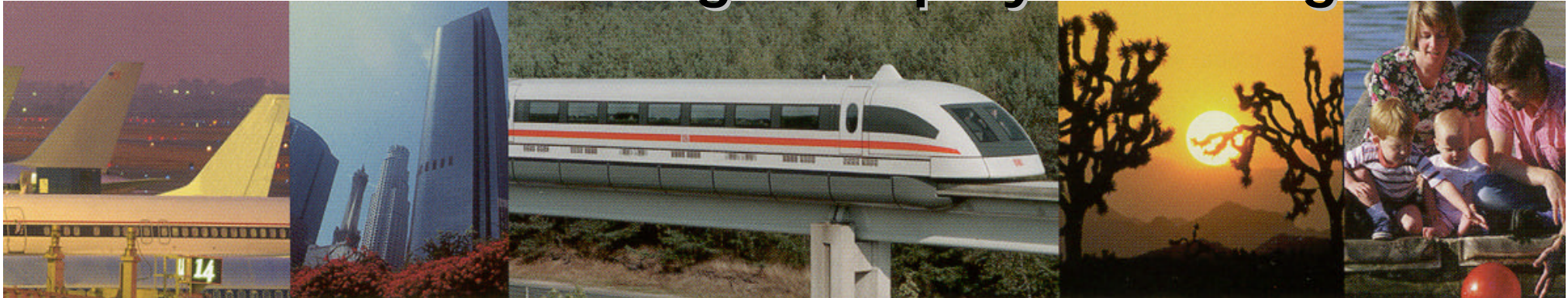


# California Maglev Deployment Program



# BUSINESS PLAN

May 3, 2001



SOUTHERN CALIFORNIA  
ASSOCIATION OF GOVERNMENTS

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The Southern California Association of Governments presents this Business Plan for deploying a high-speed Maglev transport system in Southern California. Unfettered from surface traffic congestion, Maglev vehicles would speed along an elevated monorail guideway located above freeways and railroad rights-of-way. At top speeds in excess of 200 miles per hour, travel times between destination points would be measured in minutes, not hours.

Maglev would provide intra-regional commuters a whole new way of travel. The system, 92 miles in length and linking the urban core of Los Angeles with the San Gabriel Valley, Ontario International Airport, San Bernardino, Riverside and March Inland Port, will provide the benefits of the most advanced ground transport technology in the world.

The project would be deployed through a new business model that is, perhaps, as revolutionary as Maglev technology. Following completion of environmental reviews and required approvals, a public-private corporation would build and operate the system using only operating revenues to cover all expenses. No public funding grants would be required to build and operate the system.

The Association's Regional Council, Maglev Task Force and staff have guided development of this Business Plan. We have reviewed the work of expert consultants who have assisted us in evaluating this bold and imaginative proposal. We are committed to pursuing implementation of Maglev in Southern California and to offering its benefits to all who reside in or visit our region, or who have an interest in the region's strong and vibrant economy.

Maglev is a revolutionary step forward in ground transport. Its deployment is in keeping with the history and past legacy of California as a leader in technology, industry and life style. We urge that you join with us in this quest to bring to Californians and the State's many visitors an exciting new transport system that will help current and future generations move about freely and safely, and in an environmentally friendly manner.

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# Summary 02



This Business Plan details the approach for deploying a 92-mile Maglev (magnetically levitated) high-speed monorail system in Southern California through a public-private partnership. Revenues from an estimated 134,000 riders per day and from other user fees would cover all operating costs, and be used to repay bonds and loans issued to finance the projected \$7 billion construction cost of the system. Following completion of engineering and environmental studies by mid-2003, the private consortium partner would construct and operate the system. Public funds would be used only to complete the predeployment planning and required environmental review processes.

The Southern California Association of Governments (SCAG) initiated the California Maglev Deployment Program to bring the most advanced technology, high-speed transportation system in the world to its region of 185 cities and 17 million people. Already one of the most congested urban centers in the nation, by 2020 another 6 million people will add to the millions who now call Southern California home. SCAG has developed a Maglev system plan, connecting Los Angeles with the fast-growing Inland Empire to the east, as a key strategy for meeting the region's mobility needs. The system is also a key strategy for achieving air quality improvements required to conform to state and federal mandates.

SCAG completed an 18-month predeployment planning study that confirms the viability of the Maglev system proposed for implementation. SCAG is committed to pursuing deployment of the Maglev system as a vital part of its Regional Transportation Plan, the long-range transportation blueprint for Southern California. This Business Plan identifies a Maglev system and a strategy for its deployment and operation that relies primarily on: 1) using existing, publicly owned freeway and railroad rights-of-way for locating the Maglev system; 2) using only system-generated revenues to pay for its construction and operation, and; 3) employing bonds and federal government-backed loans to finance its construction.

**Importantly, following completion of environmental clearances, no public grants or subsidies would be required to construct or operate the proposed Maglev system. All required revenues would come from passenger fares, cargo fees, concessions, parking fees and other project generated revenues.**

<b>SOURCES OF FUNDS (Inflated Dollars)</b>	<b>\$ Billions</b>
Capital Funds (Bonds, TIFIA Loans, Interest)	\$12.2
Operating Revenues (Passenger Fares, Fees)	\$62.7
<b>TOTAL REVENUES</b>	<b>\$74.9</b>
<b>APPLICATION OF FUNDS (Inflated Dollars)</b>	
Capital Costs (Construction, Interest)	\$12.2
Ongoing Costs (Operations)	\$12.7
Debt Service (TIFIA, Senior Debt)	\$28.4
<b>TOTAL EXPENDITURES</b>	<b>\$53.3</b>
	-----
<b>ACCUMULATED SURPLUS (2003-2045)</b>	<b>\$21.6</b>

# Maglev Ridership, Cost and Revenue Projections

## 03

### RIDERSHIP

An estimated 134,000 daily trips will be made on Maglev in 2020. Maglev achieves a range in market share of from two percent to six percent of the longer-distance, intra-regional travel markets shown. The ridership results are based on reasonable assumptions for service frequency, fare structure, and other factors that impact on the riders' choice of travel mode. The ridership projections are quite conservative and represent about 85 percent of the ridership that could be encountered with more optimistic assumptions, especially those dealing with potential impacts of the Maglev system on changes in socio-economic conditions that the high-speed service would likely foster. For example, higher-density development near Magports (vehicle stops) and improved feeder access could increase ridership by as much as 15 percent. Also, out-of-pocket auto operating costs are assumed to be \$.13 per mile, in current dollars, over the 45-year financial plan evaluation period. Actual operating costs are anticipated to be higher in future years.

Ridership estimates are derived from recently improved computer models developed by SCAG and Parsons Transportation Group. SCAG's modeling in the past has been very reliable in predicting future travel behavior, and these estimates are considered to be near investment quality. The estimates are based on the project as generally defined in the system performance charts and alignment map on the following pages.

Trip Type	Daily MAGLEV Ridership (85% of Potential Ridership)	Total Daily Long Distance Trips in the Corridor	Percent Market Share
Long-distance Commute to Work	50,000	800,000	6%
Long Distance Resident Nonwork	33,000	1,100,000	3%
Air Passengers (LAX-Ontario Airport-March Inland Port)	42,000	400,000	10%
Special Events/Special Generator Visitors	4,000	200,000	2%
Induced Passenger Trips	5,000	N/A	N/A
Total	134,000	2,500,000	6%



# CALIFORNIA MAGLEV DEPLOYMENT PROGRAM

## MAGLEV ROUTE AND MAGPORT LOCATIONS

**Fleet/Vehicles**

- Single level/bi-level
- 26 vehicles in fleet
- Startup - 5 section vehicles
- 2020 - 7 section vehicles

**Span of Service**

- 5 AM to 1:00 AM weekday service hours
- 5 AM to 9 AM - peak AM
- 3 PM to 7 PM - peak PM
- Weekend service

**Performance Information**

- Average operating speed with station dwells - 94 mph
- Maximum speed - 240 mph
- End-to-end travel time - 59 minutes

**Costs**

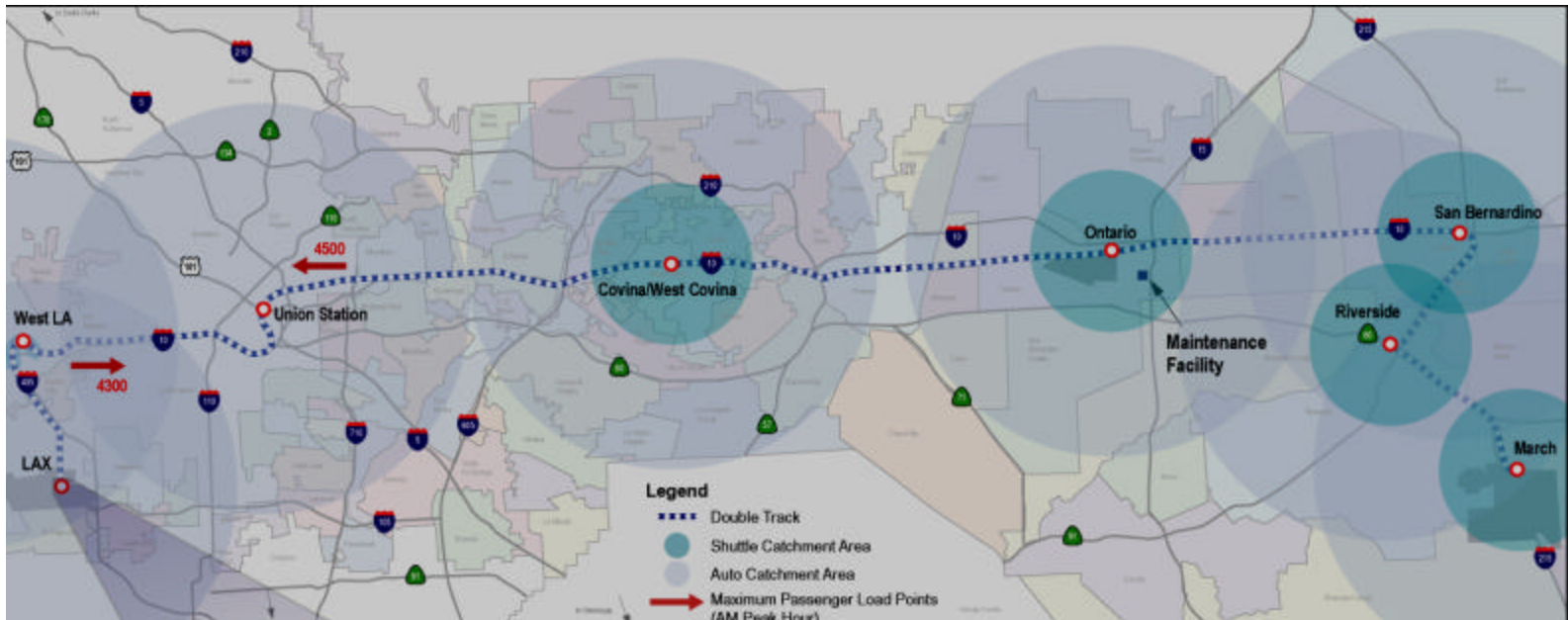
- Annual operating cost in 2020 \$125 Million in 2000 dollars (\$226 Million in inflated dollars)
- Capital cost \$7 Billion in 2000 dollars (\$12 Billion in inflated dollars)

**Magport Characteristics**

- Elevated 1000-ft platforms with platform screens
- 15 to 20 acres required per Magport
- Concessions and joint development at Magports

**Magport Access**

- Rail and bus transit interlinks at all Magports
- Auto access distance varies from 10 to 15 miles
- MagSmart Shuttles within 4 miles
- Walk access within 0.5 miles



**Magport Locations**

- Los Angeles International Airport
- West Los Angeles
- LA Union Station
- Covina/West Covina
- Ontario International Airport
- San Bernardino
- Central Riverside
- March Inland Port

**LAX Magport**

- Separate platforms for air passengers and for commuters
- Air passenger platform(s) central to the airport central terminal complex (CTA)
- Facilities for integrated baggage handling
- Separate facilities for cargo

**Magport Parking Demand**

- Range of 1800 to 5500 parking spaces per Magport (in 2020)
- \$5 parking charge
- Surface and structure parking

**Passenger Trip Information**

- Average trip length is 34 miles
- 10 minute peak / 10 minute off peak vehicle headways (frequency)
- Average fare is 32 cents per mile

**Daily Passenger Boardings in 2020**

- Peak Commuters	54,000
- Off-peak Trips	29,000
- Air Passengers	42,000
- Special Events	4,000
- Induced Rides	5,000
- Total Daily Boardings	134,000

**Total Guideway Miles**

- 92 miles Double Guideway for entire length

**TRAVEL TIME COMPARISONS**

Traveling at an average speed of 94 miles per hour, Maglev’s attractiveness stems in large part from the speed advantage the system has over other transportation modes, including the automobile. At an average fare of 32 cents per mile, the price of a Maglev ticket is higher than current commuter rail fares, but competitive in price with out-of-pocket auto operating costs. It’s high service quality, in terms of speed, reliability, safety, comfort and convenience, attracts commuters and other travelers who value their time and are willing to pay for a premium service. The table below shows prototypical Magport-to-Magport travel times on Maglev. Even when Magport access and inter-modal connecting times are taken into account, Maglev offers reduced overall trip times when compared with the auto, for the longer-distance, intra-regional trips that are estimated to number 2.5 million in the corridor by 2020.

**Prototypical Travel Time Comparisons for 2020 Horizon Year (Peak Period)**

Magport to Magport MAGLEV Times (minutes)						
From Magport			To Magport			
	LAX	Union Station	SGV	Ontario	Riverside	March
LAX	-	11	27	35	45	53
Union Station		-	16	24	34	42
Industry			-	8	18	26
Ontario				-	10	18
Riverside					-	8
March						-
Automobile Times (minutes), Peak Direction of Travel						
	LAX	Union Station	SGV	Ontario	Riverside	March
LAX	-	46	70	88	117	138
Union Station		-	49	63	85	116
Industry			-	41	57	75
Ontario				-	42	57
Riverside					-	30
March						-

**Maglev trip times will be one half or less that of auto travel times**



**There is no requirement for local, state or federal funding grants to build and operate Maglev**

**Goldman Sachs has reviewed the Financial Plan**

**COSTS AND REVENUES**

The table below and on the following page shows the Financial Plan sources of project revenues and costs. The Financial Plan shows that all capital construction costs and operating expenses are funded from bonds and loans that would be paid solely from operating revenues. There is no requirement for local, state or federal grants or subsidies to build and operate Maglev. Federal assistance is required to provide loans and loan guarantees for a portion of the construction costs. Public funding is required for predeployment planning, including completion of federal and state environmental impact reports. The Financial Plan has been reviewed by Goldman Sachs and reflects the firm’s independent assessment that Maglev financing, as proposed, is feasible.

<b>California Maglev Project Financial Plan</b>		
(Project Revenues and Expenses over 42 Years, from 2003 to 2045) Inflated at 3% per year		
<b><u>SOURCES OF FUNDS</u></b>		<b>TOTAL</b>
<b><u>Capital Funds</u></b>		
<b><u>Public Partners</u></b>		
	Public Rights of Way	
	TIFIA Loans	\$4,000,000,000
<b><u>Bonding &amp; Commercial Loans</u></b>		
	Tax-exempt Revenue Bonds	\$5,800,000,000
	Interest on Cash Balances	\$2,400,000,000
	<b>Total Capital Funding</b>	<b>\$12,200,000,000</b>
<b><u>Operating Revenues</u></b>		
	Passenger Fares	\$56,100,000,000
	Parking Fees	\$1,400,000,000
	Freight	\$600,000,000
	Other Fees and Income	\$4,600,000,000
	<b>Total Revenues</b>	<b>\$62,700,000,000</b>
<b>TOTAL INCOME</b>		<b>\$74,900,000,000</b>

## California Maglev Project

### Financial Plan Continued

(Project Revenues and Expenses over 42 Years, from 2003 to 2045)

Inflated at 3% per year

<u>APPLICATION OF FUNDS</u>	TOTAL
<u>Capital Costs</u>	
Construction (Inflated Dollars)	\$8,400,000,000
Vehicles – Post 2015	\$300,000,000
Interest During Construction/Working Capital	\$2,800,000,000
Debt Service Reserve Fund	\$500,000,000
Underwriters Discount, Insurance	\$200,000,000
<b>Total Capital Expenditures</b>	<b>\$12,200,000,000</b>
<u>Ongoing Costs</u>	
O & M (Net)	\$12,700,000,000
<u>Debt Service</u>	
Senior Debt Service (Net)	\$14,100,000,000
TIFIA Loan Debt Service	\$14,300,000,000
<b>Total Operating Expenditures</b>	<b>\$41,100,000,000</b>
<b><u>TOTAL EXPENDITURES</u></b>	<b>\$53,300,000,000</b>
<u>ACCUMULATED NON-OPERATING SURPLUS (DEFICIT)</u>	
Operating Revenue Totals	\$62,700,000,000
Operating Expense Totals	\$41,100,000,000
<b>Surplus</b>	<b>\$21,600,000,000</b>

As indicated, the Financial Plan assumes no revenues from public sources for system construction or operation. The possibility of using value capture revenues around Magports is being considered and will be further explored during the next phase of work. These revenues could be used to fund access improvements within Magport areas, and to fund enhancements and other joint development projects, in cooperation with local cities.

**The Chinese government  
has initiated construction of  
Maglev in Shanghai**

**POTENTIAL RISKS AND CONCERNS**

The Maglev Project has a number of attributes that impact on the viability of the financial plan. On the plus side, the 92-mile corridor from LAX to San Bernardino and Riverside is one of the densest population and employment corridors in the U.S. The corridor also has a large unmet need for transportation improvements. Severe traffic congestion in the corridor and pending growth in travel demand generates a very strong market opportunity for a system with the performance characteristics of Maglev.

A potential risk is investor confidence in new Maglev technology. While proven in revenue service for over 10 years on the Transrapid test track in Emsland, Germany, and while, the technology has not yet been demonstrated in daily revenue operation in an urban setting over many years. Other potential private capital market concerns include:

- The size of the project - \$7 billion (in current dollars)
- The project commitment cannot be phased – It must be committed to in whole
- Completion guarantees may be difficult to obtain
- Technology performance guarantees may be difficult to secure
- The TIFIA commitment is very large - \$4 billion

The total capital funding required to construct the project is greater than it is for the combined funding of many stand-alone projects. Other potential risks and concerns include:

- Ability to secure environmental clearances
- Credibility of ridership estimates – redundancy will be required
- Ability to find a consortium capable of providing construction guarantees
- Ability to find a consortium capable of providing technology/operating guarantees
- Federal Railroad Administration certification of Maglev technology

The Business Plan identifies how each of these potential risks and concerns will be addressed.

# Management Plan

## 09

### OVERVIEW

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The Management Plan, including schedule and project financing, summarizes the steps that will take the California Maglev Project from its current status to construction completion and operation.

The Management Plan focuses on accomplishing the following goals and objectives:

- 1) Complete predeployment planning, including: preliminary engineering, preparation of state and federal environmental documents, public private partnership agreements, and state and local agency agreements.
- 2) Secure a responsible federal agency to serve as lead agency for the federal Environmental Impact Statement.
- 3) Secure \$15 million in federal funding, plus local matching dollars, over three fiscal years, to fund the completion of predeployment planning.
- 4) Obtain right-of-way agreements with state and local agencies for placement of guideway and station facilities.
- 5) Select or form the public entity, and select a private consortium through a competitive process, to build and operate Maglev through a public private partnership approach.

**The California Maglev  
Project offers the  
federal government an  
opportunity for active but  
limited involvement in  
Maglev deployment**

**COMPLETION OF PREDEPLOYMENT PLANNING**

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The California Maglev Project offers a significant benefit to the federal Maglev Demonstration Program authorized under TEA-21. Unlike other projects proposed for implementation, the California Project is feasible without a major infusion of federal funds. What is needed is a minimal federal investment to help complete predeployment planning, including the environmental review processes required under federal and state laws. The federal government's goal for deploying Maglev in the United States is thus well served by including the California Project among those that are deployed. One of the first issues to discuss with the new Administration is the continuing inclusion of the California Maglev Project in the federal program.

Additional federal funding, beyond that which has been provided by Congress for continuing planning, is required to obtain environmental clearances and complete other "entitlement" activities. A state Environmental Impact Report and federal Environmental Impact Statement must be prepared. The use of state highway rights of way requires the cooperation of the California Department of Transportation (Caltrans) and the preparation of a Project Study Report defining the project and its impact on the state freeway system. This is not a simple task and will require additional planning and engineering.

Further planning, design and ultimate construction of the Maglev guideway, Magports and other fixed facilities will require the cooperation of local government agencies through which the system passes. Extensive meetings will be required to evaluate design options that result in the best possible designs with the lowest adverse impacts on the effected communities.

These activities will require \$15 million in federal funding to complete. Funding would come from FY2001 to FY2003 appropriations. The Business Plan envisions that SCAG will continue to pursue this level of funding from the Congress in the next two appropriation periods. On a parallel track, private sector funding will be pursued to complement federal funding.

**SELECT AND ENGAGE PRIVATE PARTNER**

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From its inception, the California Maglev Project has been proposed as a project to be implemented through a public private partnership. Recent experiences in public private partnerships have highlighted the potential advantages, as well as potential risks, of this method of project delivery. The Alameda Corridor Project appears to be moving forward well under the design-build procurement approach. Tollways in Orange County have also been completed

successfully using innovative public private partnerships. Other successful examples can be found in transit projects in California and elsewhere. SCAG envisions a partnership that goes beyond the contemporary design-build-operate-maintain approach. What is envisioned is a shared risk – shared equity relationship in which both partners share in the operating surpluses anticipated in the financial plan. There are a number of issues to be addressed in defining the terms of this public private partnership. Selection of a private partner is most appropriately done through a quality based competitive procurement process that takes into account both the technical and financial capabilities of the private partner, as well as the terms of the agreement offered by the prospective partner. The private partner must possess the rights to high-speed Maglev technology and sufficient experience and financial strength to guarantee construction and system operating performance.

The Management Plan provides for soliciting the participation of a private-sector consortium during the next 6 months, and negotiating a public private partnership agreement within 12 months. The prospective private partners will be asked to indicate their willingness to finance some or all of the predeployment planning efforts required to enable a final decision to construct the proposed Maglev system. The selected private consortium must be able to demonstrate that it has the financial resources to complete project construction and ensure the operation of the Maglev technology. The assistance of an outside professional services firm will be secured to complete the objective of soliciting the private consortium and negotiating an agreement.

**A private consortium  
would be selected within  
12 months**

#### TRANSITION TO DEPLOYMENT

SCAG has been at the forefront in identifying the need for improvements in intra-regional transportation. The predeployment planning studies conducted over the past 18 months have confirmed both the need for and the promise of high-speed Maglev in Southern California. SCAG will continue to serve in the lead role during the continuing planning efforts, in partnership with local agencies and the State of California, and with continued funding support from the U.S. Department of Transportation.

During the coming year, SCAG will explore the benefits of continuing in its lead role, and also evaluate alternate institutional arrangements for project deployment. Several alternatives to SCAG serving as lead implementation agency have been identified. One existing agency is the Southern California Regional Airport Authority. This entity is a joint power agency designed to address regional airport issues. It has been in existence since 1985. To date, the Authority has been inoperative. The Southern California Regional Rail Authority has also been considered.



**A public-private corporation would build and operate Maglev**

Another option is to create a new California Maglev Corridors Development Corporation. This entity would function as a joint powers agency composed of the private entity that will build and operate the system and public entities that have a direct interest in the project by virtue of their equity in the project (for example Caltrans, by virtue of the right of way contribution to the project; the City of Los Angeles, which operates LAX and Ontario Airport; and other cities along the route where Maglev Magports are located). The Management Plan provides for further exploration of these and other possible institutional options, and action to select and establish the chosen approach.

**PROJECT DEPLOYMENT**

The Project likely will be constructed in stages. A preliminary construction staging plan is shown below. The plan will be finalized following additional analysis, including value engineering to ensure an efficient, cost-effective design and construction sequence. Five construction packages have been identified. The objective of the deployment strategy is to maximize project revenues by staging construction in a way that balances incurred construction and operating costs with available revenues from project financing and operations.

<b>Package</b>	<b>Segment</b>	<b>Start</b>	<b>End</b>
1	Union Station-Rte 57	2003	2008
2	Rte 57-Ontario	2004	2009
3	Ontario-Riverside-SBD	2005	2009
4	Riverside-March	2006	2010
5	Union Station-LAX	2007	2010

**The system could be operating as early as 2010**

Several important steps need to be completed before construction can begin. The following schedule identifies those steps.

<b>Predeployment Work Tasks</b>		
<b>Task</b>	<b>Item</b>	<b>Schedule</b>
1	Refine Business Plan	December 2001
2	Solicit Private Partner Proposals	September 2001
3	Secure Additional Federal Planning Funds	October 2001
4	Select Private Partner	April 2002
5	Prepare/submit TIFIA Application	September 2002
6	Complete Pre-engineering and EIS/EIR	July 2003

## PROJECT FUNDING

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The Financial Plan previously shown indicates the strength of the project as a business enterprise. It is possible to finance the entire project from internal operating revenues with the use of existing public rights-of-way and available public financing mechanisms. No public funding grants would be required to construct and operate the system. Never the less, the private investment community will want to see some level of public participation in the system to demonstrate that it too has equity at stake, and an incentive to ensure the project's success. Public rights of way would be a major contribution to the project.

Immediate funding is required to complete predeployment activities. The Plan provides for two strategies to be pursued simultaneously that are designed to provide the funds required for this purpose. Either or both approaches would enable completion of predeployment activities. The first strategy is to solicit support of the new Secretary of Transportation and the State's Congressional representatives. The objective is to secure \$15 million in federal funding over a three-year period.

The second strategy for seeking funds for predeployment planning is to solicit private sector interest and commitments. The financial analysis demonstrates the viability of the California Maglev Project as a successful business enterprise. The reward of being granted the right to build and operate the Maglev system is sufficiently large that it may entice a large, private sector consortium to risk the up-front investment cost that will help to make the project a reality.

## CONTINUING GOVERNMENT AGENCY SUPPORT

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SCAG will secure continuing support from federal, state and local agencies while completing the predeployment planning phase. Relationships and processes that enable efficient, unimpeded progress will be sought to ensure that the project can move forward expeditiously.

Resolutions in support of the Maglev planning effort have been adopted by numerous cities and other agencies during the past year. During the coming year, cities most affected by the project will be asked to take an even stronger position of support. Outreach to these cities and their representatives in Washington will intensify in order to provide the information they require to make informed decisions. Support of the City of Los Angeles is very important to the success of the program. A significant portion of the guideway passes through the City of Los Angeles, and three Magports are in or serve properties controlled by or under jurisdiction of the City. The Plan provides for increased liaison with City staff, council members and the mayor.

**Numerous cities have adopted resolutions in support of the Maglev Deployment Program**

# Near Term Action Plan

## 14

### **IMMEDIATE ACTIONS**

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January 18, 2001 marked the completion of the initial phase of predeployment planning – a major milestone for the California Maglev Deployment Program. This date marks the completion of work required under the federal Maglev demonstration program, and the beginning of another phase in the process for bringing Maglev to Southern California. Of immediate concern is the need for funding to maintain progress in completing predeployment activities. The Financial Plan indicates that the strong financial performance of the Project should facilitate project construction financing once final approval is granted to construct the system. Before construction can begin, the environmental review process must be completed, and other actions must be taken, including those outlined below.

### **INFORMATION TO U.S. DEPARTMENT OF TRANSPORTATION**

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The first action step has already been taken. This was to hold meetings with U.S. Department of Transportation officials in the new Bush Administration. The purpose of these meetings was to provide current information on the California Project and to enlist the Department's support in securing continued federal funding for the California program. These meetings were held in March and April 2001. Follow up meetings will be held during the coming months.

### **EXECUTE AMENDMENT TO STATE AGREEMENT**

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The agreement between SCAG and the California Business, Transportation & Housing Agency (BT&H) expired on December 31, 2000 and must be amended. Issues unrelated to Maglev have held up execution of the amendment. This agreement needs to be extended in order to continue the cooperation enjoyed during the initial 18-month work program. Discussions to resolve the issues have already been held. The goal is to resolve these issues and extend the SCAG - BT&H agreement. SCAG will also pursue other alternatives to ensure that current and future federal funding grants will be available to continue progress in moving the program forward.

### **SEEK STATE LEGISLATION**

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Legislation to clarify legal authorities and establish a framework for public private partnering was passed by the California Legislature, but not signed into law in the last legislative session. Efforts will be renewed to secure such legislation in the current legislative session.

### **EXECUTE AMENDMENT TO FRA AGREEMENT**

Current predeployment planning has been funded, in part, under a grant from the Federal Railroad Administration (FRA) under the following appropriations: FY1999-\$1,430,000 and FY2000-\$1,959,750. Pursuant to an additional \$1 million FY2001 appropriation from Congress, FRA has requested a work program for an \$877,066 grant amendment that will enable continued Maglev predeployment planning activities. The work plan will be submitted to FRA.

### **REFINE BUSINESS PLAN**

This summary Business Plan defines the immediate steps and longer term strategies for deploying Maglev in Southern California. One of the uses of the additional federal funds will be the preparation of a more detailed Business Plan. This refined Business Plan is necessary to help convince the investor market that this project is viable. A professional services firm will be engaged to help complete this Plan and assist in its implementation.

### **INITIATE PRIVATE PARTNER PROCUREMENT**

As a parallel effort to the pursuit of additional federal funding support, a solicitation will be issued for private sector proposals designed to select a private partner for deployment of the Maglev project. This solicitation will determine the interest of one or more consortia in helping finance the up-front planning tasks required to obtain environmental clearances and complete all predeployment activities.

### **SECURE RESPONSIBLE FEDERAL AGENCY AND FUNDING FOR THE EIS**

SCAG will seek a responsible federal agency to serve as the responsible agency for the federal Environmental Impact Statement. SCAG will also pursue \$15 million in federal funds, plus local matching dollars, from FY2001-2003 appropriations, to fund the rest of predeployment planning.

### **SECURE TIFIA LOAN COMMITMENT**

Following completion of the draft Environmental Impact Statement, an application for Transportation Infrastructure Finance and Innovation Act (TIFIA) financing will be submitted to the Federal Highway Administration.

### **CONTINUE REFINEMENT OF PROJECT PLANS**

Additional engineering and planning tasks will be undertaken to refine the project description prepared during the prior 18-month planning phase.

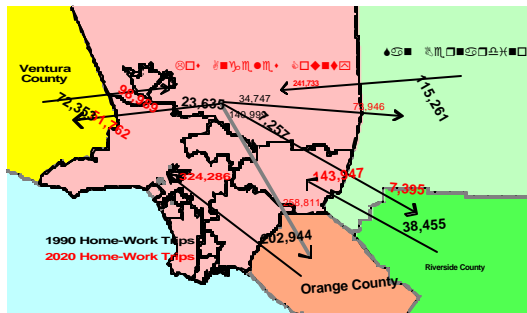
# Project Description

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### Project California

“...form a California  
MAGLEV Prototype  
Demonstration Consortium.”

“...bring a MAGLEV prototype  
and/or demonstration to  
California.”



Maglev provides commuters an alternative to a dramatic growth in traffic congestion resulting from a projected increase of 6 million new residents by 2020

### BACKGROUND

The idea of bringing advanced Maglev technology to California was proposed in 1996 by a public-private leadership group called Project California. Charged by the State Legislature to come up with ways to pull California out of a deep recession, Project California recommended Maglev as a way to restore California’s leadership in transportation and to create new jobs and economic benefits for the State’s citizens.

In August 2000, the California Legislature endorsed this proposal and declared “Southern California is an ideal location to demonstrate the benefits of Maglev technology due to the severe traffic congestion and the wealth of human resources and high technology manufacturing resources that exist there.” Numerous local governments in the SCAG region have indicated their support for deploying a high-speed Maglev system by passing resolutions or writing letters of support.

Business and community interest groups and the general public have also indicated strong support for the system. The development of the project plan and this Business Plan have been guided by a Maglev Task Force composed of elected officials representing a broad cross section of Southern California communities.

With daily intra-regional trips for commuting, airport access and other purposes reaching two hours or more during peak congestion periods, the market for a high-speed alternative is very high. This is particularly true for the very dense east-west corridors connecting Los Angeles County with the fast growing Inland Empire.

## THE VISION

Southern Californians have imagined the possibility of riding a high-speed monorail above congested freeways for decades. Now, the prospect of a visionary high-speed monorail system is within reach. The cost and disruptive impacts of freeway construction in densely developed metropolitan areas of Southern California have combined to stimulate a fresh look at this exciting new transport system. Advances in magnetic levitation (Maglev) guidance and propulsion technology have also increased the promise of what could become a whole new way of travel. Given the current and projected state of its congested transportation system, Southern California provides the ideal opportunity to build and operate the nation's first Maglev system.

SCAG has taken the lead in initiating the deployment of a Maglev system. SCAG's Regional Transportation Plan (RTP) proposes, among other transportation improvements, an intra-regional, high-speed Maglev transportation system that will connect major regional activity centers, airports and multi-modal transportation facilities in Los Angeles, Orange, Riverside and San Bernardino counties. The California Maglev Project is one of the initial lines in the regional network to be evaluated for deployment.

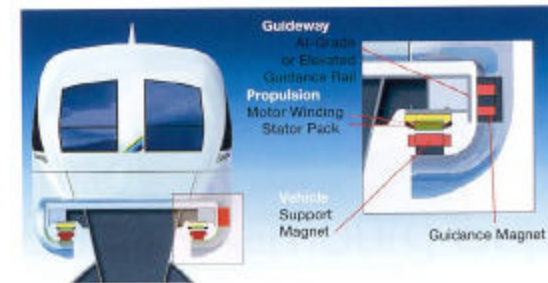
## MAGLEV TECHNOLOGY

Maglev technology is based on magnetic levitation and propulsion. The Maglev vehicle rides along a monorail guideway, which can be either elevated or at grade. Magnets fitted to the vehicle react with magnetic rails attached to the underside of the guideway. Levitation magnets attract the vehicle from below toward the guideway, while the guidance magnets hold the vehicle on course laterally. The vehicle is propelled magnetically through a propulsion system located in the guideway.

Benefits of the Maglev technology include high-speed operation (greater than 200 mph); environmentally friendly characteristics such as low noise emission, low energy consumption and minimal land consumption; and low equipment maintenance costs (since there are few mechanical and moving parts). It has been concluded that German Maglev technology developed by Transrapid International best meets the performance criteria identified for the California Maglev project. Transrapid's Maglev technology has been under development for the past 25 years and is licensed for commercial service by the German government. Their 31-km demonstration track in Emsland, Germany has carried more than 250,000 fare-paying passengers. A commercial Transrapid system is being built in Shanghai, China. Maglev technology is also being used at Southern California theme parks for high-speed park attractions.



**Regional Transportation Plan  
High-Speed System**



**Magnetic Levitation and Propulsion**

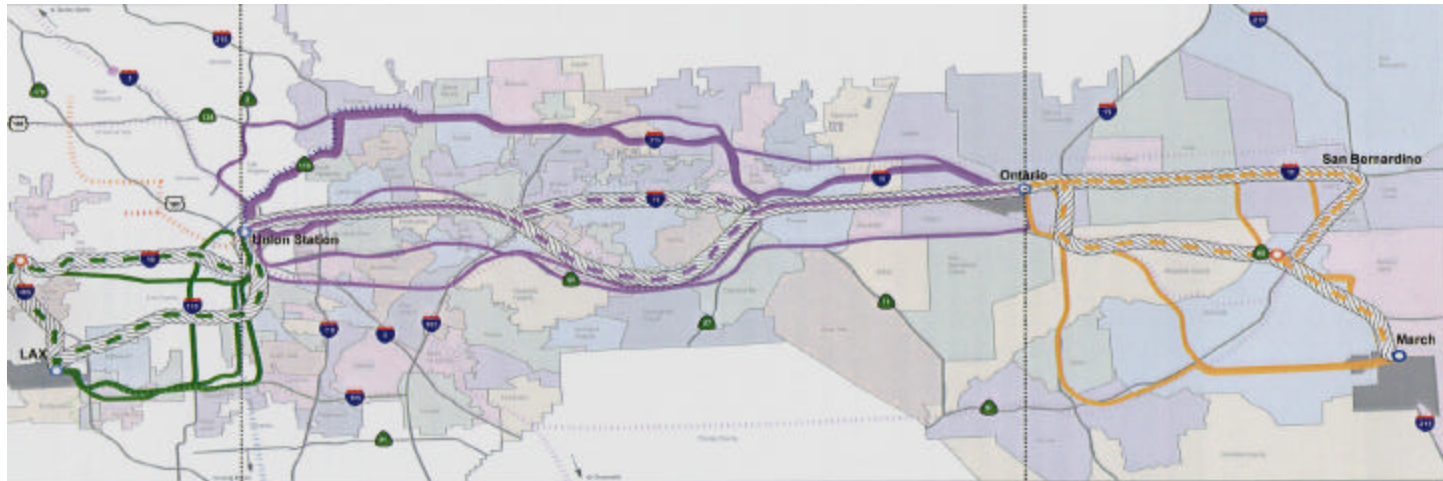


## PROJECT CORRIDOR

The Maglev study corridor extends from Los Angeles International Airport (LAX) on the west, to San Bernardino and March Inland Port in Riverside County on the East. Various alignment alternatives have been evaluated for the totally grade-separated system. They include portions of the 210 Freeway, 10 Freeway and 60 Freeway, as well as several parallel railroad rights-of-way. Potential Magport locations include: LAX, West LA, Union Station in downtown Los Angeles, San Gabriel Valley, Ontario International Airport, San Bernardino, Riverside and the former March Air Reserve Base (March Inland Port)—spanning a distance of approximately 92 miles.

SCAG's Regional Transportation Plan envisions a 273-mile system eventually connecting to the Orange County and San Diego regions, and connecting with Metrolink and the state's proposed high-speed rail system extending to northern California. It will also provide for future corridor expansion into the high desert portions of Los Angeles and San Bernardino counties. A planned high-speed Maglev line from Las Vegas to Southern California could also connect to the regional system.

## Maglev Alignment Alternatives

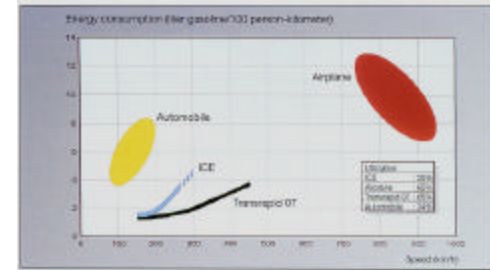


## TECHNOLOGY AND SERVICE CHARACTERISTICS

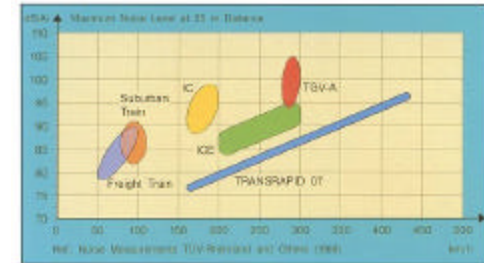
Transrapid Maglev technology is the most advanced of the systems currently under development. Other technologies investigated under the California Maglev Deployment Program include the Japanese super high-speed, superconducting magnet system, and the slower speed HSST technology designed for local circulation and shorter distance urban travel applications. The proposed project is designed to serve the longer distance, intra-regional trips in the LAX to March Inland Port corridor. These trips are growing at a high rate due to the dramatic increase in more affordable housing in the Inland Empire. Commutes across the region equaling two hours or more are a daily occurrence for a growing population that cannot find housing in the employment rich regions further to the west.

Maglev would literally turn the equation upside down by providing frequent service at an average 94 miles per hour along its 92-mile length. Alternate design and operating strategies have been analyzed to optimize the service characteristics, ridership and revenues. A key feature of the Maglev technology is the ability to travel at high speed in a dense urban environment, with much lower noise impacts than that of a conventional rail system. The technology also uses less energy and has a less intrusive aesthetic appearance due to the absence of overhead power wires and support poles, and a smaller guideway profile.

Maglev vehicles would operate at frequent intervals, perhaps every 10 minutes during non-peak hours, and as often as every 5 minutes during peak periods. It is this frequent service and high speeds that recent ridership analyses suggest would attract the 134,000 daily riders in 2020. Construction of the 92-mile guideway would be phased, from a business standpoint, to match early investment costs with travel demands during the first few years of operation.



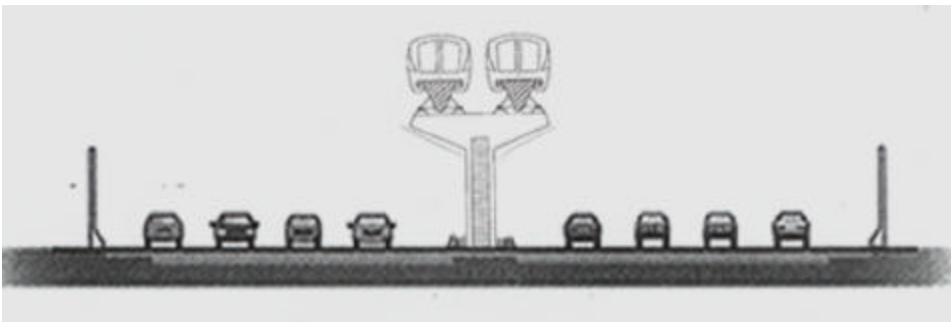
**Half the Energy of Autos**



**Half the Noise of a Train**

**Lower Guideway and Vehicle Maintenance Costs**

**Capacity of an 8 to 10 Lane Freeway**



**Possible configuration within freeway median**

# Project Need and Benefits

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### Maglev Benefits

- Higher Speed
- Lower Energy
- Airport Access
- Lower Noise
- Lower Costs



**Despite recent improvements in air quality, Southern California is still a non-attainment area. Maglev is a key component of the region's air quality plan.**

### TRAFFIC CONGESTION, DELAYS, ACCIDENTS

Southern California has a severe traffic congestion problem today that will get worse over time. Freeways designed to provide fast, unimpeded intra-regional and inter-state trips are now operating at 20 miles-per-hour or less during most of the day. Truck traffic has grown at dramatic rates as Southern California plays an important national role as gateway to the Asian Pacific continent. Traffic congestion in Southern California impacts people throughout the nation.

Maglev will help relieve congestion and delays for motor vehicle drivers, and offer its passengers a speed of travel, convenience and reliability not possible today with the region's auto-dependent transportation system.

### POPULATION, EMPLOYMENT AND TRAFFIC GROWTH

Currently home to 17 million residents, Southern California's population will grow by another 6 million by 2020. This is equivalent to twice the population of Chicago. Even with the planned improvements in roadway infrastructure, travel speeds will reduce to 15 miles per hour during most of the day on almost all of the region's freeways. Maglev has the capacity to move, in the space of one freeway lane, the number of people that are moved by an entire 8 to 10-lane freeway, at a fraction of the cost.

### QUALITY OF LIFE ISSUES

Enhancing the quality of life is a major goal for Southern California residents. Improved air quality is of paramount importance. The region is and air quality non-attainment area and risks losing control of federal funding for transportation infrastructure and other federal programs.

Maglev provides the first opportunity, given its speed advantage, to attract people out of their cars for long distance travel. Maglev would provide a safe alternative to driving, and save commuters travel time that can be spent for family enjoyment or other purposes.

## AIRPORT DEMAND MANAGEMENT

Maglev will enable the region to operate a decentralized airport system. Passenger traffic at the region's predominant airport, LAX, is growing at dramatic rates. Overall air passenger demand in the region is expected to double over the next 20 years. Even more striking are the growth rates for air cargo, with demand expected to triple over the same period. Southern California has a system of air terminal and landing facilities that are spread out throughout the region. The problem is that the airlines are not able to serve their travelers well from existing under-utilized facilities. The primary reason is a lack of high-speed ground access to these airports.

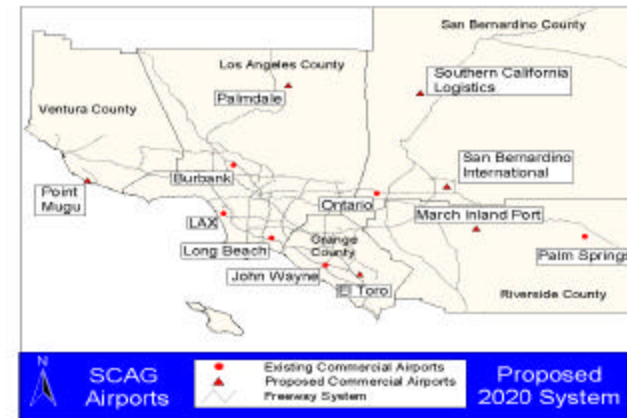
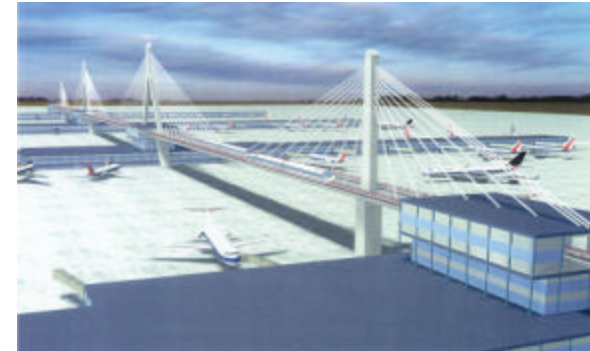
The market for air passenger services is predominantly on the west side of the region. Passengers are not attracted to under-utilized airport facilities that could relieve the load at LAX. The benefit of Maglev is that access time to Ontario International Airport, as well as to March and San Bernardino, would be very competitive with access time to LAX for the west-side community. For this reason, Maglev has the potential to reduce demands on LAX.

Los Angeles World Airports has released the draft Environmental Impact Report for a \$12 billion expansion of LAX. The plan provides for new terminal facilities to the west of Tom Bradley Terminal, as well as, a new access road to the north connecting with the I-405 Freeway, extension of the Green Line, and construction of an internal people mover system.

Maglev would benefit communities surrounding LAX by bringing air passengers and cargo directly to the major terminal gates and cargo loading facilities. Current or future street traffic into and around the airport would thus be reduced. Maglev also offers the opportunity for many of the thousands of employees who work at LAX to use the system to get to work, thereby reducing local street traffic even more.

Perhaps most important is the opportunity to reduce the increase in the number of flights in and out of LAX by diverting the growth in demand from LAX to Ontario, March and other regional airport facilities.

LAX



March





# Public Private Partnership Structure

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### ORGANIZATIONAL STRUCTURE FOR PROJECT IMPLEMENTATION

SCAG is currently serving as the lead public entity for the California Maglev Deployment Program. Predeployment planning has been undertaken in cooperation with the State of California and the Federal Railroad Administration. As the program moves closer to the construction phase, SCAG will enter into necessary agreements with state and local agencies to secure the rights of way required for placing the Maglev system into operation. SCAG proposes that the federal government continue to support the program through the appropriate agency within the Department of Transportation, in coordination with other interested and affected agencies, including: the Federal Aviation Administration, Federal Highway Administration, Federal Railroad Administration, and possibly the Federal Transit Administration. The federal government's role would include TIFIA loans and loan guarantees, and Maglev technology certification. The State of California would also be a supporting partner by providing the state highway public rights of way required for the project. The proposed organizational structure would include a public private corporation composed of the equity participants in the project, with the roles of each partner as shown below.



# Contacts for Further Information

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### CONTACTS

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Further information about the California Maglev Deployment Program can be obtained at the California Maglev Alliance website: [www.calmaglev.org](http://www.calmaglev.org) or the Southern California Association of Governments website: [www.scag.ca.gov](http://www.scag.ca.gov).

The following individuals may also be contacted for further information:

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**ASSOCIATION of GOVERNMENTS**