1.2%
'15-'20	-0.2%	1.3%	-0.5%	0.7%	1.0%	1.6%	1.2%	0.9%	1.1%
'95-'20	0.2%	2.3%	0.4%	1.4%	1.8%	2.2%	1.9%	1.4%	1.6%

Definitions

Ag & Min	Agriculture and Mining; SIC 1-14
Cons	Construction; SIC 15-17
Mfg	Manufacturing; SIC 20-39
TCPU	Transportation, Communication and Public Utilities; SIC 40-49
Trade	Wholesale and Retail Trade; SIC 50-59
FIRE	Finance, Insurance and Real Estate; SIC 60-67
Serv	Services; SIC 70-89
Gov	Government; SIC 90-94
SEDW	Self-employed and domestic workers

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Table E7: Employment by Cluster (A-E)

Year	Clusters	BioMed	BioTech	BusServ	Comm	Comp	Defense	Entertain	Environ
1980	348,300	3,700	7,600	31,100	13,800	24,300	35,700	8,900	2,900
1985	396,300	4,600	10,300	41,300	15,000	30,800	37,300	10,700	3,200
1990	424,700	8,800	13,100	52,900	9,100	30,600	38,000	12,100	4,600
1995	418,200	7,100	20,200	57,400	10,300	21,600	24,300	15,600	4,400
2000	478,900	7,000	26,600	79,200	13,700	29,600	21,600	18,900	4,300
2005	525,100	7,600	29,700	92,300	14,700	31,300	24,100	20,400	4,300
2010	537,600	7,400	31,500	97,900	14,500	29,800	22,900	20,600	3,900
2015	562,800	7,400	34,000	105,300	14,800	29,800	22,600	21,300	3,800
2020	585,200	7,300	36,400	112,700	15,000	30,100	21,900	21,900	3,800
'95-'20	40%	3%	80%	96%	46%	39%	-10%	40%	-14%

Table E8: Share of Total Jobs by Cluster (A-E)

Year	Clusters	BioMed	BioTech	BusServ	Comm	Comp	Defense	Entertain	Environ
1980	43%	0%	1%	4%	2%	3%	4%	1%	0%
1985	41%	0%	1%	4%	2%	3%	4%	1%	0%
1990	36%	1%	1%	4%	1%	3%	3%	1%	0%
1995	35%	1%	2%	5%	1%	2%	2%	1%	0%
2000	35%	1%	2%	6%	1%	2%	2%	1%	0%
2005	35%	1%	2%	6%	1%	2%	2%	1%	0%
2010	34%	0%	2%	6%	1%	2%	1%	1%	0%
2015	34%	0%	2%	6%	1%	2%	1%	1%	0%
2020	34%	0%	2%	7%	1%	2%	1%	1%	0%

Table E9: Average Annual Change in Employment by Cluster (A-E)

Interval	Clusters	BioMed	BioTech	BusServ	Comm	Comp	Defense	Entertain	Environ
'80-'85	9,600	180	540	2,040	240	1,300	320	360	60
'85-'90	5,680	840	560	2,320	-1,180	-40	140	280	280
'90-'95	-1,300	-340	1,420	900	240	-1,800	-2,740	700	-40
'95-'00	12,140	-20	1,280	4,360	680	1,600	-540	660	-20
'00-'05	9,240	120	620	2,620	200	340	500	300	0
'05-'10	2,500	-40	360	1,120	-40	-300	-240	40	-80
'10-'15	5,040	0	500	1,480	60	0	-60	140	-20
'15-'20	4,480	-20	480	1,480	40	60	-140	120	0
'95-'20	6,680	8	648	2,212	188	340	-96	252	-24

Definitions

Clusters	All 16 Clusters
BioMed	Biomedical Products
BioTech	Biotech & Pharmaceuticals
BusServ	Business Services
Comm	Communications
Comp	Comp. & Electronics Manufacturing
Defense	Defense & Transp. Manufacturing
Entertain	Entertainment & Amusement
Environ	Environmental Technology

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Table E10: Employment by Cluster (F-Z)

Year	Clusters	FinServ	Fruits	Hort	MedServ	RecGood	Software	Visitor	MUNIF
1980	348,300	9,100	4,000	7,200	31,200	1,600	5,700	42,600	118,900
1985	396,300	11,100	3,900	7,100	38,100	3,700	8,400	52,600	118,000
1990	424,700	13,000	3,700	6,700	41,100	4,500	10,100	65,300	111,000
1995	418,200	10,200	3,300	6,000	50,600	4,200	11,000	70,100	101,900
2000	478,900	12,200	3,700	6,600	58,300	8,600	17,400	77,300	93,900
2005	525,100	14,500	3,800	6,800	65,800	10,300	20,900	84,800	93,900
2010	537,600	15,800	3,600	6,500	69,500	10,800	22,900	86,200	93,900
2015	562,800	17,600	3,600	6,500	75,500	11,500	25,400	89,700	93,900
2020	585,200	19,300	3,600	6,500	80,900	12,200	28,000	91,900	93,900
'95-'20	40%	89%	9%	8%	60%	190%	155%	31%	-8%

Table E11: Share of Total Jobs by Cluster (F-Z)

Year	Clusters	FinServ	Fruits	Hort	MedServ	RecGood	Software	Visitor	MUNIF
1980	43%	1%	0%	1%	4%	0%	1%	5%	15%
1985	41%	1%	0%	1%	4%	0%	1%	5%	12%
1990	36%	1%	0%	1%	3%	0%	1%	6%	9%
1995	35%	1%	0%	1%	4%	0%	1%	6%	9%
2000	35%	1%	0%	0%	4%	1%	1%	6%	7%
2005	35%	1%	0%	0%	4%	1%	1%	6%	6%
2010	34%	1%	0%	0%	4%	1%	1%	6%	6%
2015	34%	1%	0%	0%	5%	1%	2%	5%	6%
2020	34%	1%	0%	0%	5%	1%	2%	5%	5%

Table E12: Average Annual Change in Employment by Cluster (F-Z)

Interval	Clusters	FinServ	Fruits	Hort	MedServ	RecGood	Software	Visitor	MUNIF
'80-'85	9,600	400	-20	-20	1,380	420	540	2,000	-180
'85-'90	5,680	380	-40	-80	600	160	340	2,540	-1,400
'90-'95	-1,300	-560	-80	-140	1,900	-60	180	960	-1,820
'95-'00	12,140	400	80	120	1,540	880	1,280	1,440	-1,600
'00-'05	9,240	460	20	40	1,500	340	700	1,500	0
'05-'10	2,500	260	-40	-60	740	100	400	280	0
'10-'15	5,040	360	0	0	1,200	140	500	700	0
'15-'20	4,480	340	0	0	1,080	140	520	440	0
'95-'20	6,680	364	12	20	1,212	320	680	872	-320

Definitions

Clusters	All 16 Clusters
FinServ	Financial Services
Fruits	Fruits & Vegetables
Hort	Horticulture
MedServ	Medical Services
RecGood	Recreational Goods Manufacturing
Software	Software
Visitor	Visitor Industry Services
MUNIF	Uniformed Military Personnel

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Table E13: Selected Ratios

Year		Pop/Jobs	Civ LF/Pop	P/PUS	E/EUS	P/PCA	URate/US	Y_PC/US	CPI/US
1980		2.69	0.41	0.008	0.007	0.079	0.95	1.13	0.940
1985		2.46	0.46	0.009	0.008	0.080	0.74	1.11	1.001
1990		2.34	0.48	0.010	0.009	0.084	0.83	1.04	1.033
1995		2.46	0.46	0.010	0.008	0.080	1.13	1.01	1.003
2000		2.30	0.49	0.011	0.009	0.081	0.91	0.99	1.042
2005		2.27	0.49	0.011	0.009	0.082	0.98	0.98	1.052
2010		2.34	0.48	0.012	0.009	0.081	0.93	0.98	1.039
2015		2.34	0.48	0.012	0.009	0.080	1.04	0.98	1.056
2020		2.37	0.48	0.012	0.010	0.079	1.05	1.00	1.065

Table E14: San Diego Labor Productivity for Selected Sectors (output per employee in 1996$)

Year		Cons	Mfg	TCPU	Trade	FIRE	Serv
1980		101,100	41,300	73,200	26,200	132,900	47,200
1985		104,600	50,700	76,000	26,700	137,900	49,000
1990		105,700	61,200	76,400	26,800	139,100	49,600
1995		104,300	77,600	74,300	26,300	136,700	48,800
2000		106,000	104,100	75,300	26,200	139,300	49,700
2005		113,100	130,400	81,500	27,400	150,800	53,600
2010		119,800	162,200	87,200	28,600	161,400	57,300
2015		124,900	192,700	91,700	29,500	170,500	60,300
2020		130,100	229,900	96,400	30,300	179,900	63,400
'95-'20		25%	196%	30%	15%	32%	30%

Definitions

Pop/Jobs	Ratio of total population to civilian jobs
Civ LF/Pop	Ratio of civilian labor force to total population
P/PUS	Ratio of region's total population to U.S. total population
E/EUS	Ratio of region to U.S. non-agricultural wage & salary employment
P/PCA	Ratio of region's total population to California total population
Urate/US	Ratio of region's unemployment rate to U.S. unemployment rate
Y_PC/US	Ratio of region's real per capita income to U.S. real per capita income
CPI/US	Ratio of region's consumer price index to U.S. consumer price index
Cons	Construction; SIC 15-17
Mfg	Manufacturing; SIC 20-39
TCPU	Transportation, Communication and Public Utilities; SIC 40-49
Trade	Wholesale and Retail Trade; SIC 50-59
FIRE	Finance, Insurance and Real Estate; SIC 60-67
Serv	Services; SIC 70-89

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Table A1: Selected Demographic Variables

Year	P	ChgP(%)	ChgP	MilPop		B	D	NI	NetMig
1980	1,873,300								
1981	1,921,800	2.6%	48,500	212,100		31,700	14,000	17,700	30,800
1982	1,965,100	2.3%	43,300	209,000		33,000	13,700	19,300	24,000
1983	2,003,500	2.0%	38,400	212,500		34,600	13,900	20,700	17,700
1984	2,055,700	2.6%	52,200	210,000		34,800	14,400	20,400	31,800
1985	2,109,300	2.6%	53,600	213,900		36,400	15,200	21,200	32,400
1986	2,182,900	3.5%	73,600	214,400		38,100	15,300	22,800	50,800
1987	2,260,700	3.6%	77,800	218,200		40,300	15,900	24,400	53,400
1988	2,341,000	3.6%	80,300	214,300		42,800	16,400	26,400	53,900
1989	2,432,800	3.9%	91,800	213,400		45,700	16,900	28,800	63,000
1990	2,511,400	3.2%	78,600	213,600		49,400	16,800	32,600	46,000
1991	2,560,800	2.0%	49,400	205,300		50,000	16,900	33,100	16,300
1992	2,611,500	2.0%	50,700	205,200		50,700	17,500	33,200	17,500
1993	2,625,100	0.5%	13,600	205,000		49,100	17,700	31,400	-17,800
1994	2,650,700	1.0%	25,600	203,300		49,000	18,300	30,700	-5,100
1995	2,669,200	0.7%	18,500	199,300		46,300	18,100	28,200	-9,700
1996	2,694,900	1.0%	25,700	188,400		45,400	18,600	26,800	-1,100
1997	2,763,400	2.5%	68,500	173,600		45,200	18,800	26,400	42,100
1998	2,824,800	2.2%	61,400	173,600		46,300	19,200	27,100	34,300
1999	2,886,900	2.2%	62,100	173,600		47,100	19,600	27,500	34,600
2000	2,946,500	2.1%	59,600	173,600		47,800	20,000	27,800	31,800
2001	3,009,000	2.1%	62,500	173,600		48,000	20,300	27,700	34,800
2002	3,070,500	2.0%	61,500	173,600		48,400	20,700	27,700	33,800
2003	3,125,100	1.8%	54,600	173,600		48,800	21,100	27,700	26,900
2004	3,174,500	1.6%	49,400	173,600		49,100	21,400	27,700	21,700
2005	3,223,500	1.5%	49,000	173,600		49,400	21,800	27,600	21,400
2006	3,272,600	1.5%	49,100	173,600		49,700	22,100	27,600	21,500
2007	3,319,100	1.4%	46,500	173,600		50,200	22,400	27,800	18,700
2008	3,362,000	1.3%	42,900	173,600		50,900	22,700	28,200	14,700
2009	3,401,500	1.2%	39,500	173,600		51,500	23,100	28,400	11,100
2010	3,437,700	1.1%	36,200	173,600		52,200	23,400	28,800	7,400
2011	3,472,100	1.0%	34,400	173,600		52,700	23,700	29,000	5,400
2012	3,508,100	1.0%	36,000	173,600		53,300	24,000	29,300	6,700
2013	3,547,100	1.1%	39,000	173,600		54,100	24,300	29,800	9,200
2014	3,588,900	1.2%	41,800	173,600		54,800	24,600	30,200	11,600
2015	3,634,000	1.3%	45,100	173,600		55,700	24,900	30,800	14,300
2016	3,680,500	1.3%	46,500	173,600		56,500	25,300	31,200	15,300
2017	3,726,200	1.2%	45,700	173,600		57,200	25,600	31,600	14,100
2018	3,769,900	1.2%	43,700	173,600		57,800	26,000	31,800	11,900
2019	3,811,900	1.1%	42,000	173,600		58,400	26,400	32,000	10,000
2020	3,853,300	1.1%	41,400	173,600		58,900	26,700	32,200	9,200

Definitions

P	Total population
ChgP	Change in total population
MilPop	Uniformed military and military dependents. Held constant from 1997 to 2020 at 173,600, including 93,900 uniformed military and 79,700 military dependents.
B	Total births
D	Total deaths
NI	Natural increase; NI = B - D
NetMig	Net migration

This forecast was accepted for distribution and use by the SANDAG Board of Directors in July, 1998.

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Table A2: Selected Economic Variables

Year	Civ LF	Civ ER	U Rate	CivJobs	R_Inc	R_PCInc	R_TRETS	R_PH	CPI96
1980	775,300	722,600	6.8	697,600	40,652	21,700	18,976	236,700	0.49
1981	801,700	746,400	6.9	718,500	40,710	21,200	18,685	226,800	0.56
1982	834,000	756,400	9.3	723,200	41,213	21,000	17,800	208,200	0.60
1983	877,100	805,100	8.2	755,400	43,905	21,900	18,950	202,200	0.62
1984	915,300	860,800	6.0	807,300	46,983	22,900	21,011	201,400	0.65
1985	967,200	915,900	5.3	858,900	49,506	23,500	22,309	196,800	0.69
1986	1,010,900	960,500	5.0	900,200	52,610	24,100	23,255	207,300	0.71
1987	1,059,400	1,011,700	4.5	948,600	55,651	24,600	24,508	212,400	0.73
1988	1,126,300	1,078,400	4.3	1,008,100	58,413	25,000	25,272	224,300	0.77
1989	1,172,100	1,125,900	3.9	1,051,000	59,857	24,600	26,206	268,800	0.81
1990	1,201,800	1,145,700	4.7	1,074,100	60,231	24,000	25,287	271,200	0.86
1991	1,189,900	1,115,000	6.3	1,054,700	60,420	23,600	23,380	256,400	0.89
1992	1,201,000	1,113,000	7.3	1,047,500	61,890	23,700	23,322	244,100	0.92
1993	1,226,300	1,131,600	7.7	1,057,700	62,018	23,600	23,052	227,500	0.94
1994	1,236,500	1,148,200	7.1	1,070,700	62,237	23,500	23,283	216,900	0.96
1995	1,233,900	1,155,800	6.3	1,085,000	64,978	24,300	24,047	209,200	0.97
1996	1,245,700	1,180,100	5.3	1,111,000	66,385	24,600	25,139	204,500	1.00
1997	1,281,600	1,227,200	4.2	1,156,100	69,838	25,300	25,945	205,900	1.02
1998	1,314,500	1,266,400	3.7	1,192,600	71,768	25,400	27,021	234,800	1.07
1999	1,370,500	1,308,100	4.6	1,231,500	73,862	25,600	28,084	256,900	1.12
2000	1,429,600	1,359,200	4.9	1,279,200	76,027	25,800	29,167	280,700	1.16
2001	1,472,700	1,400,400	4.9	1,317,600	78,383	26,000	30,293	288,700	1.21
2002	1,504,600	1,428,400	5.1	1,343,700	80,438	26,200	31,273	290,700	1.25
2003	1,533,100	1,453,000	5.2	1,366,600	82,302	26,300	32,185	292,300	1.29
2004	1,565,400	1,481,800	5.3	1,393,500	84,139	26,500	33,095	294,300	1.34
2005	1,594,600	1,509,500	5.3	1,419,300	86,058	26,700	34,044	296,200	1.39
2006	1,614,600	1,531,300	5.2	1,439,700	88,377	27,000	35,156	288,200	1.44
2007	1,630,200	1,547,500	5.1	1,454,700	90,589	27,300	36,220	281,100	1.49
2008	1,640,200	1,557,600	5.0	1,464,100	92,541	27,500	37,176	277,300	1.54
2009	1,644,000	1,561,900	5.0	1,468,200	94,074	27,700	37,952	274,800	1.60
2010	1,649,600	1,566,000	5.1	1,471,900	95,553	27,800	38,706	272,900	1.65
2011	1,664,000	1,578,400	5.1	1,483,500	97,214	28,000	39,538	271,900	1.72
2012	1,681,200	1,590,300	5.4	1,494,600	98,752	28,100	40,312	276,900	1.79
2013	1,703,800	1,607,200	5.7	1,510,400	100,408	28,300	41,134	285,700	1.87
2014	1,728,000	1,629,600	5.7	1,531,300	102,231	28,500	42,022	295,600	1.95
2015	1,753,300	1,652,100	5.8	1,552,300	104,212	28,700	42,969	306,000	2.03
2016	1,774,000	1,672,200	5.7	1,571,000	106,231	28,900	43,925	316,100	2.12
2017	1,791,800	1,688,700	5.7	1,586,400	108,474	29,100	44,965	318,600	2.21
2018	1,807,900	1,703,300	5.8	1,599,900	110,760	29,400	46,024	321,000	2.30
2019	1,825,000	1,717,800	5.9	1,613,500	113,027	29,700	47,074	323,500	2.39
2020	1,839,400	1,733,100	5.8	1,627,800	115,516	30,000	48,223	326,600	2.49

Definitions

Civ LF	Civilian labor force
Civ ER	Civilian employed residents
U Rate	Unemployment rate; U Rate = 1 - (Civ ER / Civ LF)
CivJobs	Civilian jobs; includes wage and salary employment and self-employed and domestic workers
R_Inc	Real aggregate personal income in millions of 1996 dollars
R_PCInc	Real per capita personal income in 1996 dollars
R_TRETS	Real taxable retail sales in millions of 1996 dollars
R_PH	Real price of housing in 1996 dollars; the average sales price of a detached single family home
CPI96	San Diego region consumer price index for all goods, 1996 = 1.00

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Table A3: Annual Percent Change in Selected Economic Variables

Year	Civ LF	Civ ER	U Rate	CivJobs	R_Inc	R_PCInc	R_TRETS	R_PH	CPI96
1981	3.4%	3.3%	1.5%	3.0%	0.1%	-2.3%	-1.5%	-4.2%	13.5%
1982	4.0%	1.3%	34.8%	0.7%	1.2%	-0.9%	-4.7%	-8.2%	6.8%
1983	5.2%	6.4%	-11.7%	4.5%	6.5%	4.3%	6.5%	-2.9%	2.9%
1984	4.4%	6.9%	-27.5%	6.9%	7.0%	4.6%	10.9%	-0.4%	5.9%
1985	5.7%	6.4%	-10.9%	6.4%	5.4%	2.6%	6.2%	-2.3%	5.3%
1986	4.5%	4.9%	-6.0%	4.8%	6.3%	2.6%	4.2%	5.3%	2.8%
1987	4.8%	5.3%	-9.7%	5.4%	5.8%	2.1%	5.4%	2.5%	3.5%
1988	6.3%	6.6%	-5.5%	6.3%	5.0%	1.6%	3.1%	5.6%	5.0%
1989	4.1%	4.4%	-7.3%	4.3%	2.5%	-1.6%	3.7%	19.8%	5.8%
1990	2.5%	1.8%	18.4%	2.2%	0.6%	-2.4%	-3.5%	0.9%	6.0%
1991	-1.0%	-2.7%	34.8%	-1.8%	0.3%	-1.7%	-7.5%	-5.5%	3.6%
1992	0.9%	-0.2%	16.4%	-0.7%	2.4%	0.4%	-0.2%	-4.8%	2.8%
1993	2.1%	1.7%	5.4%	1.0%	0.2%	-0.4%	-1.2%	-6.8%	2.2%
1994	0.8%	1.5%	-7.5%	1.2%	0.4%	-0.4%	1.0%	-4.7%	2.6%
1995	-0.2%	0.7%	-11.4%	1.3%	4.4%	3.4%	3.3%	-3.6%	1.5%
1996	1.0%	2.1%	-16.8%	2.4%	2.2%	1.2%	4.5%	-2.2%	2.6%
1997	2.9%	4.0%	-19.4%	4.1%	5.2%	2.8%	3.2%	0.7%	1.7%
1998	2.6%	3.2%	-13.8%	3.2%	2.8%	0.4%	4.1%	14.0%	5.0%
1999	4.3%	3.3%	24.5%	3.3%	2.9%	0.8%	3.9%	9.4%	4.4%
2000	4.3%	3.9%	8.2%	3.9%	2.9%	0.8%	3.9%	9.3%	4.4%
2001	3.0%	3.0%	-0.4%	3.0%	3.1%	0.8%	3.9%	2.9%	3.6%
2002	2.2%	2.0%	3.1%	2.0%	2.6%	0.8%	3.2%	0.7%	3.4%
2003	1.9%	1.7%	5.2%	1.7%	2.3%	0.4%	2.9%	0.6%	3.6%
2004	2.1%	2.0%	2.1%	2.0%	2.2%	0.8%	2.8%	0.7%	3.8%
2005	1.9%	1.9%	-0.1%	1.9%	2.3%	0.8%	2.9%	0.6%	3.8%
2006	1.3%	1.4%	-3.3%	1.4%	2.7%	1.1%	3.3%	-2.7%	3.3%
2007	1.0%	1.1%	-1.6%	1.0%	2.5%	1.1%	3.0%	-2.5%	3.3%
2008	0.6%	0.7%	-0.7%	0.6%	2.2%	0.7%	2.6%	-1.4%	3.5%
2009	0.2%	0.3%	-0.9%	0.3%	1.7%	0.7%	2.1%	-0.9%	3.6%
2010	0.3%	0.3%	1.6%	0.3%	1.6%	0.4%	2.0%	-0.7%	3.7%
2011	0.9%	0.8%	1.5%	0.8%	1.7%	0.7%	2.1%	-0.4%	3.9%
2012	1.0%	0.8%	5.1%	0.7%	1.6%	0.4%	2.0%	1.8%	4.1%
2013	1.3%	1.1%	4.8%	1.1%	1.7%	0.7%	2.0%	3.2%	4.3%
2014	1.4%	1.4%	0.4%	1.4%	1.8%	0.7%	2.2%	3.5%	4.4%
2015	1.5%	1.4%	1.3%	1.4%	1.9%	0.7%	2.3%	3.5%	4.4%
2016	1.2%	1.2%	-0.6%	1.2%	1.9%	0.7%	2.2%	3.3%	4.5%
2017	1.0%	1.0%	0.2%	1.0%	2.1%	0.7%	2.4%	0.8%	4.1%
2018	0.9%	0.9%	0.6%	0.9%	2.1%	1.0%	2.4%	0.8%	4.1%
2019	0.9%	0.9%	1.5%	0.9%	2.0%	1.0%	2.3%	0.8%	4.0%
2020	0.8%	0.9%	-1.7%	0.9%	2.2%	1.0%	2.4%	1.0%	4.0%

Definitions

Civ LF	Civilian labor force
Civ ER	Civilian employed residents
U Rate	Unemployment rate; U Rate = 1 - (Civ ER / Civ LF)
CivJobs	Civilian jobs; includes wage and salary employment and self-employed and domestic workers
R_Inc	Real aggregate personal income in millions of 1996 dollars
R_PCInc	Real per capita personal income in 1996 dollars
R_TRETS	Real taxable retail sales in millions of 1996 dollars
R_PH	Real price of housing in 1996 dollars; the average sales price of a detached single family home
CPI96	San Diego region consumer price index for all goods, 1996 = 1.00

2020 Regionwide Forecast
San Diego Region

Table A4: Employment by Sector

Year	Ag & Min	Cons	Mfg	TCPU	Trade	FIRE	Serv	Gov	SEDW
1980	14,100	36,000	108,100	28,800	148,700	38,600	148,400	141,200	33,700
1981	14,500	34,900	109,500	29,400	154,100	40,700	155,700	142,000	37,700
1982	14,500	28,900	108,500	29,600	154,300	42,200	160,000	140,300	44,900
1983	14,100	31,600	105,800	29,000	159,100	45,500	163,600	139,600	67,100
1984	12,900	37,800	112,700	29,600	172,000	47,800	180,300	141,800	72,400
1985	12,600	41,700	118,800	30,800	184,200	50,000	198,000	145,700	77,100
1986	12,700	43,300	120,200	32,500	194,300	53,900	212,000	149,900	81,400
1987	13,100	46,300	121,800	33,800	206,500	57,900	227,300	156,600	85,300
1988	12,800	50,300	127,200	35,100	222,900	62,200	239,500	163,000	95,100
1989	11,900	55,100	132,000	35,300	232,300	62,900	250,900	169,300	101,300
1990	11,500	51,600	134,200	35,900	236,600	63,900	266,300	177,300	96,800
1991	11,000	47,000	131,100	36,000	231,700	62,800	274,600	179,100	81,400
1992	11,200	43,100	124,200	34,800	221,500	61,200	283,600	179,300	88,600
1993	11,100	39,600	117,600	35,700	225,400	62,100	287,300	179,000	99,900
1994	11,000	40,500	114,100	36,400	227,100	59,200	296,100	181,500	104,800
1995	11,100	43,600	114,900	37,400	229,500	55,800	310,900	186,100	95,700
1996	11,400	45,500	117,500	38,300	235,900	57,400	321,300	190,400	93,300
1997	11,200	52,500	122,000	41,100	241,000	60,900	338,700	192,500	96,200
1998	11,600	54,600	125,400	42,500	249,300	62,200	349,400	197,800	99,700
1999	11,800	56,600	127,800	43,500	257,900	64,000	360,600	205,800	103,500
2000	12,000	58,800	131,900	44,600	268,200	65,800	375,200	214,500	108,200
2001	12,200	60,600	135,700	45,700	277,400	68,000	388,100	217,900	111,900
2002	12,300	61,900	136,800	46,300	284,100	70,200	396,500	221,200	114,500
2003	12,300	62,900	137,000	46,800	290,600	72,100	404,000	224,300	116,700
2004	12,300	63,800	138,200	47,400	297,600	74,300	413,400	227,000	119,400
2005	12,400	64,900	139,200	48,100	304,000	76,500	422,500	229,900	121,900
2006	12,300	66,100	139,200	48,600	309,100	78,300	429,400	232,700	123,900
2007	12,300	67,200	138,500	48,900	312,900	79,900	434,400	235,400	125,400
2008	12,200	67,600	136,800	49,100	315,500	81,100	437,700	237,800	126,300
2009	12,000	67,700	134,100	49,100	317,100	81,800	439,600	240,100	126,700
2010	11,900	68,000	131,600	49,000	318,600	82,300	441,300	242,200	127,100
2011	11,800	69,100	130,500	49,200	321,800	83,400	445,400	244,000	128,200
2012	11,700	69,800	129,500	49,400	324,700	84,500	449,500	246,000	129,300
2013	11,700	70,500	129,100	49,800	328,700	85,900	455,600	248,100	130,900
2014	11,800	71,400	129,500	50,300	333,800	87,700	463,600	250,300	132,900
2015	11,800	72,400	129,800	50,900	338,600	89,600	471,500	252,800	135,000
2016	11,800	73,500	129,700	51,400	343,000	91,200	478,400	255,300	136,800
2017	11,800	74,500	129,200	51,700	346,600	92,600	484,000	257,800	138,300
2018	11,700	75,400	128,300	52,000	349,800	94,000	488,900	260,100	139,700
2019	11,700	76,300	127,600	52,300	352,900	95,300	493,900	262,400	141,000
2020	11,700	77,200	126,900	52,700	356,100	96,800	499,400	264,600	142,400

Definitions

Ag & Min	Agriculture and Mining; SIC 1-14
Cons	Construction; SIC 15-17
Mfg	Manufacturing; SIC 20-39
TCPU	Transportation, Communication and Public Utilities; SIC 40-49
Trade	Wholesale and Retail Trade; SIC 50-59
FIRE	Finance, Insurance and Real Estate; SIC 60-67
Serv	Services; SIC 70-89
Gov	Government; SIC 90-94
SEDW	Self-employed and domestic workers

2020 Regionwide Forecast
San Diego Region

Table A5: Annual Percent Change in Employment by Sector

Year	Ag & Min	Cons	Mfg	TCPU	Trade	FIRE	Serv	Gov	SEDW
1981	2.8%	-3.1%	1.3%	2.1%	3.6%	5.4%	4.9%	0.6%	11.9%
1982	0.0%	-17.2%	-0.9%	0.7%	0.1%	3.7%	2.8%	-1.2%	19.1%
1983	-2.8%	9.3%	-2.5%	-2.0%	3.1%	7.8%	2.3%	-0.5%	49.4%
1984	-8.5%	19.6%	6.5%	2.1%	8.1%	5.1%	10.2%	1.6%	7.9%
1985	-2.3%	10.3%	5.4%	4.1%	7.1%	4.6%	9.8%	2.8%	6.5%
1986	0.8%	3.8%	1.2%	5.5%	5.5%	7.8%	7.1%	2.9%	5.6%
1987	3.1%	6.9%	1.3%	4.0%	6.3%	7.4%	7.2%	4.5%	4.8%
1988	-2.3%	8.6%	4.4%	3.8%	7.9%	7.4%	5.4%	4.1%	11.5%
1989	-7.0%	9.5%	3.8%	0.6%	4.2%	1.1%	4.8%	3.9%	6.5%
1990	-3.4%	-6.4%	1.7%	1.7%	1.9%	1.6%	6.1%	4.7%	-4.4%
1991	-4.3%	-8.9%	-2.3%	0.3%	-2.1%	-1.7%	3.1%	1.0%	-15.9%
1992	1.8%	-8.3%	-5.3%	-3.3%	-4.4%	-2.5%	3.3%	0.1%	8.8%
1993	-0.9%	-8.1%	-5.3%	2.6%	1.8%	1.5%	1.3%	-0.2%	12.8%
1994	-0.9%	2.3%	-3.0%	2.0%	0.8%	-4.7%	3.1%	1.4%	4.9%
1995	0.9%	7.7%	0.7%	2.7%	1.1%	-5.7%	5.0%	2.5%	-8.7%
1996	2.7%	4.4%	2.3%	2.4%	2.8%	2.9%	3.3%	2.3%	-2.5%
1997	-1.8%	15.4%	3.8%	7.3%	2.2%	6.1%	5.4%	1.1%	3.1%
1998	3.6%	4.0%	2.8%	3.4%	3.4%	2.1%	3.2%	2.8%	3.6%
1999	1.7%	3.7%	1.9%	2.4%	3.4%	2.9%	3.2%	4.0%	3.8%
2000	1.7%	3.9%	3.2%	2.5%	4.0%	2.8%	4.0%	4.2%	4.5%
2001	1.7%	3.1%	2.9%	2.5%	3.4%	3.3%	3.4%	1.6%	3.4%
2002	0.8%	2.1%	0.8%	1.3%	2.4%	3.2%	2.2%	1.5%	2.3%
2003	0.0%	1.6%	0.1%	1.1%	2.3%	2.7%	1.9%	1.4%	1.9%
2004	0.0%	1.4%	0.9%	1.3%	2.4%	3.1%	2.3%	1.2%	2.3%
2005	0.8%	1.7%	0.7%	1.5%	2.2%	3.0%	2.2%	1.3%	2.1%
2006	-0.8%	1.8%	0.0%	1.0%	1.7%	2.4%	1.6%	1.2%	1.6%
2007	0.0%	1.7%	-0.5%	0.6%	1.2%	2.0%	1.2%	1.2%	1.2%
2008	-0.8%	0.6%	-1.2%	0.4%	0.8%	1.5%	0.8%	1.0%	0.7%
2009	-1.6%	0.1%	-2.0%	0.0%	0.5%	0.9%	0.4%	1.0%	0.3%
2010	-0.8%	0.4%	-1.9%	-0.2%	0.5%	0.6%	0.4%	0.9%	0.3%
2011	-0.8%	1.6%	-0.8%	0.4%	1.0%	1.3%	0.9%	0.7%	0.9%
2012	-0.8%	1.0%	-0.8%	0.4%	0.9%	1.3%	0.9%	0.8%	0.9%
2013	0.0%	1.0%	-0.3%	0.8%	1.2%	1.7%	1.4%	0.9%	1.2%
2014	0.9%	1.3%	0.3%	1.0%	1.6%	2.1%	1.8%	0.9%	1.5%
2015	0.0%	1.4%	0.2%	1.2%	1.4%	2.2%	1.7%	1.0%	1.6%
2016	0.0%	1.5%	-0.1%	1.0%	1.3%	1.8%	1.5%	1.0%	1.3%
2017	0.0%	1.4%	-0.4%	0.6%	1.0%	1.5%	1.2%	1.0%	1.1%
2018	-0.8%	1.2%	-0.7%	0.6%	0.9%	1.5%	1.0%	0.9%	1.0%
2019	0.0%	1.2%	-0.5%	0.6%	0.9%	1.4%	1.0%	0.9%	0.9%
2020	0.0%	1.2%	-0.5%	0.8%	0.9%	1.6%	1.1%	0.8%	1.0%

Definitions

Ag & Min	Agriculture and Mining; SIC 1-14
Cons	Construction; SIC 15-17
Mfg	Manufacturing; SIC 20-39
TCPU	Transportation, Communication and Public Utilities; SIC 40-49
Trade	Wholesale and Retail Trade; SIC 50-59
FIRE	Finance, Insurance and Real Estate; SIC 60-67
Serv	Services; SIC 70-89
Gov	Government; SIC 90-94
SEDW	Self-employed and domestic workers

Agency Population and Service Area Group By Year

Year	Population (People)	Service Area (Acres)
1980	1,806,035	881,951.00
1981	1,864,290	882,025.00
1982	1,889,365	885,096.00
1983	1,934,587	868,211.00
1984	2,006,239	900,873.00
1985	2,047,000	891,694.00
1986	2,105,500	893,098.00
1987	2,181,000	896,386.00
1988	2,253,216	451,744.00
1989	2,346,208	899,628.00
1990	2,436,903	905,663.00
1991	2,485,692	905,672.00
1992	2,520,763	905,665.00
1993	2,572,002	905,680.00
1994	2,604,483	906,066.00
1995	2,622,948	908,965.00
1996	2,629,879	908,978.72
1997	2,640,861	909,034.50
1998	2,689,493	908,968.32
1999	2,733,035	915,735.40
2000	2,814,481	918,128.30
2001	2,813,278	920,002.00

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ATTACHMENT H

SANDAG and SDCWA Forecasting

San Diego Association of Governments (SANDAG) and San Diego County Water Authority (CWA): Regional Growth and Water Demand Forecasting

A. San Diego Association of Governments

1. INTRODUCTION

The San Diego Association of Governments (SANDAG) was formed in 1972 and is the regional planning agency and the technical and information resource for the 18 incorporated cities and County government, who are collectively, the "Association of Governments." SANDAG is governed by a Board of Directors composed of an elected official from each of the 19 local governments. Supplementing the voting members are seven advisory members including the County Water Authority (CWA). In addition to the mandated responsibilities as a regional transportation planning agency and a regional transportation commission, SANDAG provides technical and informational assistance in the areas of demographic and economic analysis, transportation studies, survey design and analysis, criminal justice studies, public facilities location, housing needs analysis, environmental planning, and other types of studies.

SANDAG has been producing long-range forecasts of growth in the region for over 25 years, which are now updated every 4 to 5 years. The latest forecast is called the 2020 Regional Growth Forecast. Two key ingredients drive SANDAG efforts to build accurate and reliable Regional Growth Forecasts. One is the extensive review of the forecast. The guidance, expertise, and insights of the committees and other groups that review the forecast are indispensable to the forecasting process and to the development of accurate information for regional decision-making. The other is that SANDAG's forecasting models and procedures are continually refined and updated to incorporate new information and to reflect state-of-the-art forecasting techniques and advances in computer technology. During 1997 and 1998, SANDAG completed a significant upgrade and revision to the modeling system for use in the 2020 Regional Growth Forecast.

This report describes the procedures and models used to prepare SANDAG's Regional Growth Forecast, which is done in two phases, and identifies its integration into the CWA's demand forecasting. The first phase forecasts population, housing, employment, income, and other growth related information

for the entire San Diego region. This region wide forecast is based on factors such as birth and death rates; domestic and international migration; and national, state, and local economic trends and conditions. The 2020 Region wide Forecast was approved for use by the SANDAG Board in July 1998.

The second phase, the 2020 Cities/County Forecast, allocates the region wide growth to jurisdictions, communities, and other geographic areas within the region. This allocation is based on land use policies, such as general plans, transportation system, and the spatial relationships between activity locations within the region. The 2020 Cities/County Forecast was approved for use by the SANDAG Board in February 1999.

SANDAG is currently in the lengthy process of preparing the 2030 forecast, which should be approved for use by the SANDAG Board in 2002.

2. DEFM-The 2020 Region wide Forecasting Model

The Demographic and Economic Forecasting Model (DEFM) produces the region wide forecast. DEFM is a blend of two widely used forecasting techniques: a cohort-component method for population change and econometric equations for economic factors. Changes in population are caused by natural increase (births minus deaths) and migration patterns. The cohort-component method uses information on age, sex, and ethnic composition and future trends in birth and death rates to forecast population changes due to natural increase. DEFM relates population change from domestic migration (migration from other parts of the US) to the future performance of the region's economy. In particular, job creation, wages, and the supply and demand of labor determine the future levels of domestic migration. International migration (from other countries) is determined by U.S. immigration policy and by the historical share of U.S. immigrants that located in the San Diego region.

The economic portion of DEFM consists of five sectors:

1. construction;
2. prices;
3. employment and output;
4. local revenues and expenditures; and
5. income

DEFM links all five economic sectors directly to each other and to the cohort-component model through equations based on regional, state, and national economic trends. DEFM's equations and statistical procedures accurately reflect the many complex interrelationships that underlie the region's economy.

3. UDM-The 2020 Cities/County Forecasting Model

The Urban Development Model (UDM) allocates the region wide forecast to produce the 2020 Cities/County Forecast. UDM is designed to forecast the location of residential and nonresidential activity within the region. In particular, UDM is based on the spatial interrelationships between economic factors, population and housing factors, land use patterns, and the transportation system.

Four major premises underlie UDM's forecast of residential activities.

a. Employment location is a primary determinant of the location of residential activities;
b. The longer the work trip, the less the likelihood that a person makes that trip;
c. The more land that is available for residential development, the greater the potential for residential growth; and
d. Residential growth occurs where local land use plans and policies identifies additional capacity for residential development.

UDM captures the link between work place location and residential location through commuting patterns and travel times within the region furnished by the transportation model. By using current and future trends in travel behavior, UDM can account for the other factors that determine where people might live within the region, such as land values, multiple worker households, income, and neighborhood preferences.

After UDM determines the residential location of employed residents, it uses several local factors to derive households (occupied units), housing stock (occupied units plus vacant units), and population. One factor, known as the employed residents per household rate, determines the number of households needed to accommodate the forecast of employed residents. For each area, this factor reflects the characteristics that determine the typical number of workers in each house, such as local unemployment rates, multiple-worker households, labor force participation rates, the age structure, and income. Local vacancy rates and household size (average persons per household) factors determine housing stock and the number of persons living in each household. Finally, UDM produces a forecast of group quarters population (e.g., nursing homes, military barracks, jails, and college dormitories) to complete the population forecast.

Not only does the spatial distribution of employment opportunities influence the location and demand for houses, but the reverse is true as well, especially for population-serving employment such as retail trade and services. UDM handles

this relationship by assuming a lag between residential development and the subsequent location of new jobs. Other factors that determine the future location of employment opportunities within the region are:

a. Transportation characteristics, including home-based shopping travel behavior;
b. The existing and previously forecasted locations of employment, reflecting the economies of scale businesses gain by locating near like-businesses; and
c. The capacity for additional employment growth based on existing land use plans or a specified alternative.

As noted, the availability of land and capacity for development influence the forecast of both residential and employment activities. The demand for these activities, in turn, influences future land supply and capacity. For example, an area adding residential activity consumes land and reduces the capacity for future residential development. Therefore, changes in land supply and capacity affect the allocation of activity in subsequent forecast years. UDM does not allow growth to exceed the capacity implied by the available land and densities.

Some of the forecast outputs that UDM generates are birth rates, death rates, domestic net migration, international net migration, household size, land use, housing structure type, local labor unemployment rate, jobs per housing unit, median household income, and civilian employment by jurisdictions and many other geography areas within the region, down to areas as small as blocks. Of the many outputs that the UDM model produces, the CWA uses a number of these outputs to forecast the water needs of individual member agencies as described in the next session of the report. They are the following: occupied single family housing, occupied multifamily housing, total employment and employment by major industry group, persons per household, housing density, and household income. These are the inputs that go into the CWA CWA-MAIN model.

B. San Diego County Water Authority

1. INTRODUCTION

The mission of the San Diego County Water Authority (CWA) is to provide a safe and reliable supply of water to its member agencies serving the San Diego region. The CWA provides wholesale water supplies to 22 member retail agencies and Pendleton Military Reservation. A mixture of dense urban areas and rural, predominantly agricultural areas characterizes the 1,420 square mile service area of the CWA. The expected rate of population and economic growth coupled with the geographic and climatic diversity of the service area presents a challenge for future water supply and conservation planning.

For ten years the CWA and SANDAG have been working together to link future water supply needs with the forecasted growth for the region. The voters in San Diego County in 1988 passed proposition C, which requires SANDAG to prepare a growth management strategy that includes a water supply element. In response, the CWA and SANDAG entered into a memorandum of agreement (MOA) whereby the CWA agrees to use SANDAG's most recent regional growth forecasts for water supply planning purposes. In addition, the MOA requires the CWA to provide recent information on the future supplies that will meet the growth forecasted for the region. SANDAG has recently established a formal process to measure the progress of future water supply development and its ability to meet the needs of an expanding community. The MOA ensures that the water demand projections for the San Diego region are linked with SANDAG's growth forecasts and that water supply is a component of the overall growth management strategy.

2. WATER PLANS AND REPORTS

To assist in meeting its mission, the CWA has developed the 2000 Urban Water Management Plan (2000 Plan). The 2000 Plan identifies the future water demands forecasted for the CWA's service area through 2020. Based on these forecasts a water supply reliability analysis is conducted that identifies the supplies necessary to meet future demands. The development of a water use forecasting model is the culmination of an extensive data collection endeavor. The process involves database development, water use modeling, calibration of models to historical records, verification of model accuracy, development of a baseline forecast, and the development of forecasts with water conservation. Water demand forecast data is used not only for water resources planning, but also for financial analysis and facility planning.

3. IWR/CWA-MAIN-Water Demand Forecasting Model

To project municipal and industrial (M&I) water use, the Authority utilizes the IWR-MAIN (Institute for Water Resources - Municipal and Industrial Needs) computer model. Several U.S. cities and water agencies, including Metropolitan Water District of Southern California are currently using versions of this econometric model. The IWR-MAIN system is designed to translate local historical demographic, housing, employment, weather and water use data into a customized model that can be used to forecast water demand using projected demographic, housing and employment data, as well as assumptions regarding future water conservation, weather and the price of water.

The CWA's version of this model is called "CWA-MAIN," and is used to forecast municipal and industrial water demand for 22 of its member agencies, excluding Pendleton Military Reservation. The Military Reservation develops and provides the CWA its forecasted demands and projected local supplies. The CWA-MAIN model is calibrated to reflect the unique water use patterns of the San Diego region. Historical and forecasted demographic, housing and employment data are provided by SANDAG under terms of the 1992 memorandum of agreement between the CWA and SANDAG. The CWA has revised the original model completed in 1996, to include the demographic, economic and land use information from the 2020 Cities/County Forecast. Specific model inputs used from the SANDAG forecast include:

- Occupied Single Family Housing;
- Occupied Multi-Family Housing;
- Total Employment and Employment by Major Industry Group;
- Persons per household;
- Housing Density; and
- Household income

The CWA collects and uses the following additional data as well:

- Monthly or bimonthly water sales and number of accounts for major water use sectors,
- Marginal prices for water and wastewater services per billing period,
- Water sales per account for the largest nonagricultural water users within each water district, and
- Information on water conservation programs and drought.

The CWA-MAIN model is comprised of three sets of equations, which calculate water use based on demographic, socioeconomic, and weather variables; separate equations are used for single family, multi-family, and non-residential use. The driver variables are the number of occupied single family units, the

number of occupied multi-family units, and employment in eight major industry groups. The variables that affect water use in the residential models are climate, retail water rates, household income, housing density and household size. The variables that affect water use in non-residential models are climate, retail water rates, employment and productivity. Verification of the econometric models is an important step in the forecast process. The process of verification assesses the ability of the three models to produce estimates within acceptable bounds of observed historical values. The process of calibration seeks to fine-tune the models so their predicted values equal its reported values. The latest revision to CWA-MAIN was calibrated using historical demographic and water use data for 1996 and 1997.

In addition to updating the CWA-MAIN model, a new agricultural water use model has also been developed. The new model forecasts municipally supplied agricultural water demand based on agricultural acreage projections provided by SANDAG, crop distribution data derived from Department of Water Resources and California Avocado Commission data and average watering requirements. Agricultural water use accounts for approximately 15% of all water use in the CWA's service area.

Attachment I—IIDSS Model Overview

Commenters have requested a clear description of the IIDSS model to assist them in understanding how the model was used in development of the Draft EIR/EIS and in understanding how model output was used in analyses of the Proposed Project and Alternatives. This response is designed to be a brief overview of the model's structure and use. Additional information on IIDSS is included in Appendix E of the Draft EIR/EIS.

I.1 Background

IID's irrigation system diverts water from the Colorado River to over 5,000 tenants distributed throughout the 1,000 square miles of the district. As shown on Figure I-1, water

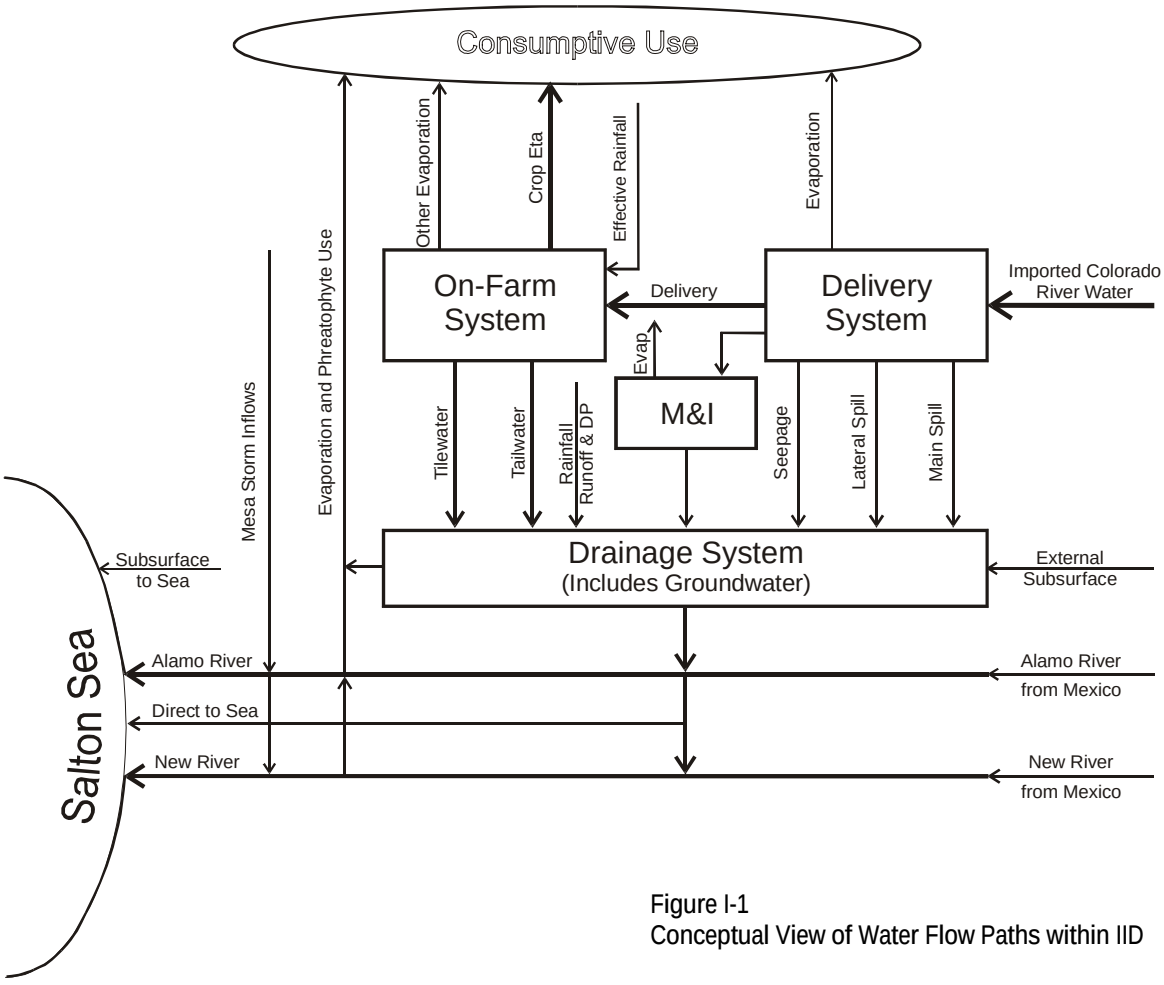

Figure I-1
Conceptual View of Water Flow Paths within IID

for irrigation is diverted from the Colorado River and distributed to farms, municipal and industrial (M&I) customers, and other users via the IID delivery system. The IID drainage system collects the return flows from these users and discharges these flows to the Alamo and New Rivers and the Salton Sea. Figure I-1 provides a conceptual overview of all the

external and internal water flow paths within the IID water service area described in this response.

Rectangular boxes on Figure I-1 represent the delivery, on-farm, M&I, and drainage systems that define water demands, canal and drain flows, and water quality throughout the delivery canals and drains. The oval at the top of the figure, labeled consumptive use, represents the discharge of water to the atmosphere via evapotranspiration (ET) from farm fields, evaporation from water surfaces, and transpiration by plants growing along canals, drains, and rivers.

Approximately two-thirds of the water diverted from the Colorado River to the IID water service area is consumed by irrigated crops. The remaining third drains to the Salton Sea, which is represented by the open oval on the left-hand side of Figure I-1. Arrows connecting the system boxes and discharge ovals represent the modeled water flow paths throughout IID.

The weight of the arrows on Figure I-1 indicates the relative volume of flow along the associated flow paths. Table I-1 gives the measured and simulated mean annual flows for these flow paths for the 12-year (1987 to 1998) calibration and validation period. This table shows that IID's average annual demand for Colorado River water that is computed by the model is 99.7 percent of the observed average annual flow.

TABLE I-1
Measured and Simulated Mean (1987 to 1998) Annual Flows AF along Major Flow Paths within IID

Description	Recorded	Modeled
Imported Colorado River Water	2,865,700[1]	2,857,000
Canal and Reservoir Evaporation		20,800
Canal Seepage		122,700
Main Canal Spills		6,700
Lateral Spills		116,900
Sum of Delivery System Losses	271,600[2]	267,100
Delivery to Farms	2,489,600	2,489,700
CROP ET		1,806,200
Effective Rainfall		100,700
Tailwater		390,000
Tilewater		394,200
Delivery to M&I + Stock + Misc.	104,500[3]	104,500
Consumptive Use from M&I + Stock + Misc.		76,300
Return Flow from M&I + Stock + Misc.		28,200
Recovered Return Flow from Mesa Lateral 5		4,400
Rainfall Runoff and Deep Percolation		36,800
Evaporation and Phreatophyte Use		125,100
Mesa Storm Inflows		7,900
Subsurface Inflow (Estimated)	20,000	20,000
Alamo River from Mexico	1,700	1,700
New River from Mexico	164,700	164,700
Alamo River to the Salton Sea	604,500	605,100
New River to the Salton Sea	453,500	453,000

TABLE I-1
Measured and Simulated Mean (1987 to 1998) Annual Flows AF along Major Flow Paths within IID

Description	Recorded	Modeled
Direct to Sea	100,200	101,200
Subsurface to Sea (Estimated)	1,000	1,000

[1] All American Canal at Mesa Lateral 5 by water balance from recapitulation data.
[2] Sum of delivery-system losses is calculated from the difference in recorded diversions less deliveries.
[3] Includes estimates of deliveries to rural pipes and community greens.

A water balance is kept for each system (rectangle) shown on Figure I-1, so that the sum of the inflows is equal to the sum of the outflows plus the change in storage within each system. The storage capacity within IID's delivery system is very small relative to the annual flow.

The soil moisture capacity of IID's farm fields and the drainable, shallow groundwater storage are relatively large. However, over the course of several years the change in stored water within the on-farm and drainage systems is small and assumed to be zero. This is to say that the volume of water stored in IID's soils and drains at the end of the 12-year modeling period was assumed to be the same as it was at the beginning of the period. Thus, the data in Table I-1 show that the sum of mean annual flows into each system is exactly equal to the sum of the flows out of each system. Likewise, a water balance can be computed for the IID water service area as a whole showing that the sum of inflows equals the sum of outflows.

The IIDSS modeling is based on the concept that the total volume of water entering the IID water service area can be accounted for by an equal volume of water leaving the IID water service area.

I.1.1 Delivery System

Using the 12-year modeled mean values presented in Table I-1, IID imports 2,857,000 acre feet per year (AFY) from the Colorado River via the All American Canal.[1] From this, 2,489,700 AFY are delivered to IID farms and 104,500 AF are delivered to M&I users, stock, rural pipes, and community greens, leaving a net delivery system loss of 267,100 AFY. Of this net delivery system loss, approximately 8 percent is canal and reservoir evaporation, 46 percent is canal seepage, 2 percent is main canal spills, and 44 percent is lateral spills.

I.1.2 On-farm System

Water from the delivery system is delivered to agricultural and other users through approximately 5,300 turnouts. Of the total number of turnouts, roughly 35 percent are solely for agricultural irrigation, 3 percent are for other uses, and the remaining 62 percent serve a combination of agricultural and other uses. Agricultural irrigation accounts for 96 percent of the total water use within the IID water service area.[2]

[1] The upstream boundary of the study area is the All American Canal at Mesa Lateral 5, which is just upstream of the East Highline Canal Heading.

[2] Other uses comprise mainly M&I demands, but also include stock, rural pipe deliveries, and water for irrigating community greens (e.g., parks, school grounds).

Water delivered through these turnouts to farm fields is either consumed by crop uptake, evaporated, or discharged to the drainage system as surface runoff (tailwater) or subsurface drainage (tilewater). This partitioning of water delivered to farm fields into consumptive use and tailwater and tilewater flows to drains is carried out within the on-farm system.

Using the 12-year modeled mean values presented in Table I-1, the average annual deliveries to IID farms are 2,489,700 AF. Of this, approximately 390,000 AF returns to the drainage system as tailwater and 394,200 AF as tilewater. The balance, 1,705,500 AF, makes up the volume of irrigation deliveries consumed by crops or evaporated from fields.

In addition to irrigation water, another source of water reaching fields is rainfall. During the 12-year calibration period, the estimated average volume of precipitation consumed by crops is estimated to be 100,700 AF while approximately 36,800 AF flows into the drainage system.

I.1.3 Drainage System

The third major component of the overall IID system is the drainage system, that consists of approximately 1,500 miles of surface drains. The drains collect tilewater and tailwater flows from the farms and pass them either directly to the Salton Sea or discharge them to the New or Alamo Rivers.

Using the values presented in Table I-1 the average annual discharge to the Salton Sea is 1,160,300 AF (605,100 AF via the Alamo River, 453,000 AF via the New River, 101,200 AF via drains discharging directly to the Salton Sea, and an estimated 1,000 AF of subsurface flow). Of this total drainage system discharge to the Salton Sea, 186,400 AFY on average comes from Mexico (1,700 AF via the Alamo River, 164,700 AF via the New River, and an estimated 20,000 AF via subsurface inflows) and an estimated 44,700 AF comes from rainfall runoff and deep percolation and mesa storm inflows (36,800 AF and 7,900 AF, respectively).

An estimated 125,100 AF is lost from the drainage system through evaporation from the water surface or through uptake by plants drawing water from the drains and rivers.

I.2 Data Review

The IIDSS determines the effectiveness of water conservation measures and the associated impacts to water quality and quantity in the drains. The basis for these determinations are water balances constructed in the model according to the framework described above. These balances track the flow of water through IID as shown Figure I-1. Large amounts of data were assembled and checked to construct each of these balances. The following section of this response briefly describes the process of collecting and reviewing data incorporated in the model.

I.2.1 Data Collection and Analysis

Data on historical deliveries to each turnout were compiled from IID's computer files. These data describe the measured amounts of water that were delivered to each of the 5,287 turnouts during the 12-year span from 1987 to 1998. This 12-year period from 1987 through 1998 was selected for model development since this was the only period of full monthly water

deliveries and cropping information available in electronic form.[3] Because the amount of data was large, a special database was used to store this information.

I.2.2 Delivery System Modeling

Using the historical record of deliveries, a water balance was constructed to determine system losses in the All American Canal downstream of the Mesa Lateral 5 Heading and to account for all system deliveries. This water balance identified the sum of evaporation and seepage loss volumes plus spill volumes. Because main canal spillage was the only recorded delivery system loss, equations describing canal seepage and evaporation and lateral spillage were developed to estimate these losses in each section of canal based on flows in that section.

The model is also able to compute how historical and future system improvements, such as canal lining and construction of lateral interceptors, would alter seepage and spillage in sections of the system where these improvements were constructed.

I.2.3 On-farm Modeling

On-farm data included information on crop acreage, crop type, and irrigation method, soil type, and name of delivery turnout. Crop water consumption was estimated by applying established estimation methods to crops recorded at each parcel receiving water deliveries. Evaporation at each parcel was also estimated using established practices based on the soil texture, method, and frequency of irrigation recorded at each parcel. Water not consumed by crops or evaporated from fields was partitioned between tailwater and tilewater at each field based on soil texture, crop, irrigation method, and volume of water delivered in excess of crop demand.

I.2.4 Drainage System Modeling

Tailwater and tilewater from irrigated fields, spillage, M&I discharges, canal seepage, and precipitation enter the drainage system and flow to the Salton Sea. Approximately 52 percent of drainage system flow is in the Alamo River basin, approximately 39 percent in the New River subbasin and approximately 9 percent is in drains that discharge directly to the Salton Sea. The drainage network is simulated by approximately 1,500 points throughout the IID water service area that represent locations where water may enter IID drains or rivers. These points are linked to depict the flow paths that water entering the drainage system would take as it is conveyed to the Sea. In the case of both the Alamo and the New Rivers, flows crossing the international boundary from Mexico also contribute to the flows modeled within the IID water service area.

I.2.5 Water Quality Modeling

Water quality data were obtained and reviewed for nine constituents of concern: salinity, sediment, boron, nitrogen, phosphorus, selenium, organochlorine insecticides (DDT, also

[3] Electronic data on IID water orders, deliveries, and charges began May 1986 and, at the time of IIDSS model development, ran until mid-November 1999. Coincident with executing and logging water deliveries the zanjeros (ditch riders) also noted crops and planting and harvest dates. These crop history data were also stored in an electronic database covering the same time period as the delivery history database.

used to represent its metabolites, and toxaphene), and organophosphorus insecticides (diazinon and chlorpyrifos).

Water quality data were compiled from various sources to describe concentrations and flows in the Colorado River, the All American Canal, IID drains, and the Alamo and New Rivers at the international border and their outlets to Salton Sea. Individual measurements were averaged into monthly values for the period from 1970 to 1999, and a subset of these monthly values for the 1987 to 1998 model calibration period was used in the model runs.

In general, salinity, boron, and selenium are imported into the system from the Colorado River with the irrigation water. Small amounts of nitrogen, phosphorus, and sediment are also introduced through the irrigation water, but the primary source of these constituents is irrigated fields. In addition, pesticides come exclusively from farm runoff and pass through the drain system. Once in the drainage system, TDS and boron behave as conservative constituents, and selenium, nitrogen, and phosphorus appear to be influenced by chemical and biological activity. The coarse sediment largely settles in the drains while fine sediment particles tend to remain in suspension and conveyed through the rivers to the Sea. The measured concentrations for the constituents in the irrigation water, drains, and rivers to the Salton Sea are summarized in Table I-2.

TABLE I-2
Mean Flows and Concentrations for Water Quality Parameters

Parameter	Irrigation Delivery	New River			Alamo River		
		Border	Drains	Outlet	Border	Drains	Outlet
Total dissolved solids (TDS) (mg/L)	771	3,894	2,116	2,997	3,191	2,375	2,458
Total suspended solids TSS (mg/L)	86	117	193	313	360	318	479
Selenium (Se) (µg/L)	2.5	3.0	7.4	3.9	5.9	7.9	7.7
Nitrate (NO_3) (mg/L)	0.28	0.84	7.49	4.37	1.87	8.14	7.81
Total phosphorus (mg/L)	0.05	1.42	0.78	0.81	0.47	0.84	0.63
DDT (µg/L)	0.001	0.088	0.013	0.016	0.011	0.020	0.016
Diazinon (µg/L)			0.025				0.025
Chlorpyrifos (µg/L)			0.025				0.025
Boron (µg/L)	170	1,600	804	1,172	1,798	683	695

I.3 MODSIM Simulations

The water balance structure described above was implemented in MODSIM, a well accepted hydrology model that is one of the few models capable of processing the large amount of input data needed to describe the complete IID system. MODSIM was used to simulate the monthly operation of the IID system for 12- and 75-year time periods for modeling of each of the alternatives. For each model run, MODSIM began by routing water through the delivery system to delivery points throughout the IID water service area and computed the overall water demand in the All American Canal at Mesa Lateral 5. Water flows were governed by constraints including maximum canal and drain flows, system spills, maximum and minimum reservoir capacities, and conveyance losses.

Delivered water that was not consumed by crops or evaporated from fields was then routed through the IID drainage network together with canal seepage, spillage, M&I discharges, and rainfall runoff to the discharge point of the individual drains. In some instances, these drains discharge directly to the Salton Sea, but in most cases drains discharge to either the New River or the Alamo River where they mix with water conveyed in the river from the International Boundary, and the commingled flows are routed to the Salton Sea.

As well as routing flow, MODSIM routes water quality constituent loads associated with each of the flow paths described in the water balance. While mass balance is maintained with water (the volume of water entering the system equals the volume of water leaving the system) some water quality constituents undergo physical, chemical, or biological transformations within the IID system so that the mass of constituent observed to leave the system is different from the mass computed to have entered the system. For this reason, MODSIM includes loss functions that simulate physical, chemical, or biological decay or losses of constituents in the drainage/river system. From the MODSIM output of flows and loads, concentrations can be calculated at any drain or river node throughout the drainage/river network. The constituent concentrations measured at the outlets of the New River and of the Alamo River to the Salton Sea were used for calibration of the water quality equations.

I.4 Key Findings

IIDSS simulation runs were made to produce the reasonable estimates of changes in flow and water quality in the IID drains and rivers likely to result under the Proposed Project and each of the Alternatives.

I.4.1 IID Hydrology

Simulated water balance data from IIDSS are shown in Table I-3. Historical data, IIDSS calibration data, and Baseline information are shown for reference. Table I- 3 shows a water balance for four conservation programs. Slight differences between target and actual conservation (Baseline diversion less program diversion) are noted. This difference is attributed to two things. First, actual acreage needed for on-farm or fallowed conservation is slightly exceeded (the last randomly selected participatory farm will create a conservation volume in excess of the target), and, second, an additional 4 percent conservation above on-farm and fallowing transfer volumes is associated with reduced system losses because of lower delivery volumes.

I.4.2 Water Quality in the IID Drainage System

Water quality changes are computed at the ends of all IID drains and along the Alamo and New Rivers at drain intersections for all IIDSS simulations. Figure I-2 demonstrates that reductions in drainage flow are almost linear to the reductions in IID diversions that result from conservation. Figure I-3 illustrates that the reduction in salinity loading in the IID drainage system is also a linear function of diversion salt loading. For a salinity concentration of 879 mg/L, this simply means that a 1 AF reduction in diversion reduces salt loading in the IID drainage system by 1.1954 tons.

Table I-4 presents a general overview of water quality changes for three constituents (TDS, selenium, and TSS) at key locations within the IID water service area for a 300 KAFY transfer program that includes 200 KAFY of on-farm conservation and 100 KAFY of water delivery system conservation. The percentages shown are for the predicted change from Baseline conditions. Table I-5 demonstrates changes in water quality for 300 KAFY of transfer developed by fallowing. For all water quality parameters, there is a slight improvement in water quality using fallowing to achieve the water transfer.

- The data shown in Tables I-4 and I-5 are average annual concentrations for the 12-year simulations. Output from the IIDSS is monthly and shows all water quality constituent concentrations varying on a monthly basis. General observations are that selenium and TDS concentrations increase for all conservation alternatives and that the percentage change for each alternative is nearly identical for both constituents. Because New River inflows from Mexico buffer changes resulting from implementation of conservation, greater changes in concentration tend to be observed in the Alamo River than in the New River.
- TSS concentrations are reduced. This is directly related to on-farm conservation and a resulting decrease in tailwater discharge.
- TSS concentrations are decreased only slightly in the direct-to-sea drains. This is related to farming methods and cropping patterns, as well as soil types. Most of the soils are very sandy along these drains.
- Fallowing results in minor reductions in salinity and selenium concentrations in the IID drains and rivers.

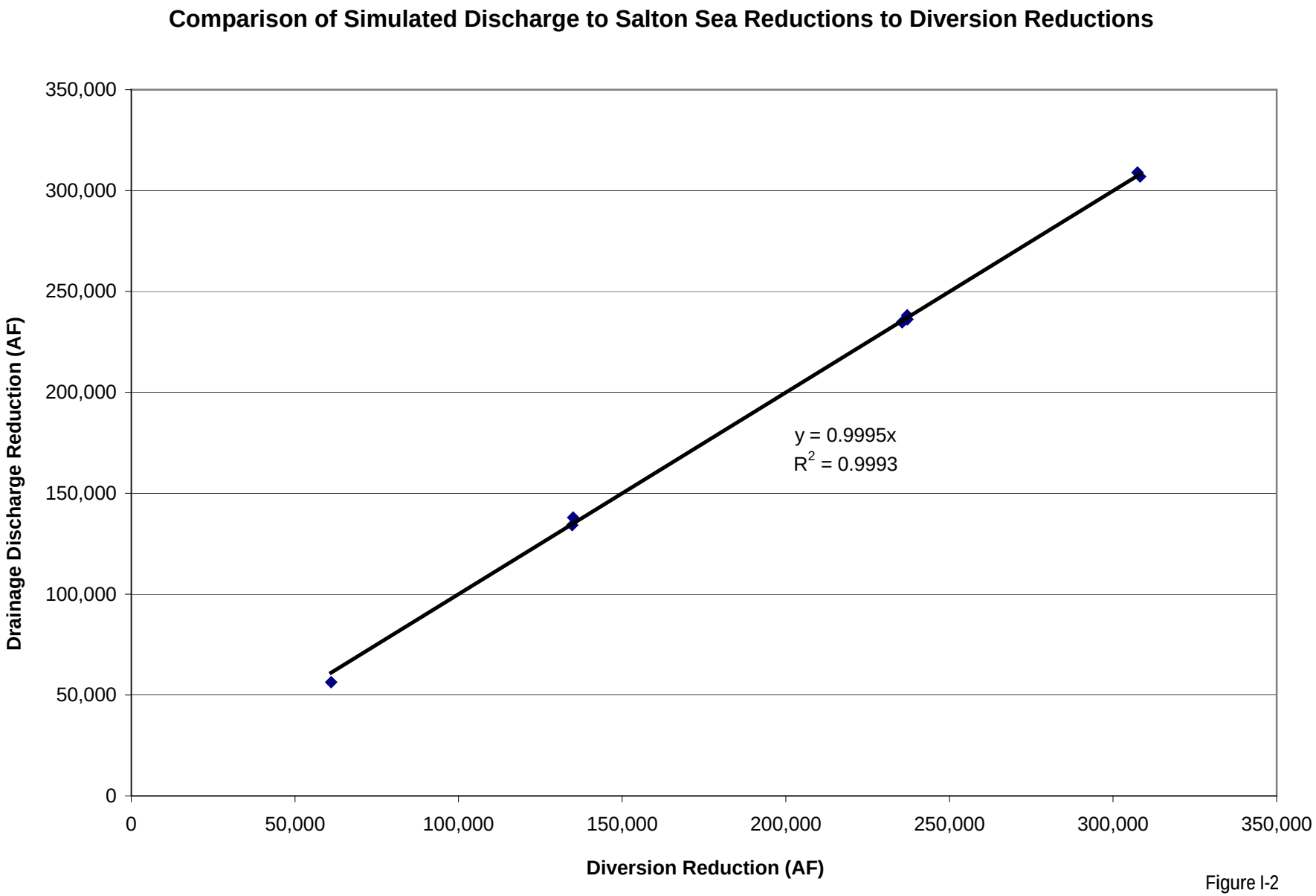

Figure I-2
Diversion and Drainage Flow Relationships

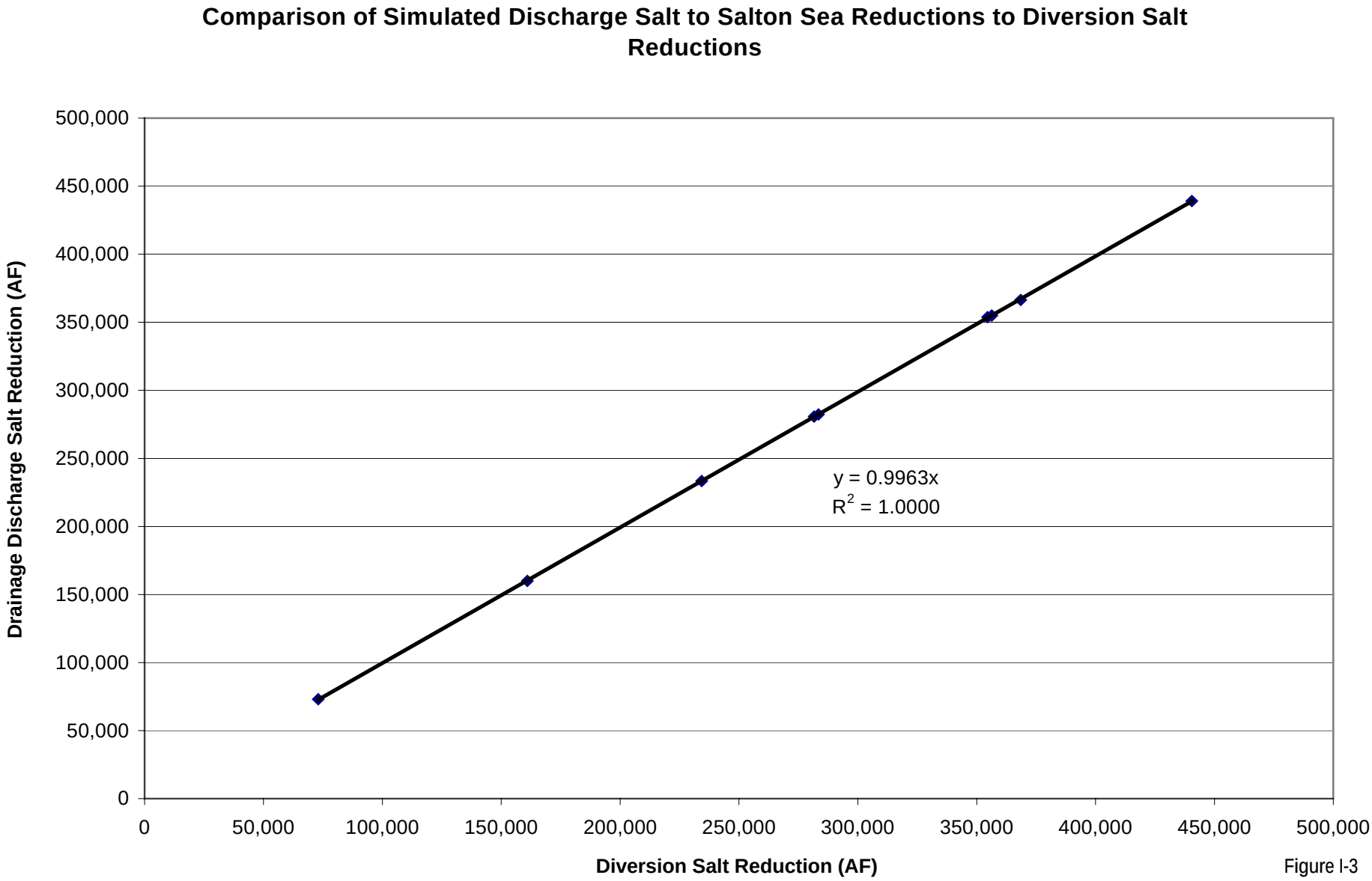

Figure I-3
Relationship of IID Salinity Diversions to Salinity and Discharge to Drainage

TABLE I-3
IIDSS Simulated Water Balance

Description	Recorded	Calibration	Baseline	200 KAFY On-farm plus 100 KAFY System	230 KAFY On-farm	130 KAFY On-farm	300 KAFY Fallowing
Imported Colorado River Water [1]	2,866,000	2,857,000	2,803,000	2,495,000	2,566,000	2,668,000	2,490,000
Canal and Reservoir Evaporation	-	21,000	19,000	17,000	17,000	18,000	17,000
Canal Seepage	-	123,000	111,000	89,000	104,000	107,000	100,000
Main Canal Spills	-	7,000	-	-	-	-	-
Lateral Spills	-	117,000	99,000	15,000	99,000	99,000	99,000
Sum of Delivery System Losses [2]	272,000	268,000	229,000	121,000	220,000	224,000	216,000
Delivery to Farms	2,490,000	2,490,000	2,458,000	2,258,000	2,229,000	2,328,000	2,158,000
Crop ET	-	1,807,000	1,807,000	1,806,000	1,806,000	1,806,000	1,593,000
Effective Rainfall	-	101,000	101,000	101,000	101,000	101,000	101,000
Tailwater	-	390,000	344,000	197,000	178,000	252,000	305,000
Tilewater	-	394,000	408,000	356,000	346,000	371,000	361,000
Delivery to M&I + Stock + Misc [3]	105,000	105,000	120,000	120,000	120,000	120,000	120,000
Consumptive Use from M&I + Stock + Misc	-	76,000	86,000	86,000	86,000	86,000	86,000
Return Flow from M&I + Stock + Misc	-	29,000	34,000	34,000	34,000	34,000	34,000
Recovered return flow from Mesa Lateral 5	-	4,000	4,000	4,000	3,000	4,000	4,000
Rainfall Runoff and Deep Percolation	-	34,000	38,000	36,000	37,000	37,000	38,000
Evaporation and Phreatophyte Use	-	125,000	125,000	125,000	125,000	125,000	125,000
Mesa Storm Inflows	-	8,000	8,000	8,000	8,000	8,000	8,000
Subsurface Inflow (Estimated)	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Alamo River from Mexico	2,000	2,000	2,000	2,000	2,000	2,000	2,000
New River from Mexico	165,000	165,000	165,000	165,000	165,000	165,000	165,000
Alamo River to the Salton Sea	604,000	605,000	576,000	401,000	448,000	503,000	517,000
New River to the Salton Sea	454,000	453,000	431,000	335,000	346,000	382,000	399,000
Direct to Sea	100,000	101,000	92,000	56,000	70,000	80,000	86,000
Subsurface to Sea (Estimated)	1,000	1,000	1,000	1,000	1,000	1,000	1,000

[1] AAC at Mesa Lateral 5 by water balance from recapitulation data.

[2] Sum of delivery system losses is calculated from the difference in recorded diversions less deliveries.

[3] Includes estimates of deliveries to rural pipes and community greens.

TABLE I-4
IIDSS Simulations of Water Quality—General Overview
On-farm Conservation = 200,000 AF and System Conservation = 100,000 AF

	New River Basin						Alamo River Basin					
	Baseline			Proposed Project			Baseline		Proposed Project		Direct to Sea Drains	
Parameter	Mexico Inflows	Surface Drains	River at Sea	Mexico Inflows	Surface Drains	River at Sea	Surface Drains	River at Sea	Surface Drains	River at Sea	Baseline	Proposed Project
TDS (mg/L)	2,719	2,585	2,617	2,719	3,294 (+27.4 percent)	3,075 (+17.5 percent)	2,492	2,465	3,559 (+42.8 percent)	3,101 (+25.8 percent)	1,892	2,637 (+39.4 percent)
Se (μg/L)	2.25	6.51	3.30	2.25	8.30 (+27.5 percent)	3.77 (+14.2 percent)	6.32	6.25	9.03 (+42.8 percent)	7.86 (+25.8 percent)	4.80	6.69 (+39.4 percent)
TSS (mg/L)	50	294	238	50	232 (-21.2 percent)	175 (-26.7 percent)	252	264	193 (-23.4 percent)	209 (-20.8 percent)	136	132 (-3.0 percent)

TABLE I-5
IIDSS Simulations of Water Quality—General Overview
Fallowing for 300,000 AF per year

	New River Basin						Alamo River Basin					
	Baseline			Proposed Project			Baseline		Proposed Project		Direct to Sea Drains	
Parameter	Mexico Inflows	Surface Drains	River at Sea	Mexico Inflows	Surface Drains	River at Sea	Surface Drains	River at Sea	Surface Drains	River at Sea	Baseline	Proposed Project
TDS (mg/L)	2,719	2,585	2,617	2,719	2,585 (0 percent)	2,606 (-0.4 percent)	2,492	2,465	2,403 (-3.6 percent)	2,418 (-1.9 percent)	1,892	1,815 (-4.1 percent)
Se (μg/L)	2.25	6.51	3.30	2.25	6.51 (0 percent)	3.18 (-3.6 percent)	6.32	6.25	6.10 (-3.5 percent)	6.13 (-1.3 percent)	4.80	4.61 (-4.0 percent)
TSS (mg/L)	50	294	238	50	285 (-3.1 percent)	226 (-5.0 percent)	252	264	247 (-2.0 percent)	259 (-1.9 percent)	136	136 (0.0 percent)