REBUILDING AMERICA

APA National Infrastructure Investment Initiative

California Regional Field Hearing

APA

American Planning Association

Making Great Communities Happen

Groundwater Replenishment System

A Pure Solution to Orange County's Water Needs

A joint effort of the

Orange County Water District and Orange County Sanitation District

The GWR System is a joint project between

- **OCWD –** To provide local water retailers with a reliable, adequate, high quality water supply at the lowest reasonable cost in an environmentally responsible manner

- **OCSD –** We protect public health and the environment by providing effective wastewater collection, treatment, and recycling

Why did we partner? Planning in the 1990's

- OCSD:
  Defer the need for a new ocean outfall

Why did we partner? Planning in the 1990's

- OCWD:

  Need more water:

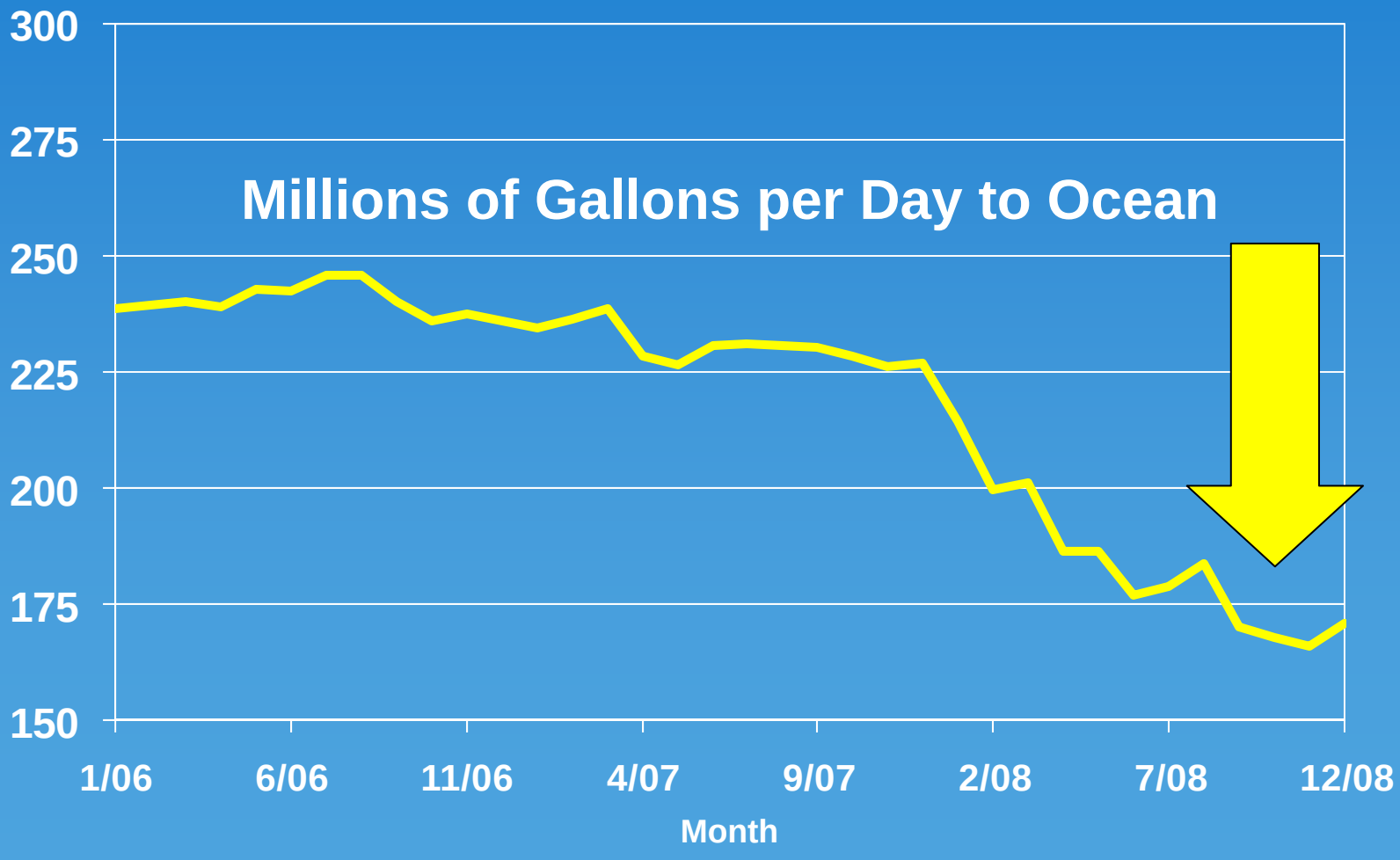
  - larger intrusion barrier
  - 5-year drought 1987–92
  - population steadily increasing
  - imported water supply challenges
  - improve groundwater quality

OCSD focuses on wastewater as a resource

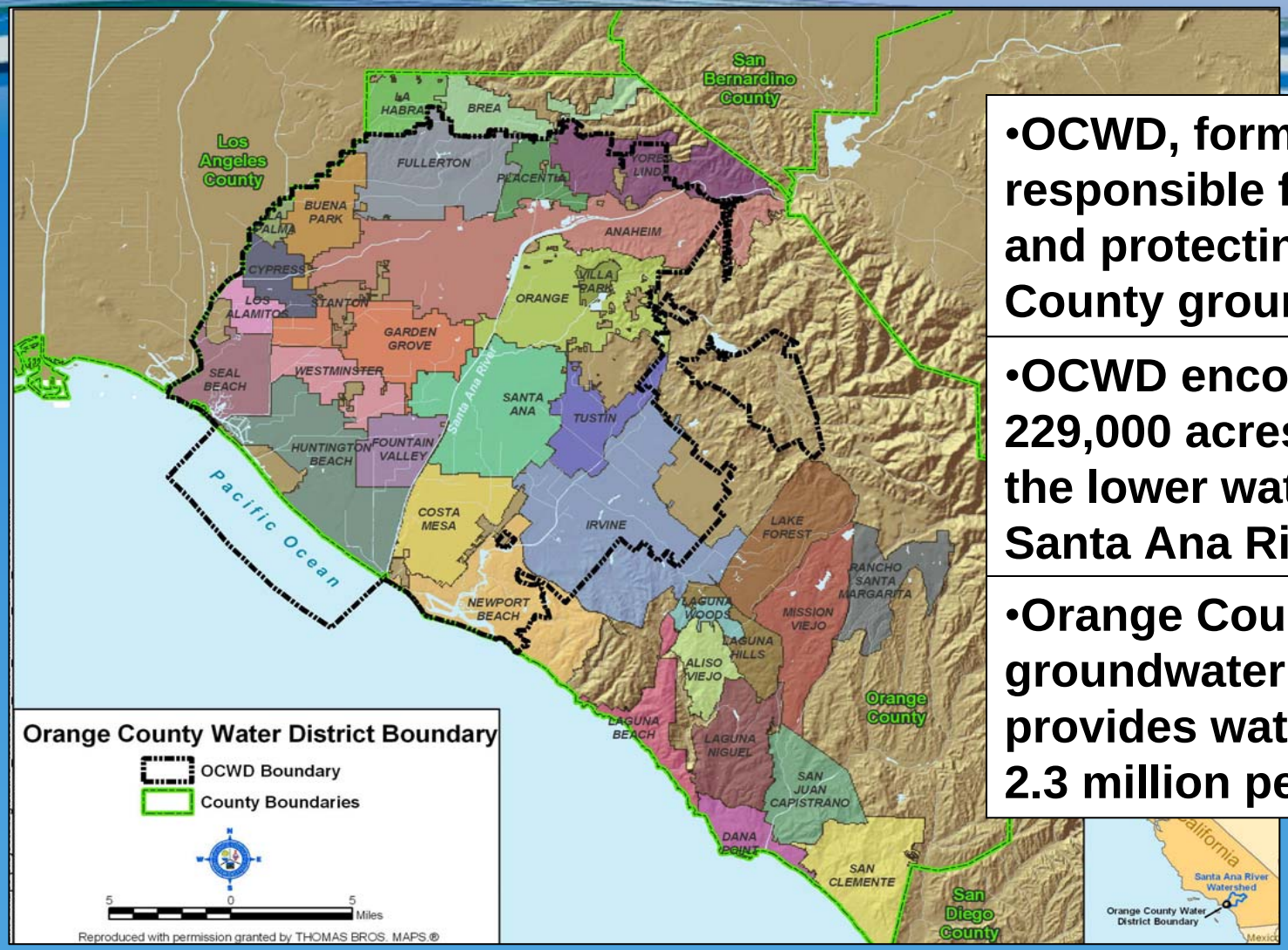
Enhanced source control

Treatment plant designed for maximum reclamation

Ramping up water reclamation less water to ocean outfall



Orange County Water District



- **OCWD, formed in 1933, is responsible for managing and protecting the Orange County groundwater basin**
- **OCWD encompasses 229,000 acres (925 km^2) in the lower watershed of the Santa Ana River (SAR)**
- **Orange County groundwater basin provides water for over 2.3 million people**

What is the Groundwater Replenishment (GWR) System?

- New sewer water purification system
- Expansion and improvement of world-famous Water Factory 21
- Advanced purification technology
  - Microfiltration (MF)
  - Reverse Osmosis (RO)
  - Ultraviolet light (UV) with hydrogen peroxide
- Results in near-distilled-quality water

GWR System Advanced Water Purification Process

OCSD Secondary Effluent

Normally Goes to Ocean

Microfiltration (MF)

Backwash Sent to OCSD

Reverse Osmosis (RO)

Brine Treated in OCSD Outfall

Ultraviolet Light (UV) with Hydrogen Peroxide

Expanded Seawater Barrier

Recharge Basins in Anaheim

Project Funding and Timing

- **Capital Cost: approximately $481 million**
  - **Split equally between OCWD and OCSD**
- **Produces 72,000 acre-feet of water (enough for 500,000 plus people each year)**
  - **Expandable to 130,000 acre-feet per year**
- **Costs comparable to imported water**
  - **Project received $92 million in state and federal grants, and $86 million operation and maintenance subsidy from Metropolitan Water District**
  - **Without outside funding cost of water would be approximately $800 AF**
- **Operational since January 2008**

Benefits of GWR System

- Protects basin from seawater intrusion
- Provides water to replenish the basin supplies
- Eliminates need for additional OCSD ocean outfall
- Saves money (costs about the same as importing water)
- Uses about half the energy needed to import water from northern California
- Improves groundwater quality
- Reuses valuable resource and sends less waste water to ocean
- Model for the rest of the world
  - Australia, Singapore, etc.

Strong Community Support

Proactive face-to-face outreach with more than 1,200 presentations, 700 tours and many news stories that resulted in:

Strong support and no active opposition:

- **100% support from cities in OCWD service area**
- **100% support from OC State and Federal elected officials**
- **100% support from Chambers of Commerce & OCBC**
- **Many business including Edison and Semper Energy**
- **All major environmental groups**
- **Various health experts, medical doctors, hospitals, pharmacists and scientists**
- **Several key minority leaders**
- **Educational, religious, police and fire leaders**
- **More than 200 community groups like Kiwanis, Rotary, etc.**
- **OC Tax, AARP, OC Farm Bureau and others**

California Energy Commission and SANDAG: Regional Energy Partnership

Larry Rillera
California Energy Commission

Regional Blueprint Planning Program

Rebuilding America: APA National Infrastructure Field Haring

April 1, 2009
Ontario, CA

About the California Energy Commission

Energy policy and information advisor to the Governor and the Legislature.

Major Functions:

- License Power Plants
- Assess Current and Future Energy Trends
- Advance Energy Technologies
- Develop Buildings and Appliance Standards
- Promote Energy Efficiency and Renewable Energy

(Fuels and Transportation)

CEC 2009 Integrated Energy Policy Report Scoping Order (09-IEP-1A)

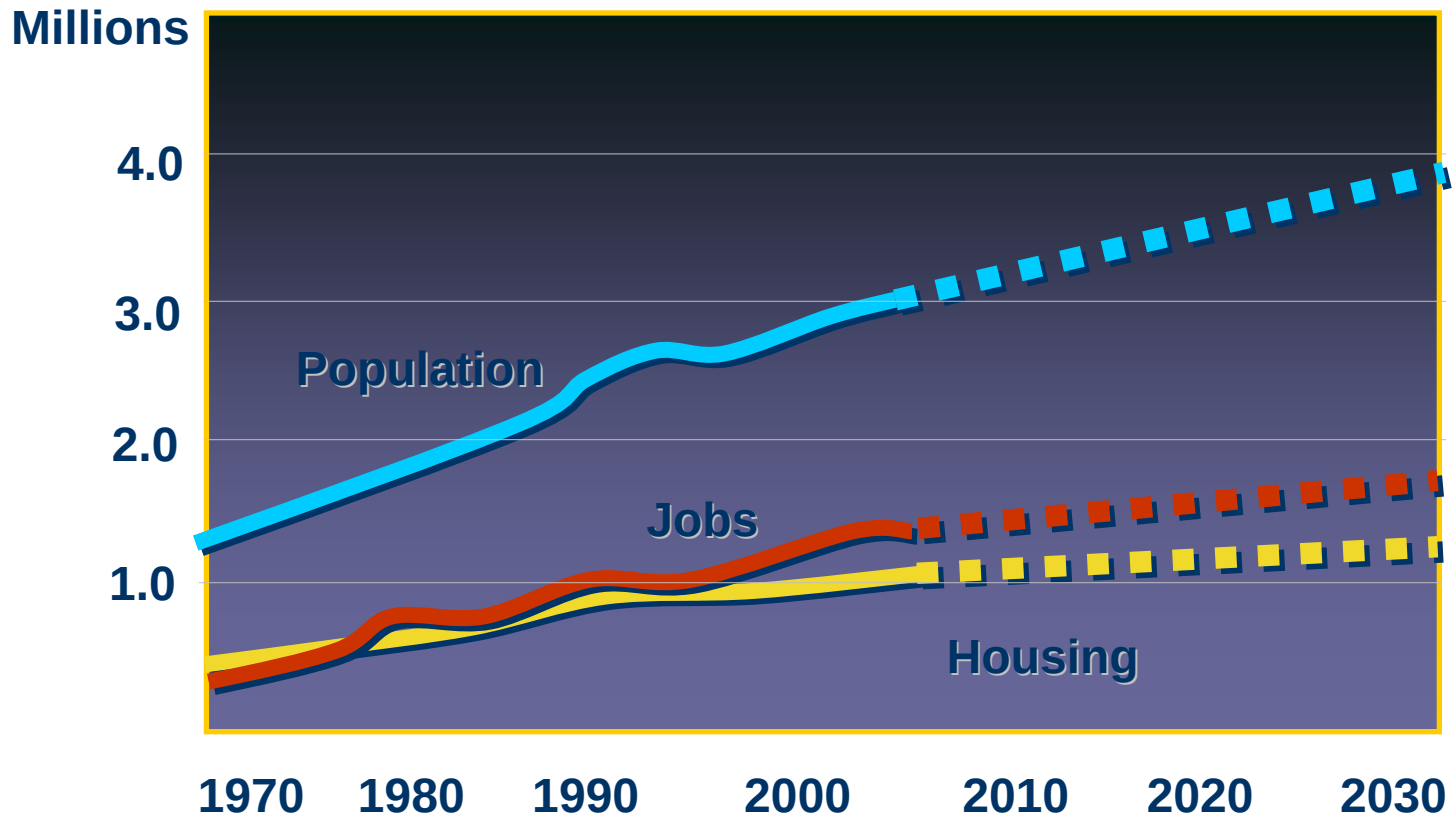
- Evaluate the impacts of state-level policy…since publication of the 2007 IEPR, on local decision-making related to land use, energy consumption, and climate change. Particular focus will be on the **role the Energy Commission** can play in statewide land use, energy, and GHG policy and coordination.

- Examine how state-level policies, programs and actions can **assist local decision-makers** in implementing and promoting energy and GHG emission efficient developments.

- Examine how local governments can contribute to energy efficient land use planning and be energy/water/resource-efficient. This will include exploring strategies to **encourage** more infill development in existing communities as well as energy and resource efficient material production and design approaches.

- Identify the need for **research activities** to support implementation of SB 375 and other state land use policy goals.

…Future of San Diego



SANDAG Regional Comprehensive Plan

"…based on smart growth principles, the Regional Comprehensive Plan provides a blueprint for managing our region's growth, while preserving natural resources and limiting urban sprawl."

Regional Blueprint Planning Program Goals

Increase conservation and **efficient use** of resources including **energy** and water.

Build awareness of and support for critical **infrastructure** such as transportation facilities, housing, **energy**, health care, and water facilities.

CEC-SANDAG Energy Partnership Products

Sustainable Region Program “Action Plan” and “Toolkit”

Alternative Transportation Fuels and Vehicles Program Study

Regional Energy Strategy 2030 Update

Regional Climate Action Plan

CEC-SANDAG Energy Partners

California Energy Commission

State Advisory Task Force

SANDAG

Energy Working Group

California Center for Sustainable Energy

San Diego Gas and Electric

USD Energy Policy Initiatives Center

Member agencies and other EWG members

SANDAG Regional Energy Strategy

RES (2003) - Long term energy plan that serves as the **energy policy blueprint** for the region.

RES 2030 Update (2009) - Include energy assessments for the region's electricity, natural gas, and transportation sectors and provide policy recommendations to reduce energy consumption and to reduce the region's reliance on fossil fuels.

Objectives:

•Provide an **integrated approach** to meeting the energy needs and supporting future prosperity of the San Diego Region.

•Ensure that **adequate supplies** of electricity, natural gas and transportation fuels are available to meet the Region's needs and that those supplies are reliable and competitively priced.

•Create an **enduring framework** for regional energy planning and implementation that incorporates the diverse interests and capabilities of key stakeholders in the region.

•Strongly encourage the development of **clean, safe energy** and environmentally benign resources.

•Look forward toward **preparing the region** for the potential transition from a fossil-fuel economy to new supply sources and technologies.

Alternative and Renewable Fuel and Vehicle Technology Program (AB 118)

Purpose - To develop and deploy innovative technologies that ***transform California's fuel and vehicle types*** to help attain the state's climate change policies … and to help create the impetus for the long-term transition.

Funding - Up to $120 million per year for 7 years.

Projects Eligible for Funding - Alternative and renewable low-carbon fuels development and improvement; Projects that optimize alternative and renewable fuels for engine technologies; Alternative and renewable low-carbon fuel production in California; Projects that decrease the fuel's life-cycle carbon footprint and increase sustainability; ***Alternative and renewable fuel infrastructure,*** fueling stations, and equipment; Improve light-, medium-, and heavy-duty vehicle technologies for better fuel efficiency; Buy-down programs, advanced technology warranty or replacement insurance, development of market niches, and supply-chain development; Retrofits for medium- and heavy-duty vehicle fleets; Alternative and renewable fuel infrastructure development; Workforce training; Education and program promotion and develop technology centers; Analyses to assist in preparing the Investment Plan.

Implementation Status – (March 2009) Energy Commission Adoption of final Investment Plan; (Spring 2009) Solicitation Preparation and Release; (May 2009) Target Effective Date for Program Regulations

Contact Information

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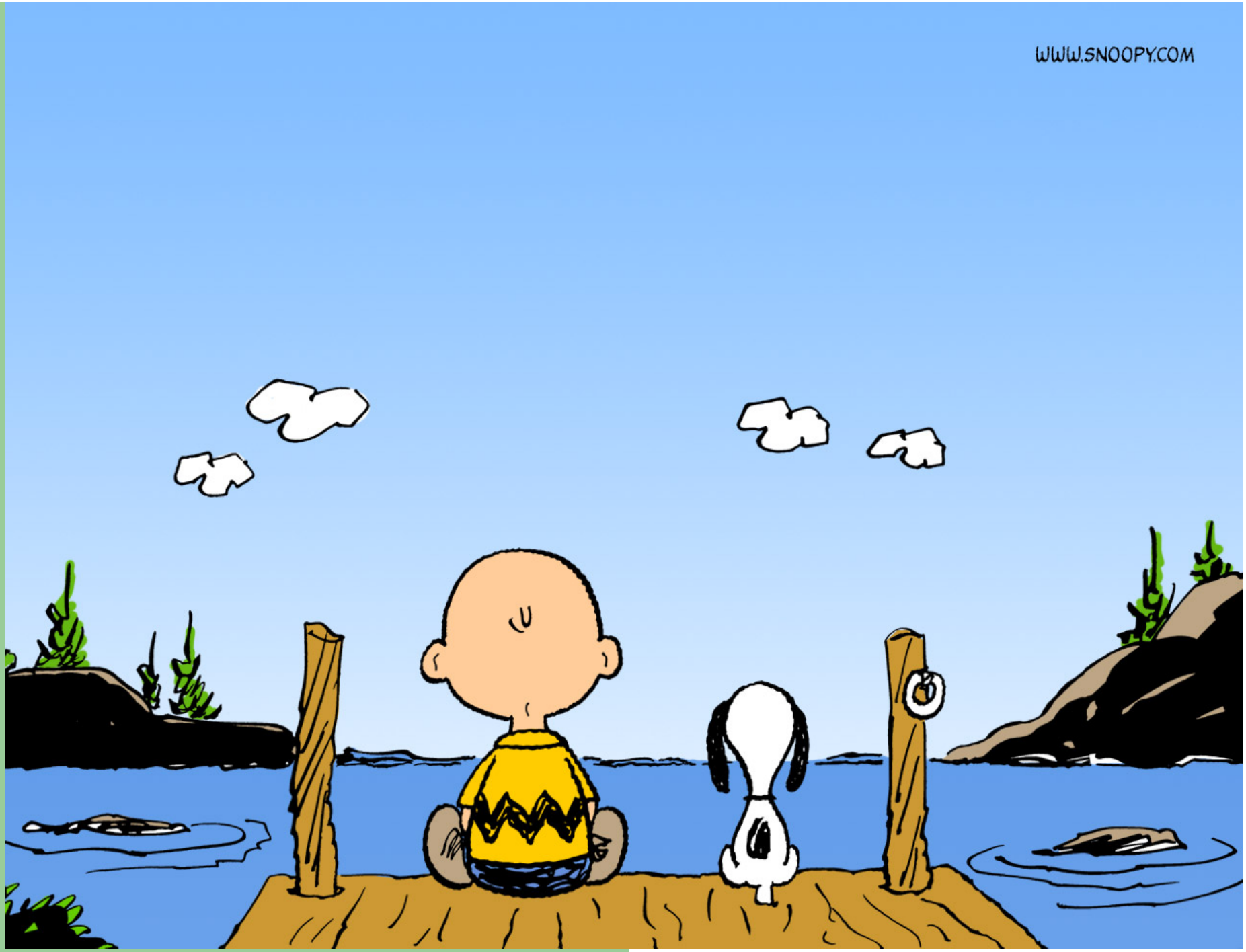

WWW.SNOOPY.COM

California High-Speed Train

Statewide Project Overview

March 2009

California High-Speed Rail Authority

Proposition 1A

California voters passed Prop. 1A in November.

- **$9 billion down payment on statewide system in 2008.**
- **$950 million for urban, intercity and commuter rail lines that link with high-speed trains.**
- **Extensive oversight and fiscal controls.**
- **Supported by an uncommon bipartisan coalition of more than two-thirds of the Legislature.**
- **Strong support from Gov. Schwarzenegger, House Speaker Nancy Pelosi, and U.S. Senators Dianne Feinstein and Barbara Boxer.**

The High-Speed Future

- State of the art
- 800-mile system
- Steel wheel-on-steel rail
- 100% clean electric power

The High-Speed Future

Service up to 220 MPH linking Southern California, the Central Valley and the San Francisco Bay Area.

	San Francisco (Transbay)	San Jose	Sacramento	Fresno	Los Angeles (Union Station)	Anaheim	Riverside	San Diego
San Francisco (Transbay)		:30	1:53	1:20	2:38	2:57	3:10	3:56
San Jose	:30		1:24	:51	2:09	2:28	2:41	3:27
Sacramento	1:53	1:24		:59	2:17	2:36	2:49	3:35
Fresno	1:20	:51	:59		1:24	1:43	1:56	2:42
Los Angeles Union Station	2:38	2:09	2:17	1:24		:20	:33	1:18
Anaheim	2:57	2:28	2:36	1:43	:20			
Riverside	3:10	2:41	2:49	1:56	:33			:48
San Diego	3:56	3:27	3:35	2:42	1:18		:48	

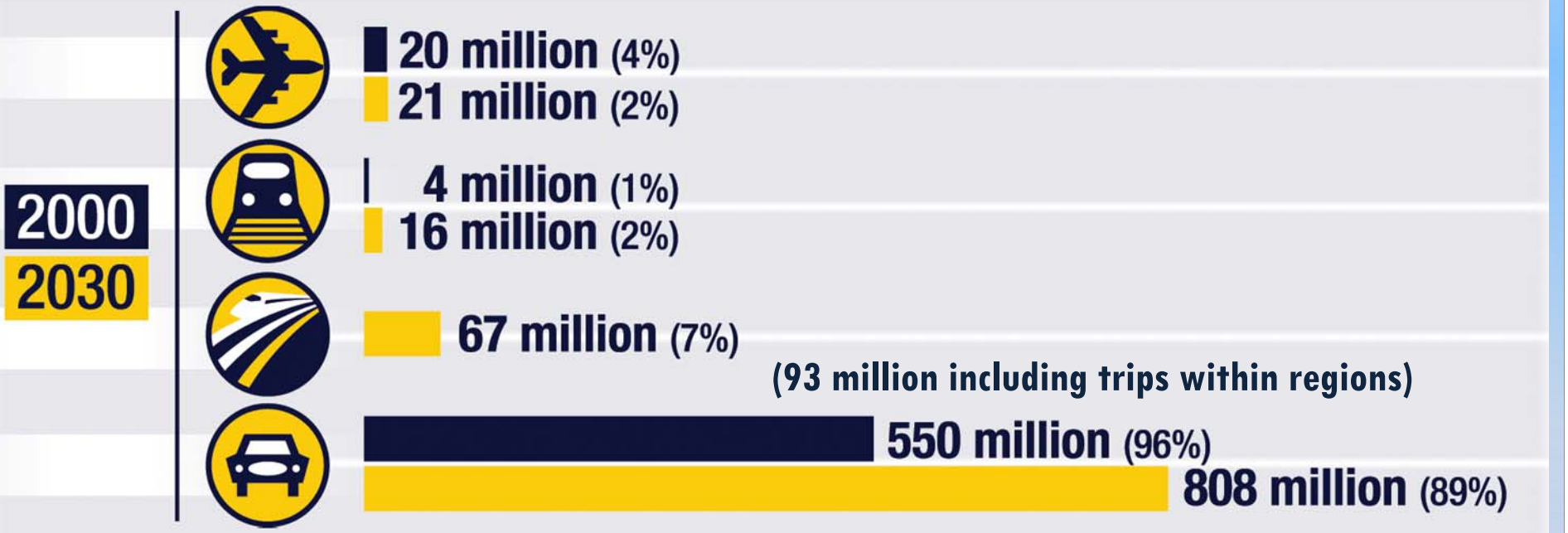
The High-Speed Future

- Proven reliable technology
- Operational throughout Europe and Asia
- Safest mode of travel
- On dedicated track
- Safely grade-separated from cars and trucks, pedestrians and other rail traffic
- Double-tracked with stations built to allow for express service


METROLINK
METROLINK

A New Travel Option for All Californians

Number of Trips Between California's Major Regions*
Markets with Air Service



* Based on 50% of airfare at full system operation

A New Travel Option for All Californians

Annual Boardings for Selected Stations – Year 2030

Environmental Benefits

Congestion costs Californians about $20 billion a year in wasted fuel and lost time. With up to 93 million riders a year by 2030, high-speed trains will reduce that impact.

- **1/3rd the energy of airplanes**
- **1/5th the energy of passenger cars**
- **Dependence on foreign oil reduced by 12.7 million barrels a year**
- **Greenhouse gases cut by 12 billion pounds a year**
- **Improved air quality and related health care costs**

Economic Benefits

- Nearly 160,000 construction-related jobs
- 450,000 permanent jobs for California's economy
- Improved movement of people, goods and services
- Faster travel times for train riders
- Congestion relief for freeways and airports
- Reduced need to spend nearly $100 billion over next 20 years for…
  - ✓ Up to 3,000 lane-miles of new freeway
  - ✓ 5 airport runways and 90 departure gates

Next Steps


Implementation and Construction Timeline
completed
Program-Level EIR/EIS
underway
Project-Specific Environmental Analyses, Preliminary Design
Final Design and Construction
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
YEAR

Next Steps

- **"Program Level" EIR/EIS to determine route and station locations. ✓ Completed.**
- **"Project-Specific" environmental studies will determine where tracks will be laid, how they will be configured, and where support facilities are needed.**
- **Outreach underway with local agencies to integrate the statewide system with local transportation, planning and economic development efforts.**


Next Steps
2009 – 2011
EIR/EIS and engineering
Altamont Pass
San Francisco-San Jose
Merced - Sacramento
Central Valley - San Jose
Merced - Bakersfield
Palmdale - Bakersfield
Los Angeles - Palmdale
Los Angeles - Anaheim
San Diego - Los Angeles
Sacramento
Stockton
Downtown Modesto
Downtown Merced
San Francisco Transbay Terminal
Oakland
Redwood City or Palo Alto
Henry Coe State Park
San Jose Diridon
Fresno
Visalia/Tulare/Hanford
Bakersfield
Pacific Ocean
Palmdale Airport
Sylmar
Burbank
Los Angeles
Industry
Riverside
Anaheim
Irvine
Escondido
University City
San Diego
Legend
Urban Area
Farmland
National Forest
Public Lands
State Parks
Open Space
Water
Rail Alignment
HST Preferred Alignments
Proposed High Speed Commuter Rail/HST Overlay
Stations
Potential Station
Map based on 2005 Statewide Programmatic EIR/S preferred route, and staff recommendation to Authority Board December 19, 2007

Next Steps

2011

Complete environmental process. Break ground on early project elements.

2015

Begin testing first prototype trainsets.

2018-2020

Launch operation on San Francisco to Los Angeles/Anaheim system backbone.

Building the System

- "High-speed" test section between Merced and Bakersfield.
- First priority = SF to LA/Anaheim backbone link.
- Other corridors and sections:
  - ✓ Can compete for local, state, and federal funding.
  - ✓ May be authorized if ready for construction, with funding available and limited bond needs.
  - ✓ May be authorized for early implementation where local agencies are pursuing improvements to accommodate commuter and safety needs.

Cost-Benefit

California's new high-speed train system will:

- **Return nearly 3X value over system cost in next 40 years from such things as…**
  - ✓ **Passenger revenue and benefits to HST passengers**
  - ✓ **Reduced freeway congestion and delays.**
  - ✓ **Reduced airport congestion and delays**
- **Require no operating subsidies.**
- **Generate nearly $2 billion in surplus revenues a year by 2030.**
- **Reduce pollution and improve health.**

Funding SF to LA/Anaheim Section

Capital Costs by Segment

CONSTRUCTION SEGMENT	Capital Cost (shown in millions)	Length (miles)	Average Cost per Mile
San Francisco to San Jose	$ 4,210	50	$ 84.2
San Jose to Central Valley Wye	$ 5,175	120	$ 43.1
Merced to Fresno	$ 2,093	60	$ 34.9
Fresno to Bakersfield	$ 4,249	115	$ 37.0
Bakersfield to Palmdale	$ 3,892	85	$ 45.8
Palmdale to Los Angeles	$ 5,438	60	$ 90.6
Los Angeles to Anaheim	$ 1,994	30	$ 66.5
Program Implementation	$ 2,584		
Trainsets *(50% - 77% Airfare HST Fare)*	$ 2,835 - 3,990		
TOTAL	**$ 32,785 - 33,625**		

Contact Information

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