



3/14/05 <sup>(lew)</sup> CEs to MPE (SSD)

**Keck School of Medicine  
University of Southern California**

*Sent via E-mail and FEDEX*

March 11, 2005

**Division of  
Environmental Health**  
  
Department of  
Preventive Medicine

Alan C. Lloyd, PhD., Secretary  
California Environmental Protection Agency  
1001 "I" Street  
Sacramento, CA 95814

Sunne Wright McPeak, Secretary  
California Business, Transportation & Housing Agency  
980 9th Street, Suite 2450  
Sacramento, CA 95814-2719

Re: Report from "Growing Pains: A Town Meeting on Health and Community Impacts of Goods Movement and the Ports"

Dear Secretaries Lloyd and McPeak:

On February 25-26, 2005, the Southern California Environmental Health Sciences Center, which is directed by Dr. John Peters, convened a Town Meeting in Long Beach, California to discuss the implications of increased international trade and goods movement in Southern California. The meeting was called: "Growing Pains: Health and Community Impacts of Goods Movement and the Ports." The Town Meeting agenda, its sponsors, academic partners (including USC, UCLA, and Occidental College), funders and community partners can be found online at <http://hydra.usc.edu/scehsc/TownMeeting2005>.

This letter is written on behalf of the attendees of the meeting, who were challenged by Cabinet Secretary Terry Tamminen to become more engaged in the process underway in your agencies to develop an Action Plan on goods movements and the ports. (See additional details below).

More than 400 representatives from community-based organizations, environmental groups, academic research centers, industry groups (e.g., the Ports and railroads), elected officials and their staff members, representatives of local governments, and other members of the Southern California community attended the meeting. (Please see attached list of attendees and their organizations.) The Town Meeting served to share information about the environmental health challenges created by ongoing expansion of the Ports and related expansion of the goods movement infrastructure in Southern California, and it also brought together many of the impacted parties in a forum that allowed them to strategize on solutions for ensuring a healthy future for Southern Californians.

At the meeting, USC and UCLA scientists from the Southern California Environment Health Sciences Center presented considerable evidence from their scientific studies showing that disease and adverse health outcomes are occurring among Southern California residents as a result of current air pollution levels in the region. The adverse health outcomes described included respiratory and cardiovascular effects, reproductive effects and birth defects, cancer and more. They raised particular concerns about mobile source emissions and described the need to reduce levels of air pollutants resulting from the Ports and goods movement activity in order to prevent adverse health effects. Economist Jon Haveman from the Public Policy Institute of California estimated that the externalized cost of these health problems (in terms of medical care alone) is 2.5 billion dollars a year. Community members such as Evangelina Ramirez, a founding member of the Long Beach Alliance for Children with Asthma, testified about the human impact of air pollution on children with asthma and other respiratory illnesses.

On the first day of the meeting, following the community panel, California Cabinet Secretary Terry Tamminen pledged Governor Schwarzenegger's commitment to creating a sustainable and viable future for California and to addressing the environmental, health and community issues associated with the Ports and goods movement. In his address to the gathering, Secretary Tamminen challenged the audience to become engaged in the "Action Plan for Goods Movement" process underway in Sacramento.

In response to this challenge, Town Meeting participants made comments during Open Microphone sessions and also developed a series of recommendations in the Saturday afternoon workshops. Workshop reports were presented in the final plenary session chaired by Professor Robert Gottlieb of Occidental College's Urban and Environmental Policy Institute. Key recommendations follow and are described in greater detail in the attached report.

1. First and foremost, in the Open Mike sessions and in the workshops, community participants recommended that the community and its health, environment, and quality of life must be made a priority in deciding the Ports and goods movement agenda.
2. Second, many of the participants and also the workshop reports make a strong request for the State to provide open lines of communication, to provide opportunities for public participation, and to maximize community input into the creation of an "Action Plan" on the Ports and goods movement.
3. Third, the workshop reports suggested that the process of creating such an "Action Plan" must be slowed down to provide true community input, because many Town Meeting participants believe that there has been inadequate opportunity for public participation in creating a plan that is online to be finalized within a few weeks, if not days.
4. Fourth, participants requested that an analysis must be performed to calculate the health and environmental costs borne by local residents compared to the business and nationwide consumer benefits of increased international trade and goods movement in Southern California.
5. Finally, participants recommended that a number of steps must be taken, ranging from technological advancements to policy changes, to ensure sustainable Ports growth that protect health and uphold the quality of life in Southern California.

Attached are specific recommendations during the Town Meeting and by "reporters" from the Town Meeting workshops in the gathering's final session. In response to Cabinet Secretary Tamminen's charge, we are submitting these recommendations on behalf of the Town Meeting attendees to be considered as part of your goods movement "Action Plan" process, and we strongly urge you to provide for community and scientific participation by lengthening the process for input before finalizing any Plan.

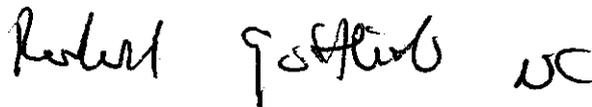
We have also sent a letter to Cabinet Secretary Terry Tamminen, enclosing a copy of this letter and the attachments.

Please contact us with any questions and thank you for your consideration.

Sincerely,



Andrea M. Hricko, MPH  
Director of Community Outreach and Education  
Southern California Environmental Health Sciences Center &  
Associate Professor of Preventive Medicine  
Keck School of Medicine, University of Southern California



Robert Gottlieb  
Henry R. Luce Professor of Urban and Environmental Policy and  
Director, Urban and Environmental Policy Institute  
Occidental College

cc: Catherine Witherspoon

Attachments: Town Meeting Agenda  
List of Town Meeting attendees and their organizations or cities  
Draft Report of Recommendations from Town Meeting attendees

A Town Meeting to consider impacts of international trade on the Southern California region, focusing on protecting the health of children, the elderly, workers, and others — and improving the "quality of life" in affected communities

## Growing Pains: Health and Community Impacts of Goods Movement and the Ports



Convened by

### Southern California Environmental Health Sciences Center (SCEHSC)

◆ A partnership of USC and UCLA scientists, funded by NIEHS ◆

Based at the Keck School of Medicine, University of Southern California

**USC**

February 25— February 26, 2005

First Congregational Church of Long Beach, Long Beach, California

**UCLA**

**Sponsors:** SCEHSC ◆ Children's Environmental Health Center (USC/UCLA) ◆ Office of Environmental Health Hazard Assessment (OEHA) of Cal/EPA  
◆ National Institute of Environmental Health Sciences (NIEHS) ◆ U.S. Environmental Protection Agency (EPA) ◆ EPA, Region 9  
**Academic Sponsors:** UCLA Center for Occupational and Environmental Health ◆ UCLA Labor Occupational Safety & Health (LOSH) Program  
◆ Southern California Particle Center and Supersite ◆ Occidental College Urban and Environmental Policy Institute (UEPI)  
**Community Sponsors:** Coalition for Clean Air ◆ Community Action to Fight Asthma (CAFA) L.A. Regional Center ◆ Liberty Hill Foundation  
◆ South Coast Air Quality Management District ◆ The William and Flora Hewlett Foundation



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# Southern California Environmental Health Sciences Center

3/11/2005



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## Town Meeting: Health and Community Impacts of Goods Movement and the Ports

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[Printable Flyers \(PDF\):](#)

[8.5 x 11"](#)

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[11 x 17"](#)

### Town Meeting Agenda

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### Friday, February 25

1:00 p.m. - 7:30 p.m.

- |              |  |
|--------------|--|
| <b>12:00</b> | <b>Registration opens</b>  |
| <b>1:00</b>  | <b>Welcome</b><br>John Peters and Andrea Hricko  |
| <b>1:05</b>  | <b>Introduction</b><br>Janice Hahn   |
| <b>1:10</b>  | <b>Welcome to Long Beach</b><br>Frank Colonna  |
| <b>1:15</b>  | <b>Health Initiatives of the National Institute of Environmental Health Sciences</b><br>Kenneth Olden  |
| <b>1:35</b>  | <b>Why we are Concerned About Health with Regard to the Ports, International Trade, and Goods Movement</b><br>John Peters  |
| <b>1:50</b>  | <b>Setting the Stage: A Video By Cal State Long Beach Quality of Life and Port Operations: Challenges, Successes, and the Future</b><br>Presented by Marianne Venieris and Tom O'Brien |
|              | The video features:  |
|              | <b>Dr. Joseph Magaddino</b> , Cal State Long Beach   |
|              | <b>Dr. Kristen Monaco</b> , Cal State Long Beach   |
|              | <b>Councilperson Janice Hahn</b> , City of Los Angeles   |
|              | <b>Dr. Robert Kanter</b> , Port of Long Beach  |
|              | <b>Dr. Ralph Appy</b> , Port of Los Angeles  |
| <b>2:05</b>  | <b>International Trade and Goods Movement in California: Challenges for a Healthy Future</b><br>Cabinet Secretary Terry Tamminen   |

- 2:35 Q&A Session**
- 2:45 We're All Connected: A "Regional" Look at Health, Transportation, and the Goods Movement**  
Ed Avol
- 3:00 Panel Discussion: Community, Worker, and Environmental Health Concerns—A Brief Introduction to the Issues**
- Moderator:** Ed Avol
- Impacts in Los Angeles:** Jesse Marquez  
**Impacts on Workers:** Miguel Lopez  
**Impacts in Long Beach:** Evangelina Ramirez  
**Impacts near Railyards and along the 710 Freeway:** Sylvia Betancourt  
**Impacts in Inland Counties:** Penny Newman
- 3:45 Break**
- 4:00 Open Microphone Session**  
Respondents include panelists and earlier speakers
- 4:40 Panel Discussion: Recent Scientific Findings—Exposure to Air Pollution and its Health Effects**
- Moderator:** Beate Ritz
- Particles and Health:** John Froines  
**The Children's Health Study:** Jim Gauderman  
**Health and Proximity to Traffic:** Janice Kim  
**Cancers in the Urban Environment:** Thomas Mack  
**Diesel and Allergies:** David Diaz-Sanchez
- 5:30 Open Microphone Session**  
Respondents include panelists on Scientific Findings panel
- 6:00 Communities Represented at the Town Meeting**  
Bill Jones
- 6:05 Dinner and Tour of the Exhibits**
- 7:30 Friday Session Adjourns**

**Saturday, February 26**  
8:30 a.m. - 4:30 p.m.

- 8:00 Registration**
- 8:30 Welcome and Summary of Health Information Presented During Friday's Session**  
John Peters
- 8:35 International Trade and Southern California: Can the**

**Region Handle the Coming Deluge?**

Jon Haveman

**9:00** **Panel Discussion: What Role Should Health Concerns Play in Making Decisions About Expanding the Ports, Freeways, Intermodal Facilities, and Distribution Centers?**

**Moderator:** Goetz Wolff

**Economic Growth Perspective:** Mark Pisano

**Environmental Perspective:** Julie Masters

**Community Perspective:** Angelo Logan

**Government Perspective:** Barry Wallerstein

**Health Perspective:** John Froines

**Port Perspectives:** Robert Kanter

Ralph Appy

**Labor Perspective:** Norman Tuck

**10:00** **Open Microphone Session**

Respondents include above panelists and Jon Haveman

**10:35** **Break**

**10:50** **Panel Discussion: Solutions to Moving Goods and Protecting Health**

**Moderator:** Ingrid Lobet

**Legislative Perspective:** Alan Lowenthal

**Environmental Perspective:** Todd Campbell

**Government Perspective:** Dale Shimp

**Community Perspective:** Noel Park

**Industry Perspectives:** Kirk Marckwald

T.L. Garrett

**Labor Perspective:** Ray Enriquez

**12:00** **Open Microphone Session**

Respondents include members of the solutions panel

**12:45** **Lunch**

**1:45** **How to Find Out About New Goods Movement Developments in Your Community, and How to Become Involved in the Process**

Malcolm Carson

**2:05** **Introduction to Afternoon Workshops**

Andrea Hricko and Robert Gottlieb

**2:15** **Workshops**

- A The Ports: Ships and Other Emissions**
- B Freeways, Roads, and Truck Emissions**
- C Railroad and Intermodal Facilities; Locomotive Emissions**
- D Warehouses, Distribution Centers, and Truck Emissions**

- E Hazardous Materials at the Ports, on Roads, and on Rails: Health and Safety Concerns**
- F Community Input into Scientific Research Agendas**

- 3:15 Workshops End  
Break**
- 3:30 Where Do We Go From Here?**  
Reports from the Workshops  
Robert Gottlieb
- 4:00 Action Plan for the Future**
- 4:15 Closing Remarks**
- 4:30 Adjourn**

Southern California Environmental  
Health Sciences Center

A Partnership of USC and UCLA, funded by the  
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**List of Town Meeting attendees and their organization or city**  
February 25 and 26, 2005

**Dorothy Aguilar**  
Communities for a Better Environment

**Felix Aguilar**  
Long Beach Department of Health and Human Services

**Felipe Aguirre**  
Comite Pro Uno/Inquilinos En Huelga

**Elizabeth Alves**  
Cal State University, Long Beach

**Don Anair**  
Union of Concerned Scientists

**Ivan Andrade**  
Communities for a Better Environment

**Helene Ansel**  
State Senator Alan Lowenthal

**Ralph Appy**  
City of Los Angeles, Port of Los Angeles

**Christine Araquel**  
People's CORE

**Martha Dina Arguello**  
Physicians for Social Responsibility-LA

**Jean Armbruster**  
L.A. County Department of Health Services

**David Avery**  
UCLA Center for Occupational and Environmental Health

**Ed Avol**  
University of Southern California

**Jerry Bakke**  
Teamsters

**Douglas Baldwin**

**Deborah Barrera**  
University of Southern California

**Tara Bartlett**  
Cal State University, Long Beach

**Mary E. Barton**  
The Barton Group

**Dinorah Barton-Antonio**  
University of California at Berkeley-LOHP

**Gayle Bastain**  
St. Timothy Lutheran School

**Tracy Bastain**  
University of Southern California

**Sharon Beard**  
National Institute of Environmental Health Sciences

**Carlos Becerra**  
South Coast Air Quality Management District

**Maria Bejarano**  
Coalition for Community Health

**Alyce Belonis**  
University of Southern California

**Jeff Benedict**  
Long Beach Health Department

**John Bennion**

**Kiros Berhane**  
University of Southern California

**Roko Berishaj**

**Margarita Betancourt**  
Community resident - Commerce

**Sylvia Betancourt**  
East Yard Communities for Environmental Justice

**Carla Blieden**  
University of Southern California

**Anna Boone**  
Occidental College

**Marianne Parker Brown**  
University of California, Los Angeles

**Cynthia L. Burch**

**Melissa Burch**  
Physicians for Social Responsibility

**Esther Bush**  
Coalition for Community Health

**Kathleen Bush**  
University of Southern California

**Luis R. Cabrales**  
California League of Conservation Voters

**Robert Cabrales**  
Communities for a Better Environment

**Karen Caesar**  
CA Air Resources Board

**Colleen Callahan**  
American Lung Association of Los Angeles County

**Leticia Campbell**  
University of Southern California

**Todd Campbell**  
Coalition for Clean Air

**Brenda Cantrell**  
National Labor College

**Philip Capin**  
Occidental College

**Malcolm Carson**  
Legal Aid Foundation of Los Angeles

**Ava Cato-Werhane**  
Los Angeles County Dept of Health Services

**Chee Chang**  
International Brotherhood of Teamsters

**Tom Chase**  
Moffat and Nichol

**John D. Chavez**  
Burlington Northern Santa Fe Railway

**Hong-wei Will Chen**  
University of California, Irvine

**Hory Chen**  
University of Southern California

**Felix Cheung**  
University of Southern California

**Daniya Chowdhury**  
University of Southern California

**Nancy Cohen**  
UCLA Center for Labor Research and Education

**Oliver Coker**  
Environmental Priorities Network

**Johneric Concordia**  
People's CORE - KmB

**Mario Cordero**  
Port of Long Beach

**Maria Cortez**  
Communities for a Better Environment

**Melinda Cotton**  
Community resident - Long Beach

**Tracy Dand**  
Centro de Ninos y Padres, Cal. State. L.A., and Tracy  
Infant Center, ABC Unified School District

**David Danelski**  
The Press-Enterprise

**Shannon Daniels**

**Armando Davalos**  
Communities for a Better Environment

**Professor de Andrade**  
University Federal de Bahia

**Birgit Delatorre**  
Long Beach Council PTA

**Linda Delp**  
UCLA-LOSH Program

**La Donna Di Camillo**  
Burlington Northern Santa Fe Railway

**Davin Diaz**  
Center for Community Action and Environmental Justice

**Heather Diaz**

**David Diaz-Sanchez**  
University of California, Los Angeles

**Patty Dobiesz**

**Maura Dwyer**  
Long Beach Alliance for Children with Asthma

**Mark Eaton**  
Occidental College

**Tracy Egoscue**  
Santa Monica Baykeeper

**Agustin Cheno Eichwald**  
Communities for a Better Environment

**Raymond Enriquez**  
Brotherhood of Locomotive Engineers and George Meany  
Center National Labor College

**Fidel Estrada**  
Occidental College

**Gilbert Estrada**

**Patricia S. Etem**  
CIVIC Communications

**Bob Eula**  
Community resident - Commerce

**Etopia Fanta**  
University of California

**Arlene Farol**  
South Coast Air Quality Management District

**Bobbie Farrington**  
South Coast Interfaith Council

**Carl Farrington**  
South Coast Interfaith Council

**Kira Fatheree**  
Occidental College

**Bahram Fazeli**  
Communities for a Better Environment

**Gregory Fernandes**  
Cal State University, Long Beach

**Gail Feuer**  
Natural Resources Defense Council

**Socorro Fimbres**  
Coalition for a Safe Environment

**Aurora Flores**  
Cancer Information Service

**Joe Flores**  
Community resident - Commerce

**Taryn Fordes**  
Liberty Hill Foundation

**Peggy Forster**  
The Environmental Relief Foundation

**Anthony Fournier**  
Santa Barbara County APCD

**Chris Fox**  
Long Beach Polytechnic High School

**Debbie Fox**  
Think Earth Foundation

**Diana Fox**  
Center for Community Action and Environmental Justice

**Brad Frazier**

**John Froines**  
UCLA Center for Occupational and Environmental Health

**Brett Fruehan**  
Cal State University, Long Beach

**Bruce Fujikawa**  
Long Beach Department of Health & Human Services

**Claudia Gallaway**  
International Brotherhood of Teamsters

**Anupom Ganguli**  
South Coast Air Quality Management District

**Adrian Garcia**  
Office of Councilmember Tonia Reyes Uranga, 7th  
District, City of Long Beach

**Laura Garcia**  
Long Beach Alliance for Children with Asthma

**Maria Garcia**  
Long Beach Alliance for Children with Asthma

**Rogelio Garcia**  
Communities for a Better Environment

**T.L. Garrett**  
Pacific Merchant Shipping Association

**Gwen Gary**  
Liberty Hill Foundation

**W. James Gauderman**  
University of Southern California

**Jose R. Gaytan**  
Center for Community Action and Environmental Justice

**Josie Gaytan**  
Center for Community Action and Environmental Justice

**Frank Gilliland**  
USC School of Medicine

**Susan Gilmore**  
Metropolitan Transportation Authority

**Cliff Gladstein**  
Gladstein Neandross and Associates

**Phillip T. Goad**  
University of Arkansas

**Gerardo Gomez**  
Long Beach Alliance for Children with Asthma

**Al Gonzalez**  
Commerce Sister City Association

**Gaby Gonzalez Pinto**  
Cal State University, Long Beach

**Stephanie Gore**

**Thomas Gotschi**  
University of Southern California

**Benna Gottfried**  
Occidental College

**Bob Gottlieb**  
Occidental College

**Timothy Grabiell**  
Natural Resources Defense Council

**Michele Grubbs**  
Pacific Merchant Shipping Association

**Mary R. Guerrero**  
Community resident - Commerce

**Michael Leon Guerrero**  
Grassroots Global Justice

**Ali Guichard**  
University of Southern California

**Janet Gunter**  
San Pedro and Peninsula Homeowners Coalition

**Ericka Gutierrez**  
Long Beach YMCA

**Joan Gutierrez**  
Cal State University, Long Beach

**Jorge Gutierrez**

**Kristen Guzman**  
University of California, Los Angeles

**Janice Hahn**  
City of Los Angeles

**Bob Hammer**  
Pareto Point Industries

**Ted Harris**  
Southern California Association of Governments

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UCLA LOSH

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Public Policy Institute of California

**Staci Heaton**  
California Trucking Association

**Shabaka Heru**  
Community Coalition for Change, Inc. (CCC)

**Robert Hildebrand**

**Virginia Hilker**  
Environmental Priorities Network

**Bill Hinds**  
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**Charles Holcombe**  
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**Michael Hollon**  
Assembly Member Hector De La Torre

**Roger Holman**  
Coolidge Triangle Homeowners Association

**Joshua Holst**  
CLCV Education Fund

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South Coast Interfaith Council

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LA City Environmental Affairs Department

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**Eric Johnson**  
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Philippine Action Group for the Environment

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Los Angeles Unified School District

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East Yard Communities for Environmental Justice

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Center for Community Action and Environmental Justice

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International Brotherhood of Teamsters, Port Division

**Rachel Lopez**  
Center for Community Action and Environmental Justice

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California State Senate

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California Environmental Rights Alliance

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**Melanie Marty**  
OEHHA/CalEPA

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Natural Resources Defense Council

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City of L.A., Port of L.A.

**Don May**  
California Earth Corps

**Don May**  
California Earth Corps

**Patrick McBride**  
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**Rob McConnell**  
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**Ian McCurdy**  
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**Licinia McMorrow**  
USC School of Policy, Planning and Development

**Will Meade**  
Occidental College

**John Means**  
El Camino College

**Julie Means**  
Tetra Tech

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Port Community Advisory Committee

**Fernando Mendova**  
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**Bruce Millies**  
Teamsters Union

**Michael Milroy**

**Irene Mineses**  
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**Chuck Mitchell**  
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**Laura Moller-Leon**  
MotherNet L.A.

**Genevieve Monahan**  
Cal State University, Long Beach, Department of Nursing

**Megan Moody**  
University of Southern California

**Ashley Moore**  
TIAX LLC

**Maricela P. Morales**  
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**Stanley Mosler**

**Beth Muir**  
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**Ruben Munoz**  
University of Southern California-MPH

**Hyacinth Mussenden**  
Cal State University, Long Beach

**Krishna Nand**  
Parsons

**Yesenia Navarro-Pais**  
California State University

**Susana Negrete**  
Center for Community Action and Environmental Justice

**Chad Nelson**

**Kimber Watson Nelson**  
University of Southern California

**Penny Newman**  
Center for Community Action and Environmental Justice

**Elahe Nezmi**  
University of Southern California

**Marion L. Ngul**

**Jade Nguyen**  
Occidental College

**Miki (Khiem) Nguyen**  
University of Southern California

**Robert Nguyen**  
University of Southern California

**Elisa Nicholas**  
Long Beach Alliance for Children with Asthma

**Vanessa Noriega**  
University of Southern California

**Tom O'Brien**  
Cal State University, Long Beach Center for International  
Trade and Transportation (CITT)

**Kenneth Olden**  
National Institute of Environmental Health Sciences

**Sheila Olivares**

**Jan Olsen**  
Emergency Services Volunteer

**James Oreste**  
People's CORE - KmB

**Deborah Orost**  
Labor Community Strategy Center

**Jean Ospital**  
South Coast Air Quality Management District

**Art Padilla**

**Carly Paoli**  
University of Southern California

**Sal Pardo**  
International Longshore and Warehouse Union

**Dan Park**

**Noel Park**  
San Pedro and Peninsula Homeowners Coalition

**Ray Park**  
City of Carson Community Advisory Committee

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**Juan Carlos Piceno**  
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**Veronica Zendejas**  
Office of Assemblymember Jenny Oropeza

**Draft Report of Recommendations**  
**by the**  
**Attendees and Workshop Participants at the Town Meeting**  
**“Growing Pains: Health and Community Impacts of Goods Movement and the Ports”**  
**Long Beach, CA**  
**February 25-26, 2005**

These recommendations stem from discussions at the Town Meeting, including panel discussions, Open Mike comments, and discussions at workshops. There were six workshops at the Town Meeting, including:

- The Ports: Ships and Other Emissions
- Freeways and Roads: Truck Emissions
- Railroads and Intermodal Facilities: Locomotive Emissions
- Warehouses, Distribution Centers and Truck Emissions
- Community Input into Scientific Research Agendas
- Hazardous Materials at the Ports, on Roads and on Rails: Health and Safety Concerns

Each workshop had a facilitator and a recorder and included representatives with diverse perspectives. At each workshop, the participants selected a workshop “reporter” who was selected to report back their workshop’s recommendations at the Town Meeting’s final plenary session.

Following the workshop reports – in the final plenary session of the Town Meeting – Professor Robert Gottlieb of Occidental College summarized the key points raised during the 2-day meeting:

- Every workshop – and every panel heard at the Town Meeting – made it clear that health, environment, and community not only need to be part of the agenda around goods movement but they have to be a priority in developing that agenda, and they are not currently a priority. As a core goal, health, environment and community need to be central to any discussion of the Ports and goods movement.
- Underlying what Town Meeting and workshop participants have been saying is that the current process underway to develop an “Action Plan” for goods movement at the state level leaves much to be desired. Right now there is no good process to incorporate health, environment and community issues as part of the very rapid activity that is happening at the state agency level in developing an “Action Plan.” In this regard, there are two goals that have been identified during this Town Meeting:
  - Slow the Action Plan process down.
  - Include the input, discussions and recommendations from this Town Meeting in the development of the state Action Plan.
- The issues raised by the workshop participants and Town Meeting panelists, as well as during Open Mike discussions, transcend a number of different categories:

- a. Technology change is needed, with many valuable suggestions made, such as the notion of a model warehouse system that moves goods efficiently but also protects communities and residents.
- b. Education and training is needed to develop new kinds of mechanisms to inform the public and address these problems from the worker side and the community side
- c. New policy, regulatory and legislative changes are needed, as well as better enforcement mechanisms across the board
- d. Imbalances need to be addressed because Town Meeting participants say that health, environment and community are short-changed when it comes to resources, at multiple levels.
- e. Research agendas need to be examined. There are strong arguments that in many ways we have enough research now to take protective action. Any new research agendas need to be developed in the context of not only the issues of health, environment and community impacts, but also in ways that allow community engagement.
- f. Next steps. There has been a strong desire by attendees to create an information exchange so that participants can stay on top of goods movement issues that affect their communities. This is a charge to the organizers of the conference.

#### Workshop Recommendations:

Although not all workshops reached consensus on their recommendations, specific key recommendations presented in the final plenary session by the Workshop reporters are summarized below:

##### 1) Process recommendations

The main problem with the current process of creating a State of California "Action Plan" for the ports and goods movement issue is that it is happening too fast. Community members and representatives of community-based, environmental and other groups cannot adequately contribute their input into an Action Plan that will soon be finalized. Participants recommend: "Slow down and establish a process with open channels of communication that will enable community and environmental input." In addition, the community requires recognition that it is not only a part, but actually a priority, in developing the goods movement agenda.

The following are some of the Town Meeting participants' recommendations for how this can be accomplished:

- a. Create a statewide communications network of stakeholders involved in port activities and keep all stakeholders up-to-date on what is happening, with well-publicized opportunities for public participation

- b. Create an Action Plan that 1) identifies environmental and health impacts, including recent scientific findings, 2) that specifies solutions, and 3) that considers CEQA requirements
- c. Look at the logistics and goods movement industry in a holistic way by considering local impacts vs. national needs
- d. Adopt an interstate approach to cleaner fuels
- e. Create a risk assessment process for better understanding the health threats of moving goods via rail, since this is often promoted as a more environmentally-sound alternative
- f. Create a "West Coast goods movement plan", not just a regional or statewide one, to facilitate a more equal distribution of goods and health/community/environmental impacts along the West Coast
- g. Develop an economic analysis that not only looks at the value of the logistics industry to the regional economy but that also calculates the true health and social costs of expanding this industry in Southern California

## 2) Technological change

Technology should be embraced with a two-fold approach. First, invest in new technologies that prevent or reduce pollution. For example, manufacture new ocean-going cargo ships designed to use the cleanest technology possible, because even though the initial cost is higher, the long-term cost is much lower than continual incremental improvement. Second, invest in training and education programs that enhance the rate of technological transition. The following are some of the Town Meeting participants' recommendations for how this can be accomplished:

- a. Consider only the newest technologies for preventing and reducing pollution so that we do not commit ourselves to outdated methods
- b. Create a model warehouse system (plan) to consider the most efficient factors for sustainable "green" development, including stricter zoning regulations, truck routes that protect neighborhoods, etc.
- c. Provide funds not only for long-term infrastructure improvement projects but also for short term programs that will utilize existing cleaner technologies
- d. Charge the true price of gasoline, diesel and imported goods to help pay for mitigation of impacts
- e. Invest in alternatives to oil-based fuels and reduce the use of sulfur in fuels
- f. Evaluate the true impacts of truck versus rail transportation of goods. See-sawing between trucks and rail is not the solution, because both of these produce considerable emissions. Reducing truck traffic and having incentives for rail may result in shifting the burden from one community to another.
- g. Create a comprehensive catalog or report of all the existing freight-moving technologies that are less polluting than diesel technologies currently in use
- h. Provide incentives and training programs that enable distribution centers to utilize the newest technologies
- i. Create a public trust fund that all users pay into to fund cleaner technology

### 3) Policy Change

Current policy can be improved by making regulatory changes and opening lines of communication among local, state, and federal actors. Policy makers should consider the balance of localized costs versus nationalized benefits in deciding if and how the Ports of Long Beach and Los Angeles should be expanded. In addition, policy makers should seek to address the significant health costs born by the communities of Southern California and should find a way to hold industry – and even the rest of the country – accountable for these externalities.

The following are the Town Meeting participants' recommendations:

- j. Reconsider whether the goods movement is the best economic option for Los Angeles and California given that the costs are localized while benefits are national
- k. Encourage policy makers to pay attention to substantial evidence that pollution in Southern California – at current levels – is seriously impacting health
- l. Support the No Net Increase legislation because Southern California residents cannot sustain any further degradation of the air they breathe
- m. Allow no expansion of the ports, or infrastructure accommodating increased international trade, until health is prioritized and air pollution is reduced; expansion must happen only in a sustainable manner that protects the health of southern California residents
- n. Establish clear responsibilities at the Ports for regulation and enforcement of policy decisions
- o. Hold the Ports (tenants and shippers) accountable for the impacts of their industry by having comprehensive accounting to tally the burden of disease from emissions at the ports
- p. Consider local impacts vs. national needs. The lack of an interstate approach to cleaner fuels is an obstacle to progress.
- q. Consider whether it is necessary to nationalize the ports so that they are taken out of the hands of local decision makers and private industry
- r. Invest in regional public transportation to relieve freeway congestion

### 2) Community Resources (financial and other needs)

With respect to health and environment, community members believe that their interests are consistently short-changed. The significant health concerns of the community need to be better represented at the local, state, and federal levels. Community relations can be improved by increasing funding for research, education, and notification services that maximize community awareness and protection.

The following are the Town Meeting participants' recommendations:

- a. The warehouse economy, despite claims to the contrary, is viewed by many Town Meeting participants as not advantageous to the regional economy. The State should offer alternative sources of funding to local governments so that they are less dependent on the warehouse economy
- b. Create a community advisory committee for the combined Ports of Long Beach and Los Angeles; these issues must be dealt with by both Ports combined, not competitively or singularly
- c. Create buffer zones between neighborhoods and freeways and rail operations
- d. Develop and enforce rules prohibiting truck-idling next to sensitive receptor facilities like schools
- e. Create a better notification system, so that the public is immediately aware of hazardous chemical spills resulting from transportation accidents.
- f. Invest in education so that tomorrow's workers will be prepared for higher wage jobs, rather than saying that low-wage logistics jobs are valuable because the workforce is uneducated
- g. Use money from the private sector for infrastructure development and mitigation of the effects of goods movement

### 3) Community Input and Awareness

Numerous health studies provide considerable evidence that air pollution causes a number of diseases and adverse health outcomes. Communities would like to contribute to future studies by incorporating local concerns and issues into research agendas. This can be facilitated by university research centers if additional funding is provided. At the same time, the media should be used to enhance public awareness of the considerable health risks associated with Port and goods movement growth.

Town Meeting participants made the following recommendations:

- a. Create outlets and a means for the community to add their input into scientific research agendas
- b. Find a way to make scientific data available to a broader range of people, by translating science into formats that can be understood by the general public
- c. Better utilize media channels to spread information to the public about the health concerns of pollution and poor air quality, especially in the Ports areas and along routes of goods movement transport (such as communities near rail yards, along freeways, and near distribution centers).
- d. Create environmental education programs so that school children will understand the effects of the environment on health and society, and that will encourage them to have a stronger connection with nature

# **Coalition For A Safe Environment**

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wilmingtoncoalition @ prodigy.net 310-704-1265  
Jesse N. Marquez Executive Director

*“ Environmental Justice For Ports & Goods Movement Corridor Communities “*

May 31, 2005

**Terry Tamminem, Cabinet Secretary  
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Sacramento, California 95814**

**Sunne Wright McPeak, Secretary  
California Business, Transportation & Housing Agency  
980 9<sup>th</sup> Street, Ste. 2450  
Sacramento, California 95814-2719**

**Alan C. Lloyd Ph.D., Secretary  
California Environmental Protection Agency  
1001 “ I “ Street  
Sacramento, California 95814**

**Re: Final Goods Movement Action Plan  
Phase I Foundations**

## **Port Environmental Justice Community Request To Postpone Release of Final Goods Movement Action Plan Until Public Review and Approval**

Dear Secretaries Tamminem, McPeak and Lloyd:

It has come to our attention that the Final Goods Movement Action Plan - Phase I Foundations is scheduled for release in the near future. The Port of Los Angeles, Port of Long Beach and the Southern California Transportation Corridors Environmental Justice Communities are the origin of the largest Goods Movement traffic throughout California and the most negatively impacted. We request that you postpone the release of the plan until there has been time allocated for public review and approval.

There has been no opportunity for public review of the final draft Goods Movement Action Plan, no public hearings in each state county and no public comment period to assure that all negative environmental, public health and economic impacts have been assessed and mitigated. There has been no opportunity for the public to assess the proposed plan actions in their communities, alternative technologies, the projected Ports and Goods Movement growth, time to review the public health impact findings, review of the cost-benefit analysis requested by the public, vote on whether Californians wish to support such a plan and the billions of dollars of public indebtedness it will take to implement additional public subsidized private industry business growth proposals.

The plan proposes to initiate measures that would be enacted at a faster pass than business-as-usual, which we disagree with. The reason the State of California is facing a Goods Movement Industry, Environmental and Public Health Crisis is because of our past failures to properly identify all inter-related components, assess all possible negative environmental, public health, traffic and economic impacts, assess and implement the best available technologies, implement equitable public policies and benefits and mitigate all negative public impacts.

The public does not support the "fast track and deal with the consequences later principle," which has been the past Goods Movement Industry Business and State of California Administration Policy and Practice. A smart, well planned and balanced slow growth plan that has been thoroughly reviewed and prepared is preferred over another incomplete haphazard disaster in the making endeavor.

As a non-profit community based organization which represents numerous Environmental Justice Communities and the Publics Interests at large we request the following:

1. A 90 day public review period of the Final Draft Goods Movement Plan.
2. An Environmental Justice Community Public Hearing in each California County and major city.
3. An opportunity for the impacted cities and public to vote on the Goods Movement Plan. There is no public consensus or approval of the Goods Movement Plan since there has been no state wide public review process in each county as a minimum.
4. The plan mandate the use of the best available environmental air, land, water, noise and light pollution control technologies in the State of California and within our ocean borders.
5. The plan include accurate Goods Movement growth projections based on the last 3 years data.
6. The plan mandate the inclusion of a Feasibility & Cost Analysis and Alternatives Assessment for each project proposal.
7. That a comprehensive Port & Goods Movement Cost-Benefit Analysis be included in the plan. The Goods Movement Plan makes reference to Mexico losing a quarter of a million jobs and the closing over 500 companies, but makes no reference to an equal amount of California or US losses. The Coalition For A Safe Environment has identified 26 public subsidized cost categories and 18 Environmental Justice Community impact categories.
8. The plan include a current baseline of every public health impact and public health care cost and professional Goods Movement growth projection public health impact studies. The Union of Concerned Scientists estimates that the cost of public health care to be a minimum of \$ 21.5 billion for the State of California and \$ 10.2 billion for the South Coast Air Quality Management District. These estimates do not include all health cost categories.
9. The plan under-go a complete CEQA environmental review as required by law prior to approval and implementation. The current plan fails to identify and mitigate all air, land, water, noise, light pollution, traffic, economic, lost tidelands, wildlife habitats, public property, private property, designated and undesignated superfund sites and public health negative impacts.

10. The plan include an accurate and comprehensive Cumulative Impact Analysis for each impacted Environmental Justice Community.
11. The plan include a comprehensive Mitigation Plan to minimize or eliminate all negative environmental, public health, traffic and economic impacts. The Coalition For A Safe Environment has identified and submitted 58 mitigation recommendations in the past.
12. The plan mandate the use of the Best Available Air, Land, Water, Noise & Light Pollution Control Technologies (BACT), low sulfur diesel fuel, bio-diesel fuel, organic fuels and diesel fuel additives. Technology currently exists to eliminate over 70% of all air, land and water pollutants. Shipping companies refused to contract with the first proposed alternative fuel LNG trucking company.
13. The plan include a public forum process to allow discussion and adoption of the Best Available Goods Movement Technologies: ie. Under-Ground Transportation Systems, Automated & OCR Systems, Destination Pre-Sort Stacking System, Ship Drop-to-Rail Technologies, Solar, Electric & Hydrogen Fuel Technologies and other relevant Alternative Technologies.
14. The plan include the relocation of all off-Port property and community bordering Inspection Facilities, Container Storage Yards, Intermodal Facilities, Distribution Centers, Fumigation Facilities and Oil, Gas, Fuel & Hazardous Chemical Storage Facilities away from residential communities.
15. The plan include recommendations for California and US policy, rule, regulation, law and lease changes recommendations: ie. Green Ports, Global Warming, Petroleum Fuel Use Reduction
16. The plan include international policy, rule, regulation and law changes recommendations: ie. California/US support and endorsement of MARPOL Annex VI and Kyoto Agreement.
17. The plan includes a financing proposal that minimizes the California public subsidizing of private business operations and business growth. The California public will no longer incur billions of dollars of indebtedness annually subsidizing private enterprise traditional cost-of-doing-business.
18. The plan includes a proposal to investigate and minimize California Ports receiving merchandise for out-of-state destination. The California public will no longer subsidize the cost of out-of-state shipments.
19. The plan include a proposal for the State of California to initiate a series of forums to investigate and support the growth of California and US manufacturing industries and identify products that can be promoted domestically to reduce foreign import dependence. ie. Made in USA.
20. The plan include a proposal for the State of California to initiate a series of forums to investigate and support sanctions, increased fees and taxes against retailers, wholesalers, distributors, importers etc. who jeopardize the California and US economy, US manufacturing capability and US employment market.

21. The plan does recommend or mandate that shipping companies, importers, wholesalers, distributors and retailers guarantee that a certain minimum percentage of their cargo will use the Alameda Corridor or Intermodal Facilities in order to have less traffic congestion on public highways, freeways, streets, bridges and impacts on neighboring communities.
22. The plan include the building of a new state wide Goods Movement Transportation Corridor System independent of the existing public transportation system and paid by the Goods Movement Industry. The plan include the public recommended and preferred underground electric train, hydrogen fuel or alternative energy transportation network.
23. The plan identify and address that the Goods Movement Industry creates and supports an illegal underground trucking support industry which pays legal and illegal drivers and mechanics unequal and marginal salaries, encourages violations of city and state laws, supports unlicensed and uninsured drivers and the use of older more polluting trucks.
24. The plan include a long term financing and revenue generation plan. The plan also include an evaluation of profits generated by each Goods Movement Industry sector in order to assess its percentage of contribution toward the transportation infrastructure system construction and maintenance costs, environmental and public health mitigation. 2004 Net Profits: Walmart \$ 10.3 billion, Maersk \$ 2.8 billion, ConocoPhillips \$ 8.1 billion, Union Pacific Railroad \$ 604 million
25. The plan include an alternative recommendation for a moratorium on Port growth at the Port of Los Angeles and Port of Long Beach until all air, land, water, noise, light pollution, traffic, economic, lost tidelands, lost wildlife habitats, public property, private property, designated and undesignated superfund sites and public health negative impacts have mitigated.
26. The plan provides no policies and assurances that the Goods Movement Industry will comply with anti-corruption, business conflict of interests ethics, violation of international human rights laws, the Kyoto Agreement, non-involvement in foreign country politics, third world country exploitation and cultural genocide. Over 50% of California's population has family in third world countries.
27. The plan include provisions for the prevention of imported foreign made merchandize, equipment, vehicles, containers and food products that contain US and internationally recognized carcinogenic and toxic chemicals, compounds, substances, labeling and packaging.

There has only been two public meetings held to receive public input on the proposed Goods Movement Plan, one in Northern California and one in Southern California and both were last minute notices with no time for all the public to be notified or participate. There has been only two public meetings on the released draft plan, again with limited advance public notification. There were no advance media press releases or media invited to attend. No information was provided in Spanish or any other foreign language in order to reach the most impacted Environmental Justice Communities.

The CalEPA and BT&H websites have not been updated since March with all the public verbal comments made at the past four public hearings and written public comments submitted. There has been no Spanish language or any other foreign language translation of any website information.

We respectfully request that all of our concerns be addressed so that there is no future legal challenge to the Goods Movement Plan and that Californians can be assured of the Best Quality of Life.

The Coalition For A Safe Environment is a community based non-profit organization involved in researching Ports, Goods Movement, Transportation Infrastructure, Petroleum and Energy Industries impact on the environment and public health.

Respectfully Submitted in the Public's Interest,

Jesse N. Marquez  
Executive Director

Cc: Tom Torlakson – Chair, Senate Transportation & Housing Committee  
Alan Lowenthal – Chair, Senate Subcommittee on California Ports & Goods Movement  
Betty Karnette – Chair, Assembly Committee on Ports

Sacramento Bee  
Los Angeles Times  
L.A. Weekly  
Long Beach Press Telegram  
South Bay Daily Breeze  
Random Lengths Newspaper  
Wall Street Journal

**MEMBERSHIP CITIES**

**Los Angeles - Wilmington - San Pedro - Harbor City - Long Beach - Carson - Lomita  
Torrance - Redondo Beach - Bellflower - Compton - Gardena - Inglewood  
Lakewood - Norwalk - Paramount - Westminster - Brea**

**Natural Resources  
Defense Council**1314 Second Street  
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This transmission is 5 pages including this cover sheet.  
If transmission problems occur, please notify Penny at (310) 434-2324.

**DATE:** May 25, 2005

| <b>TO:</b>   | <b>FAX NUMBER</b> |
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| Dr. Alan Lloyd<br>Agency Secretary<br>California Environmental Protection Agency | (916) 324-0908 |
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**CC:**

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**FROM:** Julie Masters**MESSAGE:**

Please see attached comments re: Draft Final Goods Movement Action Plan.

Thank you.

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**†** AMERICAN LUNG ASSOCIATION of California

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Community Action To Fight Asthma

**†** AMERICAN LUNG ASSOCIATION of Los Angeles County

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REGIONAL ENVIRONMENTAL ACTION

SAN PEDRO AND PENINSULA HOMEOWNER'S COALITION

CALIFORNIA EARTH CORPS

COALITION FOR A SAFE ENVIRONMENT



May 25, 2005

VIA FACSIMILE AND FEDERAL EXPRESS

Terry Tamminen, Cabinet Secretary  
State Capitol Building  
Sacramento, CA 95814

Alan C. Lloyd, PhD., Secretary  
California Environmental Protection Agency  
1001 "I" Street  
Sacramento, CA 95814

Sunne Wright McPeak, Secretary  
California Business, Transportation & Housing Agency  
980 9th Street, Suite 2450  
Sacramento, CA 95814-2719

Re: Draft Final Goods Movement Action Plan

Dear Secretaries Tamminen, Lloyd and McPeak:

We write on behalf of the undersigned environmental, public health, and environmental justice organizations, and our more than one hundred thousand California members, to express our deep concerns regarding the Goods Movement Action Plan ("Plan") and the process by which the Plan is being prepared. We understand from several sources that a draft Final Plan is scheduled to be released within the next few days. Unfortunately, there has not been an adequate opportunity for public participation, nor has the public had access to full information regarding the impacts of the proposed goods movement expansion. Both are essential before this ambitious Plan is finalized, approved, or implemented.

Secretaries Tamminen, Lloyd, and McPeak

May 25, 2005

Page 2

First, the draft Phase 1 plan contains astounding numbers about dramatic increases in container traffic at ports, large increases in truck and rail traffic generated by ports, and lists pages of infrastructure projects planned to add to the state's goods movement capacity. However, the report contains a brief and inadequate discussion of the air quality and public health impacts of the expected growth and expansion related to port activity. There is an urgent need for detailed analysis of the air quality and public health impacts of the expected growth at the ports. The public needs specific information about the expected number of pollution related asthma attacks, emergency and hospital room visits, cases of upper and lower respiratory illness, increased cancer risk and premature deaths related to increased port activity and related increased in truck and rail traffic. Information on the expected medical and hospitalization costs related to these health impacts should also be included.

Since January, several organizations and the Southern California Environmental Health Sciences Center of the Keck School of Medicine, University of Southern California, have been asking for just this type of information. These groups have commented on the considerable adverse health impacts already faced by California residents from the Ports and goods movement activity. They and others (including participants at the "Growing Pains" Town Meeting on the ports and goods movement in Long Beach) have asked that an analysis be performed by CalEPA to calculate the health and environmental costs—both human and monetary—that will be borne by Californians and residents bordering the ports, freeways, railyards, distribution centers and other goods movement centers as a result of the Plan. They have also asked that these costs (and other costs, including infrastructure costs that will be paid by California residents) be compared to the expected benefits of increased trade, and fully considered by the Administration *before* a policy decision is made to triple trade through our state.

We understand that CalEPA has calculated these health costs, including the number of expected premature deaths from the proposed expansion. It is imperative that this information be included in full in the draft Final Plan before it is released to the public, so that your Agencies, the Administration and the public can have all of the facts before making decisions that will significantly affect the health and welfare of Californians for decades to come. Indeed, it is impossible for the Administration to make a fully-informed decision like this without such crucial information.

In fact, it is our view that the Plan falls within the definition of a "project" under the California Environmental Quality Act ("CEQA"), and that a full environmental review of the Plan must be prepared before it can be finalized and approved by your Agencies. In addition, CEQA requires consideration and adoption of all feasible measures to eliminate the adverse impacts of the Plan *before* your Agencies or the Administration commit to it.

As you know, the Governor has pledged to reduce air pollution by 50%. In addition, at the recent town hall meeting on goods movement in Long Beach, Secretary Tamminen pledged Governor Schwarzenegger's commitment to creating a sustainable and viable future for California and to addressing the environmental, health and community issues associated with the Ports and goods movement. These goals will never be accomplished unless the Administration has complete information regarding the *costs* of increasing trade and considers those costs before making a policy decision to triple trade in our State. Given the current state of this process, we are deeply

Secretaries Tamminen, Lloyd, and McPeak

May 25, 2005

Page 3

concerned that the Administration will rush to commit today to triple trade, and wait to figure out how to clean up the mess—if it even can—some time in the future.

We are also very troubled by the lack of public process regarding the Plan. As you know, our organizations and others have expressed this concern in the past, and our concerns have only grown since then. As we expressed in earlier comment letters, the public hearing process has been woefully inadequate. In all, there have been only two public meetings in Southern California and one in Northern California. Notice of the Oakland hearing was given much too late to ensure meaningful participation, and no meetings have been held in the Central Valley, which receives significant truck traffic from goods movement in the state and houses the growing Port of Stockton. Since the public meeting in Los Angeles on March 24, the public has received no information on the status of Plan or the decision making process, despite promises of an open and inclusive process. The BT&H website has not been updated since March 23, and repeated inquiries by members of the public regarding the status of the Plan and future opportunities for public involvement have gone unanswered by those specifically tasked with answering such questions.

We now understand that a draft Final Plan is set to be released, triggering "Phase II" of this process. At the public meeting in March, Secretary McPeak explained that "Phase I" is the "what" and "Phase II" is the "how and when" of expansion. We believe it is entirely premature for the Administration to commit itself to the "what"—i.e., the proposed tripling of trade through our State—given that CalEPA has not yet released, nor has the public, the Administration, or your Agencies had an opportunity to consider, the vital information discussed above regarding health and environmental costs of the proposed expansion.

*Accordingly, we strongly urge you to do the following before any action is taken to finalize, approve or implement the Plan:*

1. Include in the draft Final Plan an expanded discussion of the full public health and environmental impacts and costs of the proposed expansion, including any information already prepared by Cal-EPA. This expanded discussion should include specific information on the expected number of pollution related illnesses, hospitalizations and deaths as well as increased cancer risk and information on the expected medical costs related to these health impacts.
2. Allow a minimum three month period for public review of the draft Final Plan before approving the Plan or moving on to "Phase II" of this goods movement process; and
3. Prepare a full environmental review, in accordance with CEQA, including a proposed plan of mitigation.

This goods movement process will determine the direction of our State in the coming decades and have serious impacts on all Californians—especially those who live and work in and around the ports and other goods movement centers. A public policy effort such as this requires a more comprehensive process that ensures meaningful community participation, as well as meaningful consideration of the substantial costs, as well as the benefits, of the proposed Plan. So far, the public perception is that the Administration is rushing ahead without taking the time to ensure that

Secretaries Tamminen, Lloyd, and McPeak

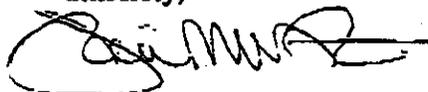
May 25, 2005

Page 4

these goals are accomplished. We urge you to correct that perception and take the steps outlined above.

Thank you for considering these comments.

Sincerely,



FOR:

Julie Masters  
Senior Project Attorney  
Natural Resources Defense Council

Martha Dina Arguello  
Director Health and Environment Programs  
Physicians for Social Responsibility

Todd Campbell  
Policy Director  
Coalition For Clean Air

Kathryn Phillips  
Manager, California Clean Air for Life Campaign  
Environmental Defense

Patricia Monahan  
Senior Analyst, Clean Vehicles Program  
Union of Concerned Scientists

Susan Smartt  
Executive Director  
CA League of Conservation Voters Education Fund

Noel Park  
San Pedro and Peninsula  
Homeowner's Coalition

Bonnie Holmes-Gen  
Assistant V.P., Government Relations  
American Lung Association of California

Teri Shore  
Clean Vessels Campaign Director  
Bluewater Network

Don May  
Executive Director  
California Earth Corps

Yuki Kidokoro  
Executive Director  
Communities for a Better Environment

Enrique Chiock  
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American Lung Association of Los Angeles County

Jesse Marquez  
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Regional Asthma Management and Prevention Initiative

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Interim Executive Director  
California State Coordinating Office  
Community Action to Fight Asthma Initiative

Andrea Hricko, Director  
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Southern California Environmental Health Sciences Ctr  
Keck School of Medicine, University of Southern California

D. Malcolm Carson  
Attorney at Law  
Legal Aid Foundation of Los Angeles

V. John White  
Legislative Director  
Clean Power Campaign

CC: Catherine Witherspoon, Executive Director, California Air Resources Board  
Gwen Strivers, Business, Transportation & Housing Agency



## Long Beach Alliance For Children With Asthma

**\* FAX \* FAX \* FAX \***

Date: April 8, 2005

To: Alan C. Lloyd, Ph.D.  
C/o Peggy Taricco

Fax number: 916-327-6251

From: Maura Dwyer, MPH  
Jean Armbruster, MA

Number of pages (including cover page): 6

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Written response to public meeting on "Goods Movement and Ports" meeting held on March 24, 2005

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Tel: 562-4247-4249 Fax: 562-427-8438  
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## LONG BEACH ALLIANCE FOR CHILDREN WITH ASTHMA



Thursday, April 7, 2005

Alan C. Lloyd, Ph.D.  
Agency Secretary  
California Environmental Protection Agency

Dear Secretary Lloyd:

The Long Beach Alliance for Children with Asthma (LBACA) and the Los Angeles County Asthma Coalition submit the following comments regarding the Draft Goods Movement and Ports Action Plan that was presented at the public meeting on Thursday, March 24th 2005. LBACA and the LAC Asthma Coalition are community asthma coalitions funded under The California Endowment's Community Action to Fight Asthma (CAFA) Initiative, which promotes policy efforts to reduce environmental triggers of asthma.

Asthma is only mentioned once in the current plan, on page VI-1, as a health consequence from particle pollution. We believe the severity and enormity of the asthma epidemic in CA warrants further attention and discussion and that such a brief description minimizes the true impact of goods movement on communities. Approximately 1 in 10 children in CA have asthma, which is above the national average, and it is estimated that 15% of children in Long Beach have asthma. It is the most common chronic disease of childhood and a leading cause of school absenteeism. Asthma disproportionately affects low income communities and communities of color. Hospitalization rates for asthma among African Americans in CA more than three times higher than for other children. Asthma is also very costly. It is estimated that asthma hospitalizations cost \$480 million in CA in 2000. The average cost per stay for asthma in CA was \$13,000, and approximately one-third of these stays are paid through Medi-Cal.

Recent research findings suggest that air pollution not only exacerbates asthma but may be involved in the causation of asthma. Researchers at USC found decreased lung function and higher rates of asthma among children exposed to higher levels of pollution, and increased symptom days and missed school days associated with poor air quality days. A UCLA-USC study found increased allergic tendencies to ragweed pollen among people exposed to diesel exhaust particles, thus causing greater susceptibility to asthma. Diesel exposure is associated with numerous immune system responses in humans and animals culminating in increased allergic inflammatory responses and suppression of infection fighting ability. The Environmental Protection Agency estimates that the diesel fine particulate matter alone causes 410,000 asthma attacks, 15,000 emergency room visits for asthma, and 12,000 cases of chronic bronchitis each year across the US. Please see the attached literature review of recent findings on air pollution and asthma for more details.

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We would like to submit that asthma be included in the discussion on page VI-2 of the health effects of diesel PM, and in the discussion of areas immediately adjacent to goods movement activity, as the Children's Health Study at USC reported higher asthma rates among children living in close proximity to major roadways. We also request that exposure to drivers on freeways and major roadways and the resulting health effects also be included.

The severity of the pollution problem in southern CA should be clearly stated as well, as the Los Angeles area has the highest levels of air pollution in the nation. During approximately 110 days out of the year in LA County, there are levels of ozone that are unhealthy for sensitive groups like those with asthma. For a similar number of days there are unhealthy levels of particulate matter in the air.

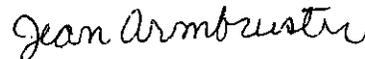
We also request further explanation of figures 3 and 4 on page VI-5. It appears that port-related emissions will be responsible for a greater proportion of NOx and PM emissions by 2020 but a further description of why and how the emission sources relate to one another would facilitate greater understanding among our community and coalition members.

We thank you for your time and consideration and look forward to your response.

Sincerely,



Maura Dwyer, MPH  
Project Coordinator  
Long Beach Alliance for Children with Asthma  
Miller Children's Hospital



Jean Armbruster, MA  
Children's Health Analyst  
Maternal, Child and Adolescent Health  
Dept. of Health Services, County of Los Angeles

## Written Comments Regarding: Draft Goods Movement and Ports Action Plan

The effect of ambient air pollution on childhood asthma has been increasingly documented. A recent Policy Statement from the Committee of Environment Health of the American Academy of Pediatrics titled *Ambient Air Pollution: Health Hazards to Children*, summarized the literature on ambient air pollution and the effects on children's health (Pediatrics, 2004). In 2002, approximately 146 million Americans were living in areas with air quality that failed to meet the 1997 national standards for at least one of six criteria pollutants. Air pollution levels near or below the current standards have been linked to adverse health effects. Stricter standards for ozone and particulate matter have been proposed but have not yet been implemented. Meanwhile, scientific information on the effects of air pollution, especially on the respiratory system, has increased tremendously in the last 10 years.

It is known that children are more vulnerable to air pollution than adults due to the developing nature of their lungs, their increased susceptibility to damage, and the higher minute ventilation rate in relation to their body weight and lung size. In addition, children spend more time outdoors than do adults adding to the increased exposure. According to the Pediatrics review, ozone, sulfur dioxide, particulate matter and nitrogen dioxide all have respiratory effects in children and adults including increased respiratory tract illness, asthma exacerbation and decreased lung function. Air pollution also has effects on indirect health indicators such as use of health care services and missed school days (Pediatrics, 2004). Gilliland et al. (2001) found a correlation between increased ozone levels and increased school absentee rates from upper and lower respiratory illness.

In a recently published article from the prospective Children's Health Study by Gauderman et al. (2004) it was noted that current levels of air pollution, specifically nitrogen dioxide, acid vapor, particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>) and elemental carbon have a chronic adverse effect on the lung development of children aged 10 to 18 with clinically significant deficits in FEV<sub>1</sub>. The magnitude of the observed effects was similar to that of exposure to maternal smoking. In southern California these pollutants are associated with motor vehicles, especially diesel vehicles, for nitrogen dioxide, PM<sub>2.5</sub> and elemental carbon. The Children's Health Study did not find a link between lung function deficits and ozone, although it did see a link between high ozone levels and new cases of asthma. As part of the Children's Health Study, McConnell, et al. (2002) found that the incidence of new cases of physician diagnosed asthma was associated with heavy exercise in communities with high concentrations of ground level ozone. As noted in an editorial by C. Arden Pope (2004) the research involving air pollution presents an important opportunity for prevention efforts. Air pollution is one of the many risk factors for respiratory disease but it can be modified. Reducing levels of air pollution will reduce morbidity.

Ozone, which is formed by the action of sunlight on nitrogen oxides and reactive hydrocarbons emitted from motor vehicles and industries, tends to peak on warm, sunny, windless days in the mid afternoon. It is a powerful oxidant and respiratory tract irritant causing chest pain, wheezing, cough and shortness of breath. Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>) is a mixture of small solid or liquid particles of soot, dust, smoke, fumes, and aerosols. PM<sub>2.5</sub> is formed from combustion processes,

especially diesel engines, power generation and wood burning. Elevated levels of both ozone and particulate matter have been shown to increase missed school days and hospitalization rates. Nitrogen dioxide is a gaseous pollutant also from diesel and gasoline powered engines, power plants, refineries and other facilities. Not only has a relationship been established between nitrogen dioxide exposure, respiratory tract symptoms and asthma exacerbation, but exposure to NO<sub>2</sub> has also been found to enhance allergic responses (Pediatrics, 2004).

The synergistic effect of multiple environmental exposures on the development of asthma and asthma symptoms has received significant attention. One example is the interaction between ragweed pollens and diesel exhaust particles. Many studies have found that diesel particles enhance airway responsiveness in people with asthma. A UCLA-USC study (Gilliland et al., 2004) found increased allergic tendencies to ragweed pollens among people exposed to diesel exhaust particles, thus causing greater susceptibility to asthma (Mead, N, 2005). This UCLA study also found that individuals who lacked a particular antioxidant producing gene had a significantly greater allergic response, compared to other participants, and that up to 50% of the US population lacks this gene.

According to the Clean Air Task Force's (CATF) "Diesel and Health in America: The Lingering Threat" report (Schneider, CG 2005), diesel exhaust is a hazardous mixture of gases and particles including carcinogens, mutagens, respiratory irritants or inflammatory agents and other toxins that cause a range of diverse health effects. The ultrafine particles (PM 2.5 and less) can penetrate deep into the lung and enter the bloodstream, carrying with them an array of toxins. Diesel exposure is associated with numerous immune system responses in humans and animals culminating in increased allergic inflammatory responses and suppression of infection fighting ability. The Environmental Protection Agency estimates that the diesel fine particulate matter alone causes 410,000 asthma attacks, 15,000 emergency room visits for asthma, and 12,000 cases of chronic bronchitis each year across the US. According to the CATF report the total monetized cost of the US diesel fleet's fine particle pollution is \$139 billion in 2010, including direct health care costs and indirect costs such as lost workdays and lost productivity.

Air pollution is known to exacerbate or trigger existing asthma and there is growing evidence of an association between air pollution and development of asthma. Interventions that can decrease air pollution or children's exposure to it can clearly improve the health and well being of children with asthma and may decrease the prevalence of the disease. These interventions must occur at the national, state and local level and require legislation, adoption of new technology and education.

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**Western States Petroleum Association**  
Credible Solutions • Responsive Service • Since 1907

**Joe Sparano**  
President

April 25, 2005

Alan C. Lloyd, PhD  
Agency Secretary  
California Environmental Protection Agency  
1001 "I" Street, P.O. Box 2815  
Sacramento, CA 95812

Sunne Wright McPeak  
Agency Secretary  
Business, Transportation & Housing Agency  
980 9th Street Suite 2450  
Sacramento, CA 95814

Dear Secretary Lloyd and Secretary McPeak:

The Western States Petroleum Association (WSPA) is a non-profit trade association representing 26 companies that explore for, produce, refine, transport and market petroleum and petroleum products in the six western states. We appreciate this opportunity to follow-up on the suggestions we made during the March 24, 2005 workshop on the Goods Movement Action Plan (Plan) – Phase I: Foundations.

WSPA agrees with and applauds the joint California Environmental Protection Agency and Business, Transportation, and Housing Agency effort to improve the movement of goods in California. We support your recognition that the State's economy and quality of life depend upon the efficient, safe delivery of goods to and from our ports and borders. We also appreciate the need to balance that goal with the goal of ensuring environmental impacts from goods movement activities are addressed to ensure the protection of public health.

The area of greatest concern to us in the current version of the Plan is that it is near silent on the fact that a healthy petroleum infrastructure is critical to CA goods movements and economic growth. As noted by the California Energy Commission (CEC) and as part of the Integrated Energy Policy Report (IEPR), "without further expansion of the marine infrastructure to receive, store and distribute transportation fuels, especially gasoline, supply disruption and price volatility will continue to be an issue for the California public and economy."

We feel strongly that it is important for the report to note this fact as one of its foundation principles. To assist with specific language, we have attached a WSPA Backgrounder entitled "Are we headed for a fuel supply crisis?" for your use crafting language for insertion into the Plan. Also attached is a copy of WSPA's "Public Meeting on Goods Movement and Ports" Power Point presentation that was submitted into the record on March 24<sup>th</sup>.

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### Recommendations To Address These Important Issues

WSPA believes it is very important for you to include a reference to petroleum in the report. The reference should emphasize the important role marine shipments of petroleum plays in goods movement and in ensuring that California consumers are able to receive adequate supplies of reliable transportation fuels safely and efficiently.

State and local policies regarding the Los Angeles and Long Beach ports, as well as other ports in the State, must reflect the need for port capacity to handle significantly increasing volumes of crude oil, transportation fuels and other energy products. CEC data shows that regional demand for transportation fuel now outstrips the ability of California refineries to produce it.

More importantly, the gap between consumer demand for gasoline and diesel fuel and the ability of California refineries to supply those fuels is expected to grow five-fold, from about 1 billion gallons in 2003, to about 3 billion in 2010 and 5 billion gallons in 2020. Much of that gap will have to be filled by imports through the LA and Long Beach ports. There is no feasible alternative.

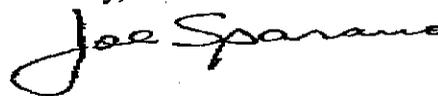
We recommend language recognizing these points be added to Section IV – “The California Goods Movement Industry and Its Growth Potential”.

Also, we recommend the following:

- BT&H and CalEPA should participate in a joint study with the CEC to:
  - Project the volumes of crude oil, blend stocks, and other energy products that will need to be handled by the LA and Long Beach ports as well as other ports for the next twenty-five years.
  - Assess the ability of the existing infrastructure to handle those volumes, and identify specific requirements for handling any volumes in excess of current capabilities.
  - Recommend policies and strategies to assure the ports' infrastructure facilities are adequate to accommodate those volumes.
- If CalEPA and BT&H consider a Blue Ribbon Task Force, which we would support, we suggest that a petroleum industry representative be included as part of any such task force recommendation.

We appreciate the opportunity to provide more specific recommendations as follow-up to our comments on March 24<sup>th</sup>. Please feel free to contact me at this office or our Chief Operating Officer, Catherine Reheis-Boyd at (916) 498-7752 if you have any questions.

Sincerely,



cc: Catherine Witherspoon, Executive Officer, California Air Resources Board  
Barry Sedlik, Undersecretary, Business, Transportation and Housing Agency  
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March 22, 2005



# BACKGROUND

## Fuel Supply

### Are we headed for a fuel supply crisis?

#### The Story So Far

Government actions already result in California gasoline prices that routinely are among the highest in the country. Gasoline taxes are the third highest in the country. California's cleaner-burning gasoline costs more to make and resulted in the shutdown of many small independent refineries that couldn't afford the investment to produce this new product according to an Attorney General Report. The state's phase-out of MTBE resulted in a further 5% decline in total gasoline supplies.

#### Consumer Risks on the Horizon

California gasoline prices are already volatile, but based on Energy Commission reports, consumers may also be at risk for price volatility because the state's petroleum infrastructure may be inadequate to meet growing consumer demand.

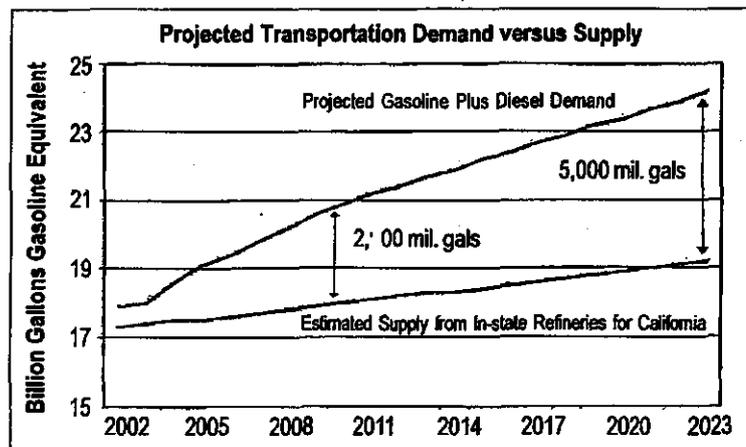
***"Without further expansion of the marine infrastructure to receive, store and distribute transportation fuels, especially gasoline, supply disruption and price volatility will continue to be an issue for the California public and economy."***

—California Energy Commission

#### Short and Long-Term Challenges

Energy Commission reports say, even though California's refineries are operating at near maximum production, the demand for gasoline is increasing at about two to four times the rate of in-state supplies. According to the Energy Commission, "to meet current California gasoline demand, as well as exporting gasoline products to neighboring states, an additional 3.5 million gallons of gasoline and blend stocks per day must be imported."

As a result, the annual in-state fuel supply deficit is projected to be significantly greater in the future. The Energy Commission has estimated that by 2010 the annual supply deficit for gasoline and diesel fuel will be 2.9 billion gallons. That deficit will grow to five billion gallons annually by 2023. What that means, according to the Commission, is that imports of gasoline, diesel and blending components are expected to double by 2010. That, in turn, will lead to twice as many petroleum vessel movements and the need for additional docks, terminals, pipelines and storage tanks to support them.



Source: California Energy Commission



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**WSPA BACKGROUNDER**  
**Fuel Supply**

### The Path Forward

To provide Californians with reliable transportation fuels, the Energy Commission and other experts recognize that the state needs to pursue a number of initiatives to remove government barriers to petroleum infrastructure:

#### Enhance Marine Infrastructure

The state's current marine infrastructure is inadequate to handle the additional crude oil and gasoline supplies that will be needed in the near future for California consumers. In southern California, according to the Energy Commission, the ability to import products is constrained by the capacity of pipelines to move products from ships to shoreline storage, and there aren't nearly enough storage tanks. Additional docking space and marine terminals will also be necessary. In the Bay Area, marine shipments are constrained by the lack of dredging in the Pinole Shoals and by inadequate pipeline capacity between the refineries and import facilities and the head of the common carrier line. The Energy Commission has engaged the state's ports and other agencies in a comprehensive evaluation of California's infrastructure needs for handling future crude oil and petroleum product imports.

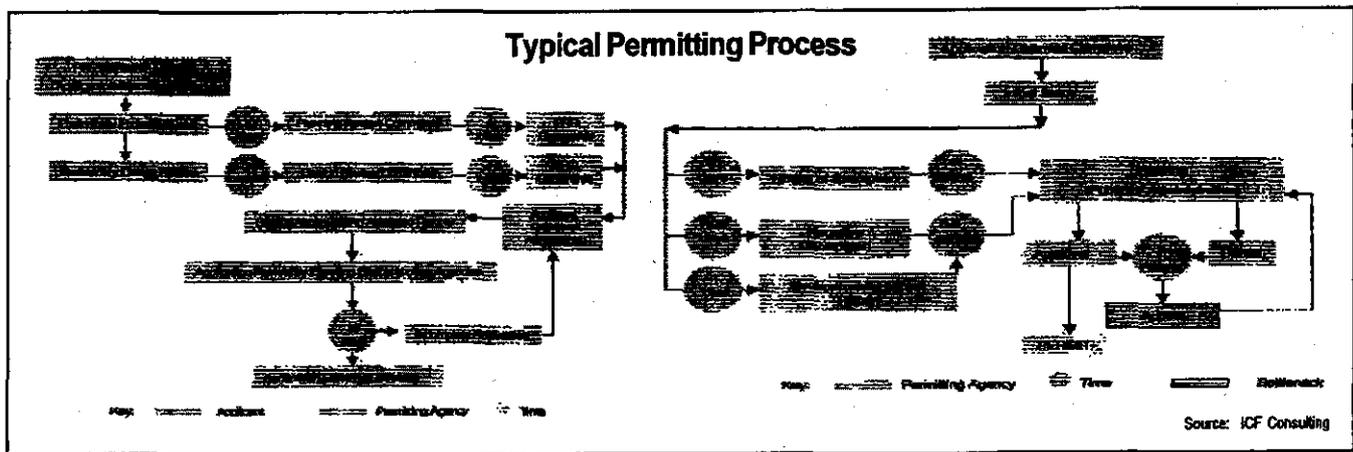
#### Don't Eliminate Existing Petroleum Infrastructure

Another key step in resolving the state's petroleum infrastructure challenge is to do no further harm. Unfortunately, some local agencies are threatening to make the problem significantly worse. For example, the City of Los

Angeles is threatening to shutdown a butane storage facility in San Pedro that is critical to the operations of southern California refineries that supply a large percentage of the state's gasoline. The Energy Commission, government officials and others concerned about the impact of this local action on gasoline consumers, need to make their views known to the local agencies that are threatening these detrimental steps.

#### Remove Regulatory Bottlenecks for Pipelines, Storage Tanks and Other Petroleum Infrastructure

The Energy Commission also found that the length of time required and complexity of acquiring permits to construct facilities were major impediments in building adequate marine, storage, pipeline and other petroleum facilities. This results in greater gasoline price volatility and higher average market prices according to the Commission. To address these problems a state facilitator for petroleum infrastructure is needed to intervene in state, regional and local permit and land use processes. In addition, state and local agencies should review their permit procedures to reduce overlapping, duplicative and conflicting regulations.



**CEA**

**CALIFORNIA**

**ENVIRONMENTAL**

**ASSOCIATES**

April 13, 2005

Sunne McPeak, Secretary  
Business, Transportation & Housing Agency  
980 9th Street, Suite 2450  
Sacramento, CA 95814-2719

Alan Lloyd, Secretary  
California EPA  
1001 I Street  
Sacramento, CA  
95812-2815

**Re: Draft Goods Movement Action Plan, Phase I: Foundations**

Dear Secretaries McPeak & Lloyd,

The Association of American Railroads appreciates this opportunity to provide comments on the *Draft Goods Movement Action Plan, Phase I: Foundations* (Draft Plan). Our comments will address various policy issues raised in the Draft Plan, the need for coordination with the Legislative Branch and a few editorial or technical suggestions that the AAR believes should be addressed in the next version of the report.

Overall, this draft represents an excellent beginning. The AAR very much appreciates the time and focus that you both have brought to this effort so far and urges your continued engagement through the solutions elements of this complicated issue.

**Policy Issues**

1. The AAR very much appreciates that the Schwarzenegger Administration will look at the goods movement system as “part of one integrated, multi-modal, statewide system.” This is the key to developing the right solutions.
2. By committing to convene “a higher-level forum to engage cooperation outside of the state’s jurisdiction,” this will greatly increase the likelihood of success of these efforts. The trucking companies, the railroads and the steamship lines all

work for the same ultimate customer: companies that ships goods to and through the ports of California. These shippers need to be at the table for the discussions to be meaningful.

3. Thirdly, by recognizing the “emphasis by state leaders would help bring the appropriate sense of urgency needed to undertake more immediate action” (and I would add “more meaningful actions”), the Draft Plan properly commits the state to be the key player in sorting out the policy, funding and environmental improvement options. This is a proper course of action for an issue that transcends any individual regional or local agency or interest.
4. Finally, the ARB staff’s commitment to, in association with a broad array of stakeholders, “prepare a comprehensive plan outlining future efforts to reduce emissions from port and rail emissions” is welcome and a necessary step to ensure that the systems basis of the goods movement system is considered and is an integral part to the environmental solutions, as well.

#### **Coordination with the Legislative Branch**

Currently, there are literally dozens of bills in the Legislature, many of which deal with the same policy issues raised by the Draft Goods Movement Action Plan. Interested parties of all stripes are presenting their views in these various forums. Some appear to support the direction of the Draft Plan; others appear to be in direct contradiction to key elements of the Draft Plan.

It would be helpful if the Schwarzenegger Administration chose to engage in the legislative discussions early on these issues to help avoid wasted efforts, unproductive discussions and policy directions that would not be ultimately supported by the Administration.

#### **Editorial/Technical Issues**

1. Cargo Consolidation/Deconsolidation – Transloading (Page IV. - 3).  
Emergence of this aspect of the goods movement systems as a serious determinant of the possible future shape of the system probably deserves a bit more discussion than it gets in the current draft.
2. Current vs. Future Estimates of Traffic (Page V. - 6). So many different scenarios have been tossed around about rail growth in the next 20 years; it

would be a great service if the next draft could perhaps distill down the competing views and decide which made the most sense. As the AAR has seen in other venues, there are problems with both over-projecting and under-projecting growth.

3. “Emissions and Trends from Port Related Sources” (Page VI. - 6). We believe the correct suggestion would be that under certain growth assumptions, rail emissions will trend upward until (not unless) new engine standards are enacted. The US EPA has already indicated they will be proposing new Tier 3 standards for locomotives in either late 2005 or early 2006.
4. Accelerate Efforts to Reduce Locomotive Idling Emissions (Page VI. – 13). The AAR would like to work with the ARB staff to help break out the difference between idling necessary for the safe operation of trains and “unnecessary” idling which can be reduced or eliminated.
5. Greater Use of Rail (Page VI. – 16). This section touches on the advantages of on-dock facilities. Many of the same advantages can be achieved through near-dock facilities. These should be noted in the report, as well.

The AAR appreciates this opportunity to comment on the Draft Plan and we look forward to working with both Secretaries to make the Plan a comprehensive blueprint to guide California’s efforts for years to come.

Sincerely,

/S/

Kirk Marckwald  
On behalf of the Association of American Railroads



## GATEWAY CITIES

COUNCIL OF GOVERNMENTS

Artesia  
 Avalon  
 Bell  
 Bellflower  
 Bell Gardens  
 Cerritos  
 Commerca  
 Compton  
 Cudahy  
 Downey  
 Hawaiian Gardens  
 Huntington Park  
 La Habra Heights  
 La Mirada  
 Lakewood  
 Long Beach  
 Lynwood  
 Maywood  
 Montebello  
 Norwalk  
 Paramount  
 Pico Rivera  
 Santa Fe Springs  
 Signal Hill  
 South Gate  
 Vernon  
 Whittier  
 County of Los Angeles  
 Port of Long Beach

April 15, 2005

Alan C. Lloyd, Ph.D., Secretary  
 California Environmental Protection Agency  
 Sunne Wright McPeak, Secretary  
 Business, Transportation and Housing Agency  
 Sacramento, CA

RE: Draft California Goods Movement Action Plan

The Gateway Cities Council of Governments, representing 27 cities in southeast Los Angeles County, has participated with great interest in your Los Angeles gatherings to develop a State Goods Movement policy and action plan. We enthusiastically applaud the Governor's efforts in this regard. Goods movement is critical to our regional economy and yet, as currently operated, damaging to the environment and quality of life of our communities.

We further applaud the Draft Action Plan as an excellent beginning to developing effective State policy. We wish to share a few comments on the document.

1. **Funding.** We share the belief that the economic needs for and benefits from international trade can be reconciled with community well being. But this reconciliation is both complex and expensive. Without it, impacted communities will not accept further massive growth and added infrastructure. Funding and financing have been deferred to Phase II of the Governor's effort. We wish to state emphatically that without meaningful levels of funding there cannot be meaningful progress in either environmental improvements or infrastructure development.
2. **International shipping.** The air quality issues in port communities cannot be resolved without reducing emissions from international shipping. While California cannot resolve this issue alone, the Governor's influence and contacts extend well beyond the State's borders. We urge the Gov-

Secretary Lloyd  
Secretary McPeak  
Page Two

error to exercise the fullest use of his office to urge a reduction of emissions from ocean going vessels. Even if, as we believe, this will require international action, we urge the Governor to actively take on the issue in Washington and, indeed wherever necessary.

3. Safety. Rail and truck safety are serious concerns to our communities. Recent spectacular accidents, both train derailments and big rig highway accidents emphasize this point. Grade separations and dedicated truckways hold the promise of improving community safety. So, too, does vigorous enforcement of truck safety standards including far more access to truck inspections in the harbor area. Rail safety may require additional research. The Draft Action Plan addresses security, but in our opinion does not provide sufficient emphasis on safety.
4. Project delivery. Significant infrastructure is a long-term solution. The Governor and Caltrans support are needed for creativity and innovation in project delivery from environmental clearance through construction. If the Action Plan is to produce action, this will be an important component.
5. Operational improvements. While waiting for the delivery of major infrastructure, operational improvements can significantly improve mobility. Our COG will be working with the San Pedro Bay Ports and other governmental agencies to develop ITS applications specifically targeted to goods movement. This aspect of mobility is not emphasized in the Draft Action Plan and would contribute to a more balanced portfolio of project priorities.
6. Projects. The following should be added to the Project List for LA 5:  
Reconstruct I-605/I-1-5 interchange \$400 Long Improves operations  
Reconstruct I-5/I-710 Interchange \$500 Mid Improves operations  
I-605 to SR-60, widen for HOV lanes \$650 Long Increases capacity  
Also, current cost estimate for LA 5 HOV lane project is \$700; current cost estimate for Carmenita interchange is \$225. Finally, current cost estimate for LA 710 improvements, including dedicated truck lanes is \$5,000 million.

Thank you for undertaking this important effort and for the opportunity to comment.

Sincerely,



Richard Powers,  
Executive Director

**Subject: [Fwd: FW: Comments to Goods Movement letter]**

**Date:** Mon, 11 Apr 2005 13:49:19 -0700

**From:** Peggy Taricco <ptaricco@arb.ca.gov>

**To:** Kirk Rosenkranz <krosenkr@arb.ca.gov>

---

**Subject: FW: Comments to Goods Movement letter**

**Date:** Fri, 08 Apr 2005 11:53:43 -0700

**From:** Gwen Strivers <gstrivers@bth.ca.gov>

**To:** Barry Sedlik <bsedlik@bth.ca.gov>, Yolanda.Benson@gov.ca.gov,  
Jorge Jackson <jjackson@bth.ca.gov>, Joan Wilson <jwilson@bth.ca.gov>,  
Peggy Taricco <ptaricco@arb.ca.gov>

FYI

Gwen Strivers  
Executive Assistant to:  
Barry Sedlik, Undersecretary and Sr. Advisor  
for Economic Development  
Yolanda Benson, Deputy Secretary for Jobs,  
Economic Development and Trade  
Jorge Jackson, Deputy Secretary for Business Regulation  
Benjamin Sarem, Special Assistant  
Jeff Newman, Partnership Manager, Technology and  
Commerce

Business, Transportation and Housing Agency  
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Sacramento, CA 95814  
(916) 323-5404  
(916) 323-5440-Fax  
gstrivers@bth.ca.gov

-----Original Message-----

From: Michael DiBernardo [<mailto:MDiBernardo@portla.org>]  
Sent: Thursday, April 07, 2005 11:57 AM  
To: Gwen Strivers  
Subject: Comments to Goods Movement letter

Hello Gwen

My name is Mike DiBernardo from the Port of Los Angeles. Attached to this email is an excel document that has suggested comments to the Goods Movement Action Plan. Please review them and see what can be incorporated in them.

Please provide me with your mailing address and I will also send you a hard copy with a cover letter.

Thank you and best regards

Mike DiBernardo  
Port of Los Angeles  
Tel: 310-732-3162  
EMAIL: mdibernardo@portla.org

|   |  |
|---|--|
|  <u>Comments on Draft Goods Movement Action Plan april 6.xls</u> | <p><b>Name:</b> Comments on Draft Goods Movement Action Plan april 6.xls</p> <p><b>Type:</b> Microsoft Excel Worksheet<br/>(application/vnd.ms-excel)</p> <p><b>Encoding:</b> base64</p> <p><b>Description:</b> Comments on Draft Goods Movement Action Plan april 6.xls</p> |
|---|--|

| Page    | Topic                                  | Comment   |
|---------|--|---|
| Overall | Background                             | A brief discussion of the "definition" of the goods movement/logistic system would be helpful. Define components such as shipping companies, terminal operators, near-dock and off-dock facilities, intermodal and local cargo, etc. Perhaps a glossary can address some of this. |
| Overall | Data References                        | As a general comment, the report lacks references to data sources, i.e. the ports' regional percentage of NOx and PM10, increase in NOx and PM10 with a tripling of cargo. *  |
| ES-1    | Goals                                  | Are the goals in priority order? If not, should be stated.  |
| ES-1 \  | Port Growth \                          | Paragraph 3, line 6, Following "load and unload the ships" add "and they must continue to grow to meet the future demands of international trade".  |
| ES-1 \  | Homeland Security                      | Following "without impeding the flow of goods" add "and fund homeland security measures".   |
| ES-2    | Administrations Plan vs. Current Plans | What is the relationship between the Administration's Plans and the current RTPs for each of the MPO regions? What are the implications for modeling, state and federal funding, as well as air quality conformity?   |
| ES-2 \  | Correction                             | Bullet 9, After Californians, add "and the Nation".   |
| ES-2 \  | Spelling                               | Last bullet, should be initiatives  |
| I-1     | Related Industries                     | Include tech industry related to logistics (software/hardware/security)   |
| I-1     | Related Industries                     | Include analysis of other large industries in CA (i.e. entertainment, tourism, manufacturing, aerospace, biotech- either past or present. LAEDC would have this info)   |
| I-1 \   | Port Growth                            | Following "load and unload the ships" add "and they must continue to grow to meet the demands of international trade".  |
| I-2     | Grammar                                | Re-phrase "The Alameda Corridor was completed in early 2002. The corridor provides uninterrupted movement of trains between the ports and downtown Los Angeles on dedicated rail lines that are fully grade separated from vehicular traffic".                                    |
| I-2     | Format                                 | Take away footnote #4 and move it to the body of the document.  |
| II-1    | Key Actions                            | The statement regarding considering the goods movement system without regard to ownership/funding conflicts with the later statement that the projects will be prioritized and scheduled consistent with existing constraints (funding, legal and regulatory constraints, etc.)   |
| II-1    | Key Actions                            | Environmental impacts of goods movement is not limited to just air quality, but other environmental initiatives that should be addressed in this document. *  |
| II-2 \  | Key Actions                            | Bullet 2, Line 4, following "statewide" add "infrastructure and security projects..."   |
| II-2    | Key Actions                            | The supply chain should be graphically mapped out with all of the interconnecting parts, which will help us look at the system as a whole and identify bottlenecks.   |
| II-2    | Key Actions                            | Expanding awareness should also include the educational component - vocational skills, job training, etc. to address job creation and training.   |
| III-1   | Process                                | What is the general public outreach effort?   |

70+ comments

|       |                             |  |
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| III-1 | Process                     | What is the agreement referred to here in order to conduct Phase II? Who makes the agreement or determines there is agreement? How will local and regional priorities be addressed? Will this effect funding already secured?                      |
| III-1 | Process                     | Who will do the evaluation? How will this integrate with projects that have already been prioritized by local and regional planning efforts? How will this effect funding already secured?   |
| IV-1  | Grammar                     | Paragraph 1, Section B1, suggest rewrite "Over the last 25 years, consumer demands for inexpensive products have forced importers to seek out lower production costs from foreign countries".  |
| IV-1  | Global Supply Chain         | This is a preliminary attempt to describe the global supply chain, but it needs to be expanded and presented graphically.  |
| IV-2  | China/Mexico                | This section paints a bleak picture of mass exodus of manufacturing from Mexico to China, but page V-4 minimizes this trend and actually paints a picture of growth in high value manufacturing in Mexico. This needs to be a consistent message.  |
| IV-2  | WTO                         | Discussion regarding the Agreement on Textiles and Clothing is not clear and confusing. Needs to be simplified.  |
| IV-9  | National Growth Projections | Discussion should focus on the industry standard/approved projections, analyzing three sets of scenarios is confusing.   |
| IV-12 | California's Growth         | Paragraph 2, line #3 stike out causing California seaports to lose business. CA ports are not losing business. Volumes at ports continues to grow, despite diversion due to congestion.  |
| IV-13 | Data Accuracy               | Item 2, Line 5, Replace 50-70% with between 50-55%.  |
| IV-14 | Projections                 | POLA and POLB have the same volumes for long term projections. 2010=9.824 / 2015=13.1 / 2020=17.6  |
| IV-15 | Correction                  | Paragraph 1, Line 1, after "unconstrained" add "and market driven".  |
| IV-15 | Grammar                     | Section E, 5th line, doesn't make sense.   |
| V-3   | Bay Area Expenditures       | Clarify the \$6.6 billion spend annually on transportation services, seems high.   |
| V-5   | Correction                  | Item C line 5 replace 50 and 60 percent with between 50 and 55%  |
| V-5   | Correction                  | Item C line 4 Add SR-47  |
| V-6   | Grammar                     | Paragraph 1, last sentence, out of place/unrelated to topic  |
| V-7   | Data Accuracy               | What is the source of the data showing the current improvements underway and the additional improvments necessary? The SCAG 2004 RTP should be cited, but there are more projects going on then are reflected here. This list may not be complete. |
| V-8   | Planned Improvements        | Add Project: LA-47 Vincent Thomas Bridge Replacement Study/ \$2 million to study (replacement cost not yet determined)/Long-term/Improves Operations   |
| V-8   | Planned Improvements        | Add Project: LA-47 Navy Way Connector Ramp to Westbound Seaside (SR-47) / \$20 million / short term / improves operation   |
| V-8   | Planned Improvements        | Add Project: LA-110 I-110 Fwy/"C" Street Interchange Improvements / \$11 million / Short term / Improves Operation   |
| V-9   | Planned Improvements        | Add Project: Rail Improvement / UP and BNSF / Pier A Transfer Yard / \$50 million / Short-term / Increases Rail Usage  |

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|-------|-------------------------------------|---|
| VI-8  | International Maritime Organization | What is the IMO role in international standards? Can it be greater/expanded?  |
| VI-9  | Fuel Consumption                    | Why is heavy fuel oil used so much now (cost)? Will marine gas oil cost more, will it be available, why isn't it used more now? Is the supply from abroad or local?   |
| VI-9  | Cold Ironing                        | Item D, Add "The Port of Los Angeles is currently providing Alternative Maritime Power (AMP) to China Shipping. The Port of Los Angeles is also modifying existing wharfs to accomodate AMP power and is in dicussions with customers to modify new and existing vessels to support AMP power.  |
| VI-9  | Cargo Handling Efficiency           | Mentioned here to use more cranes per ship to service each vessel, which would actually be counterproductive and should not be suggested as a measure to increase efficiency.   |
| VI-10 | On-Road vs. Off-Road Trucks         | What is the cost difference in these options? Are the off road engines being upgraded?  |
| VI-10 | Fleet Modernization                 | Seems like a cost-effective solution that is already being proven. Why not expand, and dedicate more \$? What is the cost/benefit?  |
| VI-10 | Cleaner Fuels                       | What is the realistic ability of LNG to meet the demands of the goods movement industry? Environmental/safety concerns with the fuel itself?  |
| VI-11 | Fleet Modernization                 | The POLA and the Gateway Cities Council of Governments have already implemented a fleet modernization program that assists drivers in the purchase of a new truck.  |
| VI-12 | Rail MOU                            | Need background on the reference to the "current rail MOU". What is this? Who are the parties, what does it cover, what are the terms, what is the duration, etc.?  |
| VI-14 | On-dock Rail                        | The description of on-dock rail should be that intermodal containers will be handled at the marine terminals and leave the terminal on train, rather than on truck.   |
| VI-15 | Alameda Corridor                    | Discussion of the Alameda Corridor East project should be made here   |
| VI-15 | Organization                        | Section c, Paragraph 2, sentence starting "To allow..." should be a separate paragraph.   |
| VI-16 | Fees                                | Funding should also come from State and Federal sources, not just user fees. In addition, fees already assessed (i.e. customs duties) should be dedicated to their source, not the general fund.  |
| VI-16 | Fees                                | Any fees assessed must be in place at all United States sea ports to prevent one port be competitively disadvantaged over another port.   |
| VI-16 | Costs and Impacts                   | The methodology for deriving the \$100-200 million initial cost and cumulative cost of \$2-4 billion is not clear. This cost is most likely severely understated. Need to address how this need will be funded. Additionally, costs and funding are not the only challenges. For example, communication and cooperation among the many public and private stakeholders is key and the CEQA/NEPA process, while extremely important, takes time. |
| VI-16 | Correction                          | Section 3, Incentives, replace "port" [equipment] with "goods movement"   |
| VI-16 | Next Steps                          | The work the Ports are already doing should be addressed and recognized here, and the state will expand upon the existing efforts as well as introduce new efforts.   |
| VI-17 | Land Use                            | Look at possible relocation of vulnerable resources since they are more portable than goods movement infrastructure.  |

|        |                          |   |
|--------|--------------------------|---|
| V-9    | Planned Improvements     | Add Project: Seaport Access Improvements / Port of LA / South Wilmington Grade Separations / \$50 million / Short term / enhances access  |
| VI-1   | Correction               | Item B, Line 5, After Wilmington, add "San Pedro".  |
| VI-1   | Data Source              | What is the reference for cancer risk discussion?   |
| VI-3   | Air Pollution Categories | Include a discussion of why NOx and PM10 are the two pollutants of concern. Part of the reason NOx is a criteria pollutant is because of the geography of the LA Basin, are there other criteria pollutants in Northern CA that should be addressed?  |
| VI-3   | Air Pollution Categories | Presentation of categories is unclear and inconsistent, i.e. what is the difference between port-related diesel trucks and off-road equipment and the general categories of on-road diesel trucks and off-road equipment? This analysis needs to be clarified. If some of these categories as a subset of the port related emissions are the same as the other major categories, are there any issues with double counting? how is it determined if it is port-related or general? How is transloading dealt with? This concept also illustrates the integration and complexity of the goods movement chain-is a car trip to shop at a store port-related because the good originated at the port?  |
| VI-4   | Data Source              | What emissions inventory are the tables based on, the 2001 inventory? If so, how were the inventory levels adjusted for 2005?   |
| VI-4   | Data Source              | Do Figures 2 and 4 assume any of the mitigation measures currently being pursued by the Ports of LA and LB? If not, this should be noted.   |
| VI-5   | Additional Information   | In the first paragraph, the document states "extensive actions are needed to ensure that emissions from Port-related sources are brought under control..." yet does not note that both Ports being referenced are pursuing extensive changes in operation and regulation to address environmental concerns.   |
| VI-5   | Graphical Presentation   | The categories on the x axis should stay in the same order between Figures 3 and 4.   |
| VI-6   | Data Source              | Footnote references preliminary information from POLA's No Net Increase project, is the most updated information being used?  |
| VI-7/8 | Ocean Going Vessels      | This account is somewhat misleading. First of all, there are pollution controls on ships (especially in Europe). Secondly, the discussion does not acknowledge the complexities of the shipping. Global shipping is inexpensive due to the economies of scale and inexpensive ocean travel. Ships do burn low-grade fuel but the demand for more-efficient ships has been and is very strong, as fuel is one of a ships' highest cost. However, diesel engines last a long time, so as newer ships are brought on-line, older ships are shifted to other routes. Also, a vessel forecast study commissioned by the Port of Long Beach, elucidated the fact that the largest (i.e. newest) ships in the future will not travel east from Asia to the West Coast. We live in a just-in-time market. Most shipping companies have a weekly service to the West Coast from Asia and could not load and unload the future 10,000 TEU ships fast enough to make the weekly service. |
| VI-7/8 | Costs                    | Discussion doesn't address the fact that costs will be passed onto the consumer, and the public should be aware of that.  |

|       |                              |   |
|-------|------------------------------|---|
| VII-3 | Short-Term<br>Actions, Ships | There is no action associated with the Ships section, it is just a description of what is currently done. |
| A-1   | Clean Fuels                  | What is driving the market to increasingly use heavy fuel oils as stated in #3.                           |



# South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178  
(909) 396-2000 • www.aqmd.gov

*Office of the Executive Officer*  
909-396-2100

April 8, 2005

Alan Lloyd, Ph.D.  
Agency Secretary  
California Environmental Protection Agency  
1001 I Street  
P.O. Box 2815  
Sacramento, CA 95812-2815

Sunne Wright McPeak  
Agency Secretary  
Business, Transportation, and Housing Agency  
980 9th Street, Suite 2450  
Sacramento, CA 95814-2719

## Goods Movement Action Plan

Dear Dr. Lloyd and Ms. McPeak,

The South Coast Air Quality Management District (AQMD) staff appreciates the opportunity to provide comments on the Draft Goods Movement Action Plan (Phase 1 – Foundations), released on March 18, 2005.

The AQMD commends the efforts of both agencies in developing a Goods Movement Plan for California which would not only address the significant challenges in improving goods movement and its infrastructure, but also recognizes the need to mitigate the adverse environmental and community impacts associated with goods movement sectors such as ships, trains, trucks and cargo handling equipment. In accordance with the Governor's policy, we also believe that improvements in goods movement would not only result in congestion relief, increased mobility, and expanded economy, but such improvements could be made in such a manner to achieve the air quality objectives and improve the overall quality of life in California.

We would like to re-iterate that mitigating the environmental impacts associated with both existing and future goods movement should be an integral and critical component of the Goods Movement Action Plan. The projected cargo growth for our region and the corresponding increase in emissions from various goods movement sectors would significantly hamper and threaten the region's efforts and ability to achieve health-based federal and State ambient air quality standards (i.e., ozone, PM2.5) if such growth impacts are not adequately mitigated. However, the objective of the Plan should not merely be to address the impact of growth in goods movement but to also mitigate the existing adverse air quality impacts associated with transportation sources such as ships, trains, and trucks. These sources, especially ships and trains, continue to contribute to a significant and growing portion of the region's air pollution problem primarily because of inadequate emission control requirements for these sources, compared to other sources.

Therefore, because of the severity of our air pollution problem, we strongly recommend that the final Goods Movement Action Plan contain a comprehensive list of all feasible emission control strategies with the objective of minimizing impacts to regional and local air quality by achieving maximum feasible reductions beyond the current levels from all goods movement sectors. It is imperative that proposed control strategies in the Plan be aggressively pursued, developed, and implemented to overcome any potential technical, economic, and jurisdictional hurdles.

In developing the final Goods Movement Action Plan, we also urge that the control measures contained in the Port of Los Angeles' (POLA) No Net Increase (NNI) Plan draft document be considered for inclusion in this Plan. We also recommend that the following specific control strategies for each goods movement sector be seriously considered and included in the Goods Movement Action Plan. Without such controls, the adverse impacts of goods movement would compromise the quality of life in our local communities around the ports and transportation corridors as well as in our entire region.

#### Ocean-Going Vessels (OGVs)

As acknowledged in the Goods Movement Action Plan, OGVs represent the largest and most challenging source category among the goods movement emission sources. Compared to other sources, OGVs are significantly under-controlled due to the lack of stringent international or national emission standards for OGV engines. Therefore, it is absolutely critical that the Goods Movement Action Plan pay specific attention to this source category and identify all possible strategies based on new as well as developing technologies. We recommend that the following strategies be incorporated into the Final Plan.

##### 1) Use of Lower Polluting Main Engines for New and Existing Vessels

Based on a recent inventory study conducted for the POLA, emissions from main engines account for 88% of PM10 and 65% of NOx of the total OGV emissions, directly impacting the immediate port communities as well as regional air quality. Therefore, because of the significant contribution of the OGVs main engines, specific and

aggressive strategies for OGVs should be planned, pursued and developed as soon as practical to achieve substantial implementation and emission reductions in the near term.

Control technologies such as SCR, scrubbers, emulsified fuel, and water injection currently employed in many stationary and on-road/off-road applications have the potential to be incorporated into both new and existing vessels. With respect to OGVs main engines, we recommend that incorporation of these low-emitting control technologies should be concurrently pursued in two fronts: A) new vessel designs; and B) retrofit of existing vessels.

- A) **New Vessel Designs** - To accommodate the three to four fold cargo growth projections, several hundred new vessels are currently either on order or will be ordered in the next several years. As indicated in the Goods Movement Action Plan, many of the control technologies mentioned above are best designed and installed on new vessels. There are already four new SCR-equipped vessels in operation carrying steel and scrap metal between the Bay Area and Korea. The new orders for OGVs provide a tremendous opportunity to achieve significant reductions from OGVs which could be deployed to our ports. Opportunities now exist to affect the design of these new vessels incorporating some of the latest available control technologies. We strongly recommend that a specific action plan be developed in conjunction with the local (and mostly affected) air quality districts, ports, shipping companies, and ship building companies to accelerate the introduction of these low-emitting vessels into OGV fleet visiting our ports or making frequent calls to our ports.
  
- B) **Retrofit of Existing Vessels** - On a parallel front, efforts to retrofit existing OGVs should also be pursued to maximize potential reductions from main engines. Control technologies such as SCR and scrubbers could be viable strategies for existing vessels once some of the potential technical and logistical constraints (e.g., space for installing aftertreatment equipment) are studied and addressed. We recommend that a demonstration project be immediately sponsored and conducted to demonstrate the feasibility of the most viable control technologies (e.g., SCR, scrubbers) for existing OGVs. Once the feasibility of these technologies are demonstrated, a specific implementation plan should be developed to expedite the incorporation of these technologies into vessels visiting our ports.

Recognizing the significant contribution of OGVs main engines, the POLA's NNI Plan includes a control measure which would require that 50% of vessel calls would meet the "Blue Sky Series" emission limits (i.e., at least 80% below IMO standards) by 2020. The percentage would increase to 100% by 2025. Compliance would be achieved either through deployment of new vessels or existing vessels equipped with SCR or equivalent technologies.

## 2) Use of Low-Sulfur Fuel for Main and Auxiliary Engines

OGVs currently burn some of the dirtiest fuel oils (i.e., 2% to 3% sulfur) in their main engines as well as in most of their auxiliary engines. Therefore, the use of cleaner fuels in ships would provide a tremendous opportunity to achieve substantial reductions in SO<sub>x</sub>, NO<sub>x</sub>, and particulate matter emissions. Although AQMD supports the efforts for creation of a Sulfur Emission Control Area (SECA) for North America, which would limit the sulfur content of marine fuel oil used in main engines to 1.5% (compared to average 2.7% sulfur fuel content), we believe that such efforts, by themselves, would not adequately address the significant growth in OGV emissions anticipated in the future (particularly with respect to main engines). For auxiliary engines, we also support ARB's proposed regulation to establish lower sulfur fuel requirements for these engines. However, for both main and auxiliary engines, we recommend the following strategies in order to maximize the potential benefits of such low-sulfur fuel requirements:

- A) **Low Sulfur for Fuel Main Engines** - For main engines, the POLA's NNI Plan includes a control measure which establishes a 50% and 90% target for the use of lower sulfur fuel (i.e., 0.2% or lower) in 2008 and 2010, respectively, contingent upon successful demonstration of these fuels in main engines. For the State's Good Movement Action Plan, we also recommend that a similar strategy be adopted in order to expedite the introduction and penetration of these fuels in the earliest possible date. First, we recommend that a demonstration project be conducted to demonstrate the feasibility of OGVs switching from high sulfur to low sulfur fuel used in their main engines once they arrive in California waters. The project would specifically identify any potential physical limitations (i.e., additional on-board fuel storage capacity, overseas fuel availability) and any potential technical issues (e.g., lubricity) as well as provide recommendations on the how these issues or limitations could be resolved. Second, upon successful demonstration of feasibility for these fuels, an aggressive implementation schedule should be developed to require the use of these fuels for all vessels visiting California ports.
- B) **Low Sulfur Fuel for Auxiliary Engines** - Based on current estimates, approximately one-third of vessels visiting our ports burn marine bunker fuel (2.7% sulfur content) and two-thirds use a combination of marine bunker fuel and marine diesel oil (1.5% sulfur) in their auxiliary engines. Under the ARB's currently proposed rule, the use of 0.2% sulfur (2000 ppm) and 0.1% sulfur (1000 ppm) would be required for all U.S. and foreign vessels in 2006 and 2008, respectively. We commend ARB's efforts to establish these requirements, but we also recommend that ARB continue its efforts by studying and mandating the use of even lower sulfur fuel in auxiliary engines considering the current requirements for ultra low-sulfur fuel for on-road and off-road mobile sources (i.e., 15 ppm).

### 3) Strategies for Auxiliary Engines

Auxiliary diesel engines used primarily during hotelling operations for loading and unloading cargo as well as generating on-board power and air-conditioning account for at least 35% of NO<sub>x</sub> and 12% of PM emissions from OGVs. Emissions from these engines occur at the port and more directly impact the adjacent port communities as well as the regional air quality. Since auxiliary diesel engines are an order of magnitude smaller than the OGVs main engines, they could more easily lend themselves to existing control technologies. Therefore, we recommend that the Goods Movement Action Plan to also consider and implement the following strategies for reducing emissions from auxiliary engines:

- A) **Shore Side Power** – The use of shore side power almost completely eliminates emissions associated with on-board auxiliary diesel generators during hotelling operations. This technology has already been demonstrated to be feasible and cost-effective (at least for frequent callers) and is being utilized at our ports to some limited extent. We believe that this strategy should be an integral component of the Goods Movement Plan since it provides a viable strategy for this more readily controllable emission source category. We recommend that an expedited implementation schedule be developed to require an increased and an aggressive penetration of this technology for vessels visiting our ports. This strategy could be similar to the measure included in the POLA's NNI Plan which would require 1) 70% of vessels calls at the terminals to be using shore side power within two years of entering a new lease or renewing an existing lease, and 2) 25%, 50%, and 100% of all frequent callers (i.e., at least five or more calls per year) use shore side power by 2007, 2010, and 2015, respectively.
- B) **Other Strategies for Auxiliary Engines** – In addition to the use of shore side power, there are other technologies that are currently available or are being developed that could provide alternative control approaches for frequent callers and perhaps more cost-effective strategies for non-frequent callers. An example is the proposed use of a barge equipped with aftertreatment technologies such as SCR and wet scrubbers which would treat exhaust emissions from OGVs auxiliary engines. The first production of such control system is expected to be available by next year and achieve at least 90% reduction in NO<sub>x</sub> and PM emissions. Repowering the existing diesel auxiliary engines with cleaner engines (and possibly equipped with aftertreatment technologies) provides another viable alternative for achieving significant reductions from OGVs. This strategy can be more readily implemented now to achieve early reductions especially from vessels which could not lend themselves to the use of shore side power or aftertreatment control technologies early on.

4) **Other OGV Strategies** – In addition to the strategies mentioned above, we also recommend that the following strategies with potentially significant reduction benefits be considered.

- A) **Vessel Speed Reduction** – Reduced cruising speeds does provide significant reductions in NOx emissions which contribute to both ozone and secondary particulate formation. This strategy could be carefully crafted in such manner that it would not adversely impact other districts in California. ARB's proposed emission testing of OGVs could also provide a basis to establish a more appropriate speed limit for vessels cruising along California waters while addressing potential increase in PM emissions.
  
- B) **Re-routing IMO Compliant Vessels** – Vessels built in 2000 and later are subject to the current IMO standards which represent about a 7% reduction in NOx emissions compared to the uncontrolled vessels built before 2000. However, in 2004, only about 30% of the vessels calling on the POLA were IMO-compliant vessels (because of the slow turn-over rate of OGVs). Therefore, a strategy to require shipping companies to deploy their cleaner IMO-compliant vessels to California ports in the earliest date possible would provide some modest reductions in the immediate future.

### Locomotives

AQMD fully supports EPA's adoption of stringent Tier 3 standards for both new and remanufactured locomotives and we have submitted extensive comments on U.S. EPA's recent Advanced Notice of Proposed Rulemaking for locomotives (copy attached). However, since the stringency of EPA's upcoming Tier 3 standards remains speculative (until EPA's adoption of final standards in mid-2006), the potential reductions from these future standards are uncertain and should not be automatically assumed to occur. Nevertheless, because of the long life of locomotives (30+ years), the emissions benefits of Tier 3 standards (particularly for new locomotives) would not be realized in the near future.

Therefore, irrespective of EPA's Tier 3 standards, the Goods Movement Action Plan should consider specific strategies now for achieving maximum reductions from locomotives operating in California or in specific regions in California with severe air pollution problems such as ours. Specifically, we recommend the following measures:

#### **1) Accelerated and Expedited Use of Locomotives Employing the Cleanest Technologies for Both Line Haul and Switching Operations**

Examples of these control technologies include SCR and LNG for line haul and LNG, battery hybrid, and truck engine for switchers. The POLA's NNI control measure for locomotives establishes a 100% conversion of all switcher and line haul locomotives to clean technologies by 2012 (mentioned below). We recommend that similar strategies be incorporated into the Goods Movement Action Plan.

Hybrid switch locomotives are variants of the conventional diesel-electric locomotive. Conventional switch locomotives have a large diesel engine (1000-2500 horsepower). The two types of commercial hybrids use much smaller engines which have lower

emissions and lower fuel consumption for the same amount of work performed. They are designed for light- to medium-duty switching.

The first type of hybrid is the battery hybrid. This type of locomotive uses a large bank of batteries to power the electric drive motors and is able to provide maximum power only for short periods which is compatible with switch operation. A small diesel engine (300 horsepower or less) is used to recharge the battery pack at a lower rate than peak switcher requirements. Once the battery pack is charged, the diesel engine is automatically shut off. Also, the battery pack must be replaced every few years. This type of switch locomotive is now manufactured by RailPower with the "Green Goat" and the "Green Kid" locomotive models. NOx and PM emissions are reduced from 80-90% while fuel consumption is reduced 40-70%.

The second type of hybrid switch locomotive is the truck-engine hybrid. This locomotive uses two or three palletized generator sets with truck-type engines (600 horsepower or less). The number of engines used at any one time depends upon the throttle setting. When the truck-engine hybrid locomotive is not working, the engines are automatically shut off. Because these Tier-III nonroad-certified engines have relatively low emission levels, the net emissions and fuel consumption are much lower than conventional locomotives with large engines. This type of hybrid is not limited by the size of the battery pack nor does it require any unusual maintenance; on the contrary, such engines require less specialized maintenance than regular locomotives. This type of locomotive is currently being demonstrated by National Railway Equipment Company and Brookville Equipment Corporation. Under the EPA switch test cycle, this type of hybrid locomotive reduces NOx emissions, PM emissions and fuel consumption up to 75%.

LNG switch locomotives have been commercialized by MotivePower Inc. (originally M-K Boise Locomotive). Two LNG switchers have been operating for almost 10 years in the Commerce area by LA Junction Railway (BNSF). Two more of these LNG switchers will be placed in service in 2005. These LNG engines use spark-ignited natural gas and have NOx levels of approximately 2.0 g/bhp-hr in notch 8. They are also 6-12 dB quieter than equivalent diesel engines. NOx emissions are reduced 89%.

LNG line-haul locomotives are ready for commercialization. Such technology was developed by Energy Conversions Incorporated of Tacoma, Washington, for Burlington Northern Railway (BN). It was demonstrated by two BN locomotives for 6 years in the 1990's pulling coal trains across the Midwest. These pilot-injection diesel engines ("homogeneous combustion") utilizing EMD prime movers achieved 4.0 to 4.5 g/bhp-hr NOx. With further optimization, these ECI engines can be calibrated well below Tier II standards (5.5 g/bhp-hr) to approximately 3.5 g/bhp-hr NOx. Under the GasRail program during the 1990's, 3.0 g/bhp-hr NOx was achieved using the "LaCHIP" technology ("direct injection"). Current on-the-shelf designs use the EMD 645 engine, but this technology is adaptable to other engines. Compared to the Tier-II line haul standards, these locomotives will reduce NOx emissions by 36-45%.

Selective Catalyst Reduction (SCR) is a control technology that has been developed for stationary diesel engines similar in size to locomotive propulsion engines. Besides being equipped with a special catalytic converter, SCR systems require the use of a liquid reductant (usually ammonia or urea) which is sprayed into the exhaust stream. With proper engineering, new, modern locomotives can be designed to be equipped with SCR systems while still retaining the external space limitations for bridges and tunnels. In a 1995 ARB report by Engine, Fuels and Emissions Engineering, such a design was proposed and the emission benefit estimated at 72% NO<sub>x</sub>. PM emissions could also be reduced through recalibration of the fueling strategy. Through the use of such after-treatment technology, line-haul emissions of less than 2 g/bhp-hr NO<sub>x</sub> and less than 0.10 g/bhp-hr PM are feasible. Further PM reductions are possible if a diesel particulate filter (DPF) is added to the system (see below). No demonstration of this feasible technology is planned at this time, but the USEPA will consider such technology in its rulemaking process for Tier-III standards for new locomotives.

We recommend that the Goods Movement Action Plan establish a performance standard for all locomotives operating in California based on these clean technologies. We also recommend that demonstration projects be conducted to advance technology development for locomotive engines in meeting these performance standards.

## 2) Idling Controls

As referenced in the Goods Movement Action Plan, a risk assessment of the Union Pacific rail yard in Roseville concluded that 45% of the cumulative risk from the facility was due to diesel PM emissions from locomotive idling. Therefore, specific strategies must be considered to eliminate all excessive and unnecessary locomotive idling. To address locomotive idling in the South Coast Air Basin, the AQMD is currently proposing Proposed Rule 3502 – Minimization of Emissions from Long Duration Idling which would require rail operators to prohibit idling of 30 minutes or more by 2006. Idling of 30 minutes or more would be allowed, however, if equivalent reductions are achieved from locomotives using control technologies or alternative fuels, as identified in an Alternative Compliance Plan. To protect communities adjacent to rail yards and sidings (where most idling occurs) as well as along rail corridors, the Action Plan should incorporate similar prohibitions on locomotive idling or as an alternative require idle control systems on each locomotive. New locomotives are equipped with such devices, but there are also retrofit idle control systems available which could be installed on existing locomotives.

## 3) Ultra Low Sulfur Fuel

Locomotives operating in the Basin utilize high sulfur fuel with an average sulfur concentration of about 1900 ppm which is significantly higher than the fuel used in on-road and off-road mobile sources (i.e., 15 ppm). ARB's existing ultra low-sulfur fuel locomotive regulation applies only to intrastate locomotives and virtually excludes all interstate line haul locomotives which account for about 90% of freight locomotive emissions. Also, the federal locomotive fuel regulation requiring the ultra low sulfur fuel

does not become effective until 2012. Despite the considerable benefits of these regulations, such requirements do not provide adequate or early emissions reduction benefits. Therefore, we recommend that an ultra low sulfur requirement be established for all locomotives visiting California as early as 2007. Such requirement may necessitate the unloading of high sulfur fuels and loading of low sulfur fuels to occur at the borders for locomotives entering California.

### **On-Road Heavy-Duty Trucks**

#### **Fleet Modernization Program**

Great strides have already been made to reduce emissions from on-road heavy-duty trucks in recent years. With the advent of the upcoming 2007 emission standards, emissions from 2007 model year on-road heavy-duty trucks will decrease by 90% over 2004 model year trucks. However, existing on-road heavy-duty trucks operating in the goods movement sector do not turn over sufficiently fast enough to take advantage of the new engine standards. As a result, the emission benefits associated with the emission standards are not realized in the near term because of the slow turn over rate. Moreover, because of the competitive nature of the trucking activities at the ports, the majority of the port trucks are older compared to those used throughout the District. Therefore, in order to accelerate the turnover of the existing older fleet of on-road heavy-duty trucks, a fleet modernization program needs to be considered for trucks that operate in the goods movement sector. The Goods Movement Action Plan does reference such a program as one of several approaches to address on-road heavy-duty trucks emissions. We recommend an expanded fleet modernization program be considered which would target the oldest and dirtiest trucks serving the Ports first. For example, as a first phase, 100% of existing truck model years 1986 and older should be replaced by 2007 (or soon thereafter) with 1994 and newer model year trucks. The fleet modernization program should also require the addition of diesel particulate filters (DPF) to the replacement trucks which are readily available for 1998 and newer trucks. As a second phase, the fleet modernization program should then include all trucks up to the pre-2003 model year fleet to be modernized. These replacements could be phased in starting in 2008 with a goal of 100% replacement by 2012. It should be noted that this strategy is currently considered as part of the POLA's NNI Plan.

#### **2) Retrofits**

In addition to a fleet modernization program, a requirement to retrofit the existing fleet of on-road heavy-duty trucks used in the goods movement sector should be included in the Goods Movement Action Plan. Technologies such as DPFs which are capable of reducing over 90% of PM emissions are commercially available for on-road truck model years 1994 and later. DPFs can be readily incorporated into existing truck fleets to achieve immediate emission reductions. However, since DPFs and similar technology is likely to be included in 2007 model year trucks, this requirement would be limited to pre-2007 on-road heavy-duty trucks. The Action Plan should include a requirement that all heavy-duty trucks capable of installing DPFs do so by 2009. Such a requirement should

be phased in beginning in 2006 for model year 1994 to 2003 trucks and expanded to include model years 2004 to 2006 trucks beginning in 2007.

For those trucks that can not utilize DPF technologies (i.e., pre-1994 model year trucks), diesel oxidation catalysts (DOC) should be considered which reduce diesel particulate matter by 25% over uncontrolled levels. In addition to DOCs, other technologies such as lean-NOx catalysts should also be considered as retrofit strategies for existing fleets, once they are available.

### Cargo Handling Equipment

The Goods Movement Action Plan references several strategies to reduce emissions from cargo handling equipment such as the use of less polluting on-road engines in yard tractors, retrofit of existing engines, use of alternative fuel engines, and increased fleet turn over. We recommend that the Action Plan expand on these strategies and we offer the following suggestions.

#### 1) Fleet Modernization Program for All Cargo Handling Equipment

As with the on-road heavy-duty trucks fleet modernization program, significant reductions can be obtained by accelerating the turnover of existing fleet of cargo handling equipment in order to take advantage of the lower emission standards for newer models. In addition, the fleet modernization should take advantage of opportunities available today to further reduce emissions from cargo handling equipment by promoting the use of alternative fuel and on-road versions of cargo handling equipment. The fleet modernization program should require the early replacement and introduction of new cargo handling equipment based on a hierarchy of equipment which meets the most stringent emission levels. At the top of the hierarchy would be alternative fuel versions of cargo handling equipment followed by on-road versions (if available), and finally by those meeting the lowest off-road emission standard in effect at the time of replacement or purchase. The fleet modernization program should also include a requirement that all replacement cargo handling equipment be retrofitted with the highest level of ARB-certified Emission Control System (ECS) available for that particular model year engine. An aggressive implementation schedule should be considered for the Fleet Modernization Program such that by 2007 all uncontrolled cargo handling equipment should be replaced and all Tier 1 cargo handling equipment be replaced by 2010 (and Tier 2 models replaced soon after that). Yard tractors, which make up the majority of cargo handling equipment at the ports, should have a more aggressive schedule with all uncontrolled and Tiers 1 and 2 yard tractors being replaced by 2007-2008 timeframe.

#### 2) Emulsified Fuel

Emulsified fuel is currently in use at the Ports of Los Angeles and Long Beach for some types of cargo handling equipment (e.g., yard tractors). Though, emulsified fuel has some limitations (e.g., power reductions), the use of emulsified fuel in cargo handling equipment can reduce 63% of PM and 14% of NOx compared with CARB diesel fuel and

the reductions are not dependent on the sulfur content of the fuel (i.e, 500 pm vs. 15 ppm). A strategy should be considered to require the use of emulsified fuel in all applicable cargo handling equipment as soon as feasible.

### Commercial Harbor Craft

Several emission reduction strategies for commercial harbor craft are listed in the Goods Movement Action Plan such as new emission standards, retrofits, repowers, clean fuels, and shore-side power. Since new emission standards take a considerable amount of time to impact the emissions inventory from commercial harbor craft, strategies would have to be considered for the in-use fleet of commercial harbor craft serving our ports to achieve significant reductions.

#### 1) Repowering

Repowering existing commercial harbor craft currently is one of the most feasible and cost effective strategies to reduce the emissions impact from this source category. It is estimated that a repower of an uncontrolled commercial harbor craft with a new marine engine can potentially reduce NOx and PM by as much as 60% and 25%, respectively. Based on recent estimates, approximately 300 commercial harbor craft residing at the Ports of Los Angeles and Long Beach have been recently repowered under existing SCAQMD or other funding mechanisms. However, there are additional opportunities to repower the rest of the commercial harbor craft fleet. We recommend that the Action Plan consider an aggressive program to repower the remaining vessels serving the goods movement sector as soon as feasible.

#### 2) Emulsified Fuels

The ARB has verified the use of emulsified fuel in heavy-duty diesel on-road engines as meeting a Level 2 control and a 15% reduction in NOx emissions. The use of emulsified fuels in commercial harbor craft has not been demonstrated, however, it is anticipated that for most applications it should perform as well as for on-road and off-road engines. Other than assist tugs, which can not tolerate the potential power loss, up to 80% of harbor craft could potentially use emulsified fuels to lower their emissions. Line-haul tugs which make up the majority of emissions from commercial harbor craft, could make use of on-board emulsifiers in order to use emulsified fuels where stored fuel may separate during their relatively long voyages.

#### 3) Retrofit Controls

The use of DPFs, DOCs, and SCR on heavy-duty diesel engines has been well documented and it may be possible to retrofit existing commercial harbor craft engines using similar technologies. However, such retrofit technologies for commercial harbor craft have not been verified by ARB. Since the potential for significant emission reductions exist by applying these technologies to the existing fleet, it is recommended that the Action Plan consider sponsoring demonstration projects on retrofit technologies

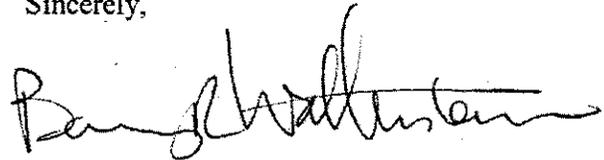
Dr. Lloyd, Ms. McPeak

April 8, 2005

for commercial harbor craft. Once demonstrated, ARB should move aggressively to verify and require these technologies.

Thank you again for the opportunity to provide these comments. We stand ready and committed to work with you and other stakeholders to implement the proposed strategies and achieve the goals of the Goods Movement Action Plan. Please call me at (909) 396-3131, or Peter Greenwald, Senior Policy Advisor at, (909) 396-2111 with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Barry R. Wallerstein". The signature is fluid and cursive, with a long horizontal stroke at the end.

Barry R. Wallerstein, D.Env.  
Executive Officer, SCAQMD

EC:LT:ZP:EE

April 6, 2005

Gwen Strivers  
Business, Transportation, and Housing

Via Email

**RE: Submittal of Transportation Agency for Monterey County Comments on the Draft Goods Movement Action Plan**

Dear Ms. Strivers:

The Transportation Agency for Monterey County (TAMC) has reviewed the relevant sections of the Draft Goods Movement Action Plan prepared by the Business, Transportation and Housing Agency and the California Environmental Protection Agency. TAMC agrees with the document's support of goods movement in California as a high priority however, the Plan did not include the Airport Boulevard Interchange project, a very critical project in Monterey County.

In Monterey County, the Salinas Valley supports a \$3 billion agricultural industry. Annually, over 500 million pounds of produce are exported from Monterey County. This industry is very strong and continues to grow. During peak growing season, over 1,000 trucks leave the Salinas Valley daily to deliver produce to markets. Salinas Valley growers and shippers rely on our local road and state route system to get their products to market on time. This reliance is particularly important in Monterey County because the agricultural industry produces mainly salad and vegetable crops, which have a short shelf life.

A large number of the packaging plants are located near the Airport Boulevard Interchange on US 101. The current interchange is inadequate to address the critical needs of the agricultural industry. TAMC is currently working with Caltrans in the final Project Approval and Environmental Documents (PA&ED) stage to design an interchange that will address the current and future needs of the growers and shippers that use the Airport Boulevard Interchange. The Draft Report does not identify this important project. TAMC recommends that the Report add the Airport Boulevard Interchange project that is so critical for goods movement in the State.

If you have any questions, please feel free to call me at (831) 775-0903.

Sincerely,

Wm. Reichmuth, P.E.  
Executive Director  
Transportation Agency for Monterey County  
P: (831) 775-0903  
F: (831) 775-0897

March 29, 2005

Re: Goods Movement Action Plan (Phase 1: Foundations)

Dear Ms. Strivers,

Thank you for the opportunity to comment on the Action Plan. The Tulare County Association of Governments (TCAG) has reviewed the document and has the following comments:

- Based on the Central Valley Region's annual truck vehicle miles of travel are projected to increase from 4,677 billion miles to 7,758 billion miles, a 60% increase, it is imperative that Prosperity Ave to Goshen segment and the Goshen to Kingsburg segment be completed on schedule.
- The above listed projects should be programmed and allocated under the Inter-regional Transportation Improvement Program (ITIP) as part of the 2006 STIP.
- TCAG would like to participate in the development of a new comprehensive plan outlining future efforts to reduce emissions from port and rail operations in California.

TCAG concurs with the issues presented by the San Joaquin Valley Transportation Planning Agencies Director's Association letter of April 8, 2005 on the importance of SR 99 to the progress of the Goods Movement program in California.

Again, thank you for the opportunity to comment on the Goods Movement Action Plan. Should you have any questions regarding TCAG's comments, please give me a call.

Sincerely,

George Finney  
Executive Secretary, TCAG

**Subject: [Fwd: FW: Comments to the goods movement action plan]**

**Date:** Mon, 11 Apr 2005 13:48:33 -0700

**From:** Peggy Taricco <ptaricco@arb.ca.gov>

**To:** Kirk Rosenkranz <krosenkr@arb.ca.gov>

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**Subject: FW: Comments to the goods movement action plan**

**Date:** Mon, 04 Apr 2005 14:19:36 -0700

**From:** Gwen Strivers <gstrivers@bth.ca.gov>

**To:** Yolanda Benson <ybenson@bth.ca.gov>

**CC:** Peggy Taricco <ptaricco@arb.ca.gov>, Barry Sedlik <bsedlik@bth.ca.gov>

Yolanda: FYI

**Gwen Strivers**

**Executive Assistant to:**

Barry Sedlik, Undersecretary and Sr. Advisor  
for Economic Development

Yolanda Benson, Deputy Secretary for  
Economic Development

Jorge Jackson, Deputy Secretary for Business Regulation

Jeff Newman, Partnership Manager, Technology and  
Commerce

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**(916) 323-5440-Fax**

**gstrivers@bth.ca.gov**

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**From:** McKay, Henry [mailto:hmckay@stocktonport.com]

**Sent:** Monday, April 04, 2005 2:15 PM

**To:** Gwen Strivers

**Cc:** Scott butler; jenniferd@fresnocog.org

**Subject:** Comments to the goods movement action plan

I have reviewed your draft report and have the following comments and observations. I would appreciate it if it possible to see any other comments your receive.

Thanks,

**Comments to the Goods Movement Action Plan; Phase I: Foundations**

The overriding and repeated theme in this draft is summarized by the following bullet points.

- Generate Jobs
- Increase mobility and relieve traffic congestion
- Improve air quality and protect public health
- Enhance public and port safety
- Improve California's quality of life

Due to the tremendous increase in the volume of world trade, California ports, especially Los Angeles and Long Beach along with Oakland have been instrumental in making the goods movement industry one of the biggest economic factors in the state. The trend is expected to continue to grow exponentially over the next two or three decades. Pivotal to this growth is insuring adequate capacity exists for the present as well as planning for the future.

The report does address the need to consider all means of goods movement as a single integrated system. The report also suggests that projects with the "highest rate of return" be advanced. What this may, albeit unintentionally, promote is a concentration of investment in areas that are already burgeoning with cargo and are close to becoming victims of their own success due to gridlock.

The Central Valley section acknowledges the ports of Sacramento and Stockton. It acknowledges that Sacramento is smaller and has inadequate access due to limited draft. It also acknowledges the dynamics of urban encroachment as limiting its ability to serve. The issue at the Port of Stockton however is mostly access. The Port's acquisition of Rough and Ready Island will provide adequate facilities for several decades. The present freeway access provides several challenges. Both the Fresno Street off ramp and Charter Way interchange do not conform to modern standards, especially proximity of freeway to freeway to exists, short weave patterns and travel lanes. The Port of Stockton is addressing part of the issue by building a new access road from State Highway 4 which will eventually be a 4 lane median divided road and bridge. In the near future there need for additional rail capacity at the Port of Stockton.

Caltrans is studying several plans to improve regional goods movement including the Phase II CIRIS Study, which will develop an implementation plan for an Central Valley to Oakland rail shuttle. This study is being partially underwritten by the Ports of Stockton and Oakland. The immediate effect will be to remove trucks from the overloaded 205 by using underutilized rail capacity.

Another study is the study of the feasibility to extend the Crosstown Freeway from its present terminal at Fresno Street. That study is underway and is pointing to several variations of incremental development of an extension that would first terminate on Navy Drive and eventually extend to State Highway 4.

There are other initiatives that are being studied, a Highway 4 Corridor study has been considered but at this point it does not appear to be funded.

The Maritime Administration is promoting Short Sea Shipping. This idea of this program is to use waterborne carriage of goods from the congested coastal seaports to inland areas that are closer to their actual destination. The program provides great promise, but presently has serious challenges to implement. Similar distributed networks have been developed, notably in the North East. The U.S. West Coast, while discernibly different in geography and character, will eventually benefit from similar systems. Major carriers are presently happy with their distribution, but increasing volumes and delays will bear upon them to experiment with new methods. The ultimate solution will be regional and interregional plan, driven by private sector needs.

The section on air pollution has two major flaws. First it tends to lump all ports into a single category, South Coast. Northern California has vastly different circumstances; the Valley suffers from an inversion effect and wind patterns that create greater air quality problems near the south end. Secondly, the so called strategies to reduce vessel emission postulate many wrong premises.

Like it or not economics drive our world markets. Fuel costs have risen dramatically in the last decade and again in the last year or so. A major cost to ship operations is fuel costs. Newer ships with modern diesels no longer burn "bunker" fuel but highly refined gas-diesel or MDO. These new diesels provide greater economy and fewer emissions. A modern liner vessel has an economic life of 15-20 years; however larger, more efficient ships are reducing that window. The result is fewer older ships, greater capacity and less air pollution. The report alludes to "cold ironing" as a feasible solution to providing shore power. At present, it is quite expensive and cannot be implemented unless there is redundant use of the facility by the same ship on a frequent basis. Since cargo ships are very dissimilar and they tend to stay in port for short periods, the importance of this measure is greatly exaggerated. Perhaps some of the measures suggested for ground level equipment have some merit. Again, economics will drive how and if any of these measures can be implemented. It is important to note that trucking is a very competitive industry. Short haul carriers work on very narrow margins. Perhaps a bigger increase in air pollution from trucks would come from congestion relief projects. Congestion relief will serve two purposes; it would allow truckers to increase revenues by increasing the number of round trips they can rely upon and, with trucks operating more efficiently polluting less per mile. The same goes for rail. Rail is a much more productive means of moving goods. Rail operators are concerned with operating as efficiently as possible, a program to accelerate the Federal EPA requirements would not be cost effective since rail operators and locomotive manufacturers are already procuring replacement and retrofit equipment that will meet these standards. Since the report rightfully encourages the greater use of rail it would be counterproductive to foist costly capital improvements on the operators.

While the report acknowledges competitive pressures from Canada and especially Mexico, Some of the conclusions appear to be written without benefit of a working knowledge of exactly how the ports operate and disregard of the economic benefits the state, region and nation. The ports are merely station stops along a global supply chain. If the ports in California or other western states are required to adopt measures that make them less competitive, then ship operators will seek other means of channeling goods into the North American market.

Given time and enough incentive many of the perceived problems will be addressed as economically advantageous technologies emerge. The main areas that need to be addressed are those that will increase efficiency and provide better distribution

Henry McKay,

Port of Stockton

Special Projects Manager

Tel: (209) 946-0246 - ext 219

e-mail [hmckay@stocktonport.com](mailto:hmckay@stocktonport.com)

**Subject: [Fwd: FW: Public Comment on "Goods Movement Action Plan"]**

**Date:** Mon, 11 Apr 2005 13:48:42 -0700

**From:** Peggy Taricco <ptaricco@arb.ca.gov>

**To:** Kirk Rosenkranz <krosenkr@arb.ca.gov>

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**Subject: FW: Public Comment on "Goods Movement Action Plan"**

**Date:** Tue, 05 Apr 2005 17:03:59 -0700

**From:** Gwen Strivers <gstrivers@bth.ca.gov>

**To:** Yolanda Benson <ybenson@bth.ca.gov>, Peggy Taricco <ptaricco@arb.ca.gov>

FYI

**Gwen Strivers**

**Executive Assistant to:**

Barry Sedlik, Undersecretary and Sr. Advisor

for Economic Development

Yolanda Benson, Deputy Secretary for

Economic Development

Jorge Jackson, Deputy Secretary for Business Regulation

Jeff Newman, Partnership Manager, Technology and

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**From:** Curtis Hill [mailto:chill@sbcsheriff.org]

**Sent:** Monday, April 04, 2005 4:19 PM

**To:** Gwen Strivers

**Subject:** Public Comment on "Goods Movement Action Plan"

Dear Ms. Strivers,

I am emailing you to urge the Administration to oppose longer combination vehicles (LCV's) on any roadways or truck-only lanes as part of the "Goods Movement Action Plan".

As the elected Sheriff/Coroner of San Benito County, I feel any consideration to include LCV's into the plan would be a danger to the public safety of all Californians.

Sincerely,

Curtis J. Hill  
Sheriff/Coroner  
County of San Benito  
831.636.4080

**Subject: [Fwd: FW: Longer Combination Vehicles]**

**Date:** Mon, 11 Apr 2005 13:49:01 -0700

**From:** Peggy Taricco <ptaricco@arb.ca.gov>

**To:** Kirk Rosenkranz <krosenkr@arb.ca.gov>

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**Subject: FW: Longer Combination Vehicles**

**Date:** Wed, 06 Apr 2005 10:23:51 -0700

**From:** Gwen Strivers <gstrovers@bth.ca.gov>

**To:** Barry Sedlik <bsedlik@bth.ca.gov>, Yolanda Benson <ybenson@bth.ca.gov>,

Jorge Jackson <jjackson@bth.ca.gov>, Joan Wilson <jwilson@bth.ca.gov>,

Peggy Taricco <ptaricco@arb.ca.gov>

FYI

**Gwen Strivers**

**Executive Assistant to:**

Barry Sedlik, Undersecretary and Sr. Advisor  
for Economic Development

Yolanda Benson, Deputy Secretary for Jobs,  
Economic Development and Trade

Jorge Jackson, Deputy Secretary for Business Regulation

Benjamin Sarem, Special Assistant

Jeff Newman, Partnership Manager, Technology and  
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gstrovers@bth.ca.gov

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**From:** Charlotte Zika [mailto:cfzika@comcast.net]

**Sent:** Tuesday, April 05, 2005 6:06 PM

**To:** Gwen Strivers

**Subject:** Longer Combination Vehicles

Gwen:

I am writing in opposition to Bigger and Heavier trucks on California Highways. As part of the "Goods Movement Action Plan", I hope that we affirm our 80,000 lb weight limit. I live on the 580 corridor and the traffic is horrendous, but at least I don't have to fight for space with a truck that resembles an airplane. Interstate 580 to the 205 is already at peak capacity and I would be opposed to having a dedicated truck only lane.

I have driven on the Nevada roads in Sparks Nevada and had to drive beside triple trailers carrying gravel and it is scary.

A 1984 CalTrans road test found that the third trailer swayed up to 3 to 4 feet in either direction about 25% of the time the truck was in operation. They are more likely to jack knife due to the sway. The bigger and heavier trucks have longer stopping distances and breaking problems.

[Fwd: FW: Longer Combination Vehicles]

I urge the Administration to oppose longer combination vehicles on any roadways or truck-only lanes as part of the "goods Movement Action Plan". Thank you for your consideration. Charlotte Zika

**Subject: [Fwd: FW: OPPOSE LONGER COMBINATION VEHICLES]**

**Date:** Mon, 11 Apr 2005 13:49:10 -0700

**From:** Peggy Taricco <ptaricco@arb.ca.gov>

**To:** Kirk Rosenkranz <krosenkr@arb.ca.gov>

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**Subject: FW: OPPOSE LONGER COMBINATION VEHICLES**

**Date:** Fri, 08 Apr 2005 11:47:46 -0700

**From:** Gwen Strivers <gstrivers@bth.ca.gov>

**To:** Barry Sedlik <bsedlik@bth.ca.gov>, Yolanda Benson <ybenson@bth.ca.gov>, Jorge Jackson <jjackson@bth.ca.gov>, Joan Wilson <jwilson@bth.ca.gov>, Peggy Taricco <ptaricco@arb.ca.gov>

FYI

**Gwen Strivers**

**Executive Assistant to:**

Barry Sedlik, Undersecretary and Sr. Advisor  
for Economic Development

Yolanda Benson, Deputy Secretary for Jobs,  
Economic Development and Trade

Jorge Jackson, Deputy Secretary for Business Regulation,

Benjamin Sarem, Special Assistant

Jeff Newman, Partnership Manager, Technology and  
Commerce

**Business, Transportation and Housing Agency**

980 9th Street, Suite 2450

Sacramento, CA 95814

(916) 323-5404

(916) 323-5440-Fax

gstrivers@bth.ca.gov

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**From:** Barb Ellul [mailto:barb.ellul.icil@statefarm.com]

**Sent:** Thursday, April 07, 2005 4:09 PM

**To:** Gwen Strivers

**Subject:** OPPOSE LONGER COMBINATION VEHICLES

**Importance:** High

I'm very concerned about the intent to allow LCVs on our roadways/highways. It is unsafe. Period.

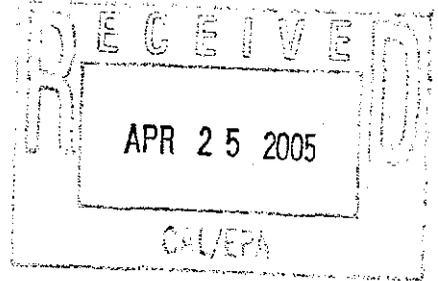
Our roads need improvement, not harder, heavier use by such vehicles. NO on this idea.

Barbara Ellul



**PORT OF HUMBOLDT BAY**

*California's North Coast Port Authority*



**COMMISSIONERS**

1st Division  
Ronnie Pellegrini

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Roy L. Curless

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Ronald A. Fritzsche

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Dennis Hunter

5th Division  
Charles Ollivier

April 22, 2005

**Ms. Gwen Strivers**  
Executive Assistant  
Business, Transportation & Housing Agency  
980 Ninth Street, Suite 2450  
Sacramento, CA 95814

and

**Alan C. Lloyd, Ph.D.**  
Agency Secretary  
California Environmental Protection Agency  
1001 I Street  
Sacramento, CA 95814

**Subject: Response to the Goods Movement Action Plan, Phase I Draft**

**Dear Ms. Strivers and Dr. Lloyd:**

This letter contains the Port of Humboldt Bay's responses and recommendations regarding the Draft of your Agencies' Goods Movement Action Plan, Phase 1.

The Port of Humboldt Bay is California's northernmost deepwater port and the Port Authority division of the Humboldt Bay Harbor, Recreation and Conservation District (Harbor District). The Harbor District was established by an act of the State legislature in 1970 to oversee all improvements to waterborne commerce, fisheries, navigation, recreation and resource protection activities in Humboldt Bay.

The Port of Humboldt Bay is presently in the midst of a transition from a traditional forest products niche port to a new economic ownership model aimed at commodity and marine terminal diversification. As such, the Port of Humboldt Bay has the necessary resources to contribute to goods movement solutions in California.

Letter to Ms. Gwen Strivers and Alan C. Lloyd, Ph.D.  
April 22, 2005  
Page 2

The Port of Humboldt Bay has a number of underutilized resources that should be considered in any statewide goods movement program. Specifically, these resources include:

- ❖ 1,800 acres of commercial and industrial waterfront land on a 38-foot deep channel, less than a one-hour sail from the Pacific Ocean.
- ❖ Access to State Highway 299, Interstate 5, and Highway 101.
- A Foreign Trade Zone and California Enterprise Zone
- ❖ A skilled workforce.
- ❖ Seven active marine terminals
- ❖ Professional Pilotage
- ❖ Capable Stevedoring
- ❖ Lower land costs and lower labor costs compared to the rest of California
- ❖ A rail line between Eureka and Fairfield, which feeds to the primary rail carriers at Fairfield.

As a part of the solution to California's goods movement challenges, the Port of Humboldt Bay is currently in discussions with the Port of Oakland to develop a Short Sea Shipping Program, which will support a container barge service between the two ports.

The Port of Humboldt Bay's Strategic Plan, Harbor Revitalization Plan, along with development programs of the North Coast Railroad Authority and private companies within the region, support a revitalization of facilities to support goods movement through the Port of Humboldt Bay to the benefit of the local community, the industry, and the State of California.

The attached set of responses to the Goods Movement Action Plan, Phase I Draft report also contains lists of specific infrastructure upgrade projects to the Port, to the highways, and to the railroad that will, upon funding, provide the needed improvements to quickly establish an increase in capacity to handle goods through the Port.

We encourage your agencies to include the Port of Humboldt Bay in the solution to California's expansion in goods movement.

Thank you for the opportunity to provide our perspective and input on the proposed policy document. We look forward to providing support to you during its final development.

Sincerely,



David Hull

Chief Executive Officer

DMH/pt  
Attachment

cc: Board of Commissioners

Kenneth G. Davlin, PE, Oscar Larson & Associates

## ***Port of Humboldt Bay***

### ***Response to***

### ***“Goods Movement Action Plan Phase I: Foundation”***

**April 2005**

The State’s Draft “Goods Movement Action Plan Phase I: Foundation” Report is coincident with the Port of Humboldt Bay’s recent Harbor Revitalization Plan effort in that they both provide an opportunity for the State of California to achieve its goods movement goals. By supporting the Port of Humboldt Bay as a part of the solution to an upgraded goods movement program within California, both the State of California and the port will achieve long-term benefits.

The Port of Humboldt Bay’s Harbor Revitalization Plan provides guidance to upgrade its port facilities and their integration with rail, trucking, and barging facilities and programs. The Humboldt Bay Harbor Revitalization Plan may be viewed on the Port’s website at [www.portofhumboltdbay.org](http://www.portofhumboltdbay.org).

**The following responses to the Draft “Goods Movement Action Plan Phase I: Foundation” Report will be referenced to the page numbers of the Draft Report.**

Page ES-1 discusses policy issues. The generation of jobs is a significant issue in Humboldt Bay and Northwestern California. Humboldt County has a relatively low average income, which has been the result of the reduction in resource production in Northern California and subsequent

shipping from Humboldt Bay. Humboldt Bay is seeking a revitalization of its historic high levels of goods movement by transitioning from a resource economy to a goods movement economy on the bay; and by attracting international corporations to the waterfront acreage located on the deep channels within the Bay.

The Port of Humboldt Bay offers significant advantages to the State's effort to relieve traffic congestion. Although there are specific locations in Highways 299 and 101 that currently present delays to truck traffic, the highways are generally not congested, and the area is not subject to air pollution constraints.

The Port of Humboldt Bay is situated in an area that has an excellent quality of life. It has abundant potable water supplies. It has substantial wastewater treatment capacity. It has available land at reasonable costs. It has an intelligent and responsible labor pool that is enhanced by the educational opportunities afforded by Humboldt State University and College of the Redwoods.

The Humboldt Bay solution offers almost immediate capacity to goods movement by barging to the Port of Oakland from Humboldt Bay, and by putting the North Coast Railroad Authority back into operation between the facilities at the Port of Humboldt Bay and the rail inter-tie with the main rail lines at Fairfield. There is no congestion for shipping in and out of the harbor. Any shipping from the Pacific Basin would be at dock on Humboldt Bay, able to unload within one to two hours of its access from the Pacific Ocean. In many cases, transfer of cargos from a ship to either trucks, rails, or barging to Oakland could be accommodated easily within 24 hours after the ship enters Humboldt Bay. The caveat for this untapped potential is that older facilities need to be upgraded. Attachment 1 to this response provides a listing of facilities and infrastructures that require improvements to provide a smooth intermodal movement of goods from the Port of

Humboldt into the United States. These needs have been identified in conjunction and with the support of the County of Humboldt, the City of Eureka, the Port of Oakland and the Humboldt Bay Harbor, Recreation and Conservation District project list in the "Assessment of California's Marine Transportation System Infrastructure Needs" developed in March 2003<sup>1</sup>.

Page ES-2 expresses the State's concern about a "business-as-usual" approach in implementing the goods movement action plan. The Port of Humboldt Bay is also concerned about the timeliness of a solution.

The economic evolution of Northwestern California away from a resource-based economy has left the region in a less-than-robust economic condition. The Port of Humboldt Bay is committed to timely implementation of its Harbor Revitalization Plan and the development of action plans and financing plans which will create more port and goods movement jobs in the communities around Humboldt Bay.

The Humboldt Bay area is one of those communities referred to, in the draft, that has been "ignored or undervalued". The port has generated the leadership to change that condition. We look forward to being a part of the goods movement action plan and to work with the State to achieve local and statewide goals.

Page I-1 recognizes that the goods movement industry is a significant economic engine in the State. The Port of Humboldt Bay is aggressively working toward being a part of that economic engine to create jobs in the region to improve its economic climate, and to reduce its dependency on government transfer payments.

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<sup>1</sup>Prepared by California Marine and Intermodal Transportation System Advisory Council, Northern California Marine Transportation System Advisory Council, Southern California Marine Transportation System Advisory Council

Page II-1 proposes policy actions which will consider goods movement throughout the State as part of one integrated program. It is important to note that the Port of Humboldt Bay has not yet been included in that plan. The State has the opportunity to support and encourage infrastructure development and to provide additional port capacity and alternative port capacity in California. The concept of Short-Sea Shipping by barge, to and from Humboldt Bay and the Port of Oakland, is the type of integrated operation which is consistent with the interest of the State, provides additional efficient goods movement capacity, and provides additional flexibility for the goods movement industry on the West Coast of California.

The State has an interest in advancing projects with highest rates of return. We suggest that the projects listed in this response provide a high rate of return because Humboldt Bay already exists and has a 150-year history of international shipping. Currently planned upgrades to Highways 299 and 101 are already underway. They will not only provide significant additional capacity to move trucks more quickly to the Interstate 5 corridor, but will also provide improvements to the traveling public, both in time saved and in safety.

The North Coast Railroad Authority owns 170 miles of rail line that is in the midst of an upgrade program. The railroad facilities were built early in the twentieth century, and with relatively modest investment, will be upgraded to provide both a high level of freight shipping capability, as well as previously provided passenger service.

Prompt action by the State to approve funding requests already in "the system" will make the rail line operational in the near future.

You have heard the statement that "there are no more waterfront lands available in California for industry". This is certainly true in the fully developed ports in Southern California. However,

Humboldt Bay has 1,800 acres of reasonably priced land, properly zoned, that is available for international companies who may need a 50-acre, 100-acre, or 200-acre parcel on the waterfront, for either assembly, goods repackaging, or goods redistribution activity into North America. With support from the State of California, those properties can be marketed and made available to companies who will provide investments in the communities around the Port of Humboldt Bay, which will create a more robust economy for the region and for the State of California.

Past discussions have concluded that the concept of shipping goods from the port directly across Highway 299 to Redding and its industrial park complexes provides additional facilities for redistribution of goods. Upgraded infrastructure in the Port of Humboldt Bay would provide such economic stimulus to the northern part of the State within a relatively short period of time.

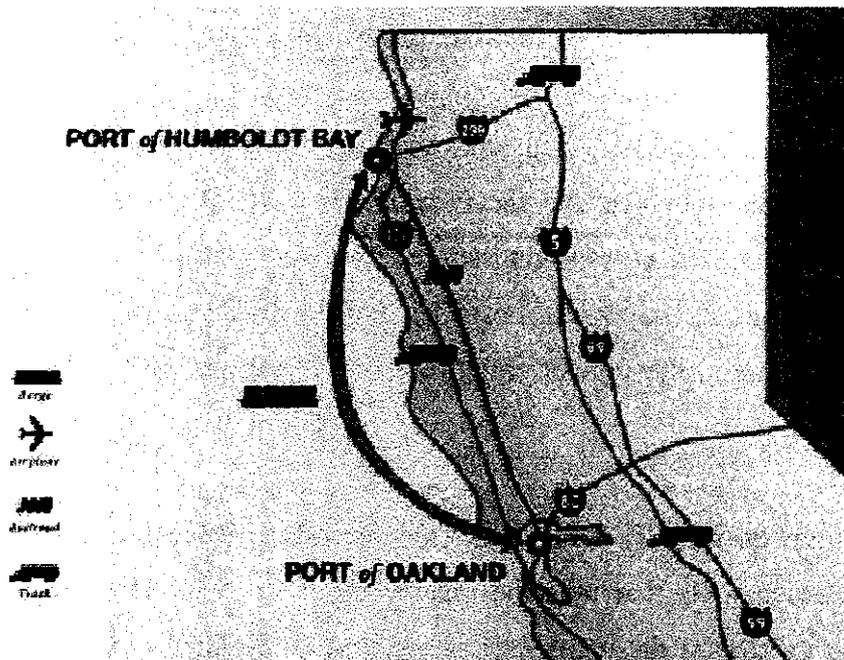
It is significant that the environmental impacts for development of the port, the highways, the barging programs, and the railroad have been discussed and, to some degree, identified. The northwest region of California has a high degree of environmental sensitivity. The installation of multimodal facilities to enhance goods movement in this region of California would require standard mitigation costs, which are expected to be less costly than those experienced within highly impacted communities of Southern California.

Our port's effort is to spur private sector investment along the waterfront of Humboldt Bay. Our vision is to stimulate investment by international corporations interested in facilities along a deep draft harbor, and which require such facilities for goods movement either into the United States or from the United States into the Pacific Basin. The port has made continual investments in dredging programs to support the shipping that takes place on Humboldt Bay, and has worked at developing consensus among the primary agency players who are impacted by the development of coastal improvements.

The Port of Humboldt Bay is unique and separate from the Port of Oakland and the ports of Southern California. Representatives of the Port of Humboldt Bay would be pleased to participate in any goods movement work group that might be established by the agencies. Since we are physically separate and distinct from the other regions, the State would be well served to develop an integrated program with the participation of the Port of Humboldt Bay.

Page IV-3 discusses just in time (JIT) delivery with discussions on cargo ship sizes and trends. It should be recognized at the outset that Humboldt Bay presents a limited growth capacity for an expansion of container ship size. Humboldt Bay is a deep channel port that has multiple channels of a depth of 48 feet, 38 feet, and 26 feet, with additional barging channels. Because of its geographical configuration it can currently accommodate ships up to approximately 750 feet in length. Its waterfront presents the opportunity to hold anywhere up to perhaps 10 to 12 ships of varying sizes plus multiple barges. Thus, the conclusion is that the Port of Humboldt Bay will not grow to accommodate an excessive number of ships (which would create congestion) nor would it grow to handle the increasingly larger container ship sizes that are currently being planned. It can provide support to moderately sized container vessels, break bulk shipping, and significant barging capability as its role of being a part of the overall State solution for goods movement.

We suggest that the Phase 1 Draft Report incorporate a more prominent description of the State Highways that serve the Port of Humboldt Bay in the northern part of California. Our port is serviced by State Highway 199, State Highway 299, State Highway 101, all of which connect to major metropolitan market areas and to Interstate 5. The port can also move goods from a ship onto the North Coast Railroad Authority rail line which connects to the main rail lines of the Union Pacific and the Burlington Northern at Fairfield. This connection offers access throughout California and to the rest of the nation. Refer to Figure 1.



**Figure 1: Ship, Rail, Road and Air Connections to the Port of Humboldt Bay**

Also of value is the regional airport located at Arcata/McKinleyville. The runway will be extended by 1,000 feet under a five-year program. The airport currently supports passenger and freight shipping from a variety of producers of goods within the region. The airport is located 20 minutes from the Port of Humboldt Bay. It provides additional flexibility in goods movement when goods are perishable or required on a timely basis.

The Port of Humboldt Bay is an alternative within California to the existing ports. We believe it important to offer the Port of Humboldt Bay as an attractive alternative as compared to the ports in Mexico. The goods movement difficulties and complexities of movement from lesser regulated facilities within Mexico across the Mexico-USA border in these days of high security alerts suggests that goods movement through Mexico may not provide best shipping solutions. It is interesting to note also that the commitments that are being made by international corporations

to make substantial investments to create new deepwater seaports in Mexico are substantially of higher cost than what would be required to upgrade the Port of Humboldt Bay.

Page IV-12 discusses the historical and emerging factors regarding growth of shipping and congestion. Please recognize that the Port of Humboldt Bay has no shipping congestion, no trucking congestion, and no rail congestion. Therefore, the Port of Humboldt Bay provides a solution to the goods movement obstacles with a less complex program of infrastructure upgrades. In addition, the Port of Humboldt Bay has the available, properly zoned waterfront industrial land.

The information on page IV-14 presents an interesting challenge to the State. The numbers represent volumes goals that must be met by the State of California by providing additional infrastructure to support the increased container volumes that are expected. It is of significant concern that, if the State and the ports within California cannot quickly develop the infrastructures to more quickly move goods through the ports on a timely basis, these volumes will be not attained in the California ports, and California will suffer economic reductions as a result of that failure.

We believe the Port of Humboldt Bay can quickly contribute a solution which provides additional goods movement handling capacity in a short period of time.

The discussion in Section V omits and overlooks the contribution that the Port of Humboldt Bay, with its existing highway system, can provide to goods movement within the State of California. We strongly suggest that Highway 101, Highway 299, and Port of Humboldt Bay shipping and barging facilities be recognized as priority corridors for goods movement in California. The Port of Humboldt Bay can be a gateway to the Central Valley of California and to Nevada. It can also

be a gateway to Oregon. It can provide redundancy to the existing shipment regions and corridors that exist in California, and that are currently constrained by congestion. The concept that goods movement for distribution from Humboldt Bay into a Central Valley region of California, so that the large container ports can provide focused shipment and delivery to national marketplaces, can provide a tiered approach toward goods movement in California and might present a strategic solution of value. The large ports currently handle goods with all destinations. Los Angeles handles both containers that expect to be shipped to the Southern California community, the Southern California region, and to other parts of the United States. If the goods movement strategy could develop a more singular market service approach, i.e., shipment of goods from the large ports to North America, while smaller ports such as Humboldt Bay could be destined to provide shipping support for goods intended to be delivered to regions of Southern Oregon, Central California, and Nevada, goods redistribution complexity would be made simpler, and the potential to manage a reduction in congestion would result.

Page V-4 discusses in a limited sense the relationship of providing service along Interstate 5, Route 101, Route 395, State Route 299, and the relationship of those highways with respect to Crescent City, Southern Oregon, and Nevada. It would be a mistake to view Northern California as a final destination for goods movement. The population in Humboldt and Del Norte counties is less than 200,000 people. However, it is reasonable to consider the Port of Humboldt Bay as a gateway which can provide multimodal goods movement capacity to a western geographic region, as well as connection to the main rail lines, and the Port of Oakland through barging programs, for distribution of goods to wider geographical regions.

The discussions in Section V iterate the safety issues, the congestion issues, the air pollution emission issues that are currently being presented to those port communities. Since it is expected that these impacts will get worse, and it is acknowledged that the cost of managing these impacts

along with the cost of infrastructures upgrades, offer quite a significant cost to both the public and to the goods movement industry, it seems reasonable to consider supporting reasonably priced upgrades to the Port of Humboldt Bay facilities so as to provide additional capacity, efficient goods movement capacity, and alternative capacity for unexpected events.

The following Attachment 1 contains project lists which are specific to enhancement of the Port of Humboldt Bay's capability to provide multimodal goods movement as part of a State Goods Movement Strategy.

It is suggested that the State support a program to bring together international corporations who require waterfront properties for goods distribution and those owners of property (both municipal and private) who possess the available property on waterfront channels. For example, it is apparent that if a company who is currently shipping through the Los Angeles harbor were to purchase 100 acres of waterfront property on Humboldt Bay for receipt of shipped goods, the result would be a reduction in goods traffic into Los Angeles and a reallocation of those goods to the Port of Humboldt. Subsequent to the company's processing or handling of those goods, they could be re-shipped throughout the United States from the Port of Humboldt Bay either by barging to Oakland, trucking in the nearby region, or bay train to easterly destinations.

In summary, the Port of Humboldt Bay appreciates the opportunity to comment on the Draft Goods Movement Action Plan and believes it can contribute to solutions that will benefit the Port of Humboldt Bay, the Port of Oakland, and the State of California. Additional information on the Port of Humboldt Bay can be seen at the website [www.portofhumboltdbay.org](http://www.portofhumboltdbay.org). Please feel free to contact David Hull, CEO, Humboldt Bay Harbor Recreation and Conservation District, at phone 707-443-0801; fax 707-443-0800; e-mail [dhull@portofhumboltdbay.org](mailto:dhull@portofhumboltdbay.org); or Ken Davlin, PE, Project Manager, Oscar Larson & Associates, phone 800-660-2043; [kdavlin@olarson.com](mailto:kdavlin@olarson.com).

**ATTACHMENT 1**

**Proposed Improvements to Support the Port of Humboldt Bay's Solutions to Goods Movement Transfer in California**

| <b>County/Route</b> | <b>Project Title/Description</b>       | <b>Cost (2006 in millions)</b> | <b>Estimated Completion Date</b>  | <b>Primary Impact</b> |
|---------------------|--|--------------------------------|-----------------------------------|-----------------------|
| <b>Highway</b>      |  |                                |                                   |                       |
| SHA/TRI 299         | Buckhorn Grade Improvement Project     | \$120.0                        | mid                               | relieves bottleneck   |
| HUM 101             | Confusion Hill Bypass                  | \$75.0                         | short (estimated completion 2007) | relieves bottleneck   |
| MEN 101             | Willits Bypass                         | \$140.0                        | short                             | relieves bottleneck   |
| HUM 101             | City of Eureka Waterfront Drive Bypass | \$50.0                         | short                             | relieves bottleneck   |

*Port Improvements*

| <b>Sponsor/ Location</b> | <b>Project Title/Description</b>                        | <b>Cost (2006 in million)</b> | <b>Short/Mid/ Long Term</b> | <b>Primary Impact</b> |
|--------------------------|---|-------------------------------|-----------------------------|-----------------------|
| Port of Humboldt Bay     | Fields Landing Terminal Rehabilitation and Truck Access | \$13.5                        | mid                         | increases capacity    |
| Port of Humboldt Bay     | Physical Ocean Realtime System (PORTS)                  | \$0.5                         | mid                         | safety improvements   |
| Port of Humboldt Bay     | Humboldt Bay South Jetty Entrance Modification          | \$1.8                         | long                        | increases capacity    |
| Port of Humboldt Bay     | Barge Terminal Improvements                             | \$5.0                         | short                       | increases capacity    |
| Port of Humboldt Bay     | Samoa Marine Terminal Dock Reconstruction               | \$26.7                        | short                       | increases capacity    |

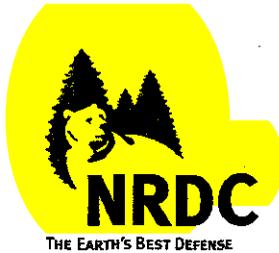
| <b>Sponsor/<br/>Location</b>                   | <b>Project Title/Description</b>                   | <b>Cost<br/>(2006 in<br/>million)</b> | <b>Short/Mid/<br/>Long Term</b> | <b>Primary<br/>Impact</b>                                |
|--|--|---------------------------------------|---------------------------------|--|
| City of Eureka/<br>Port of<br>Humboldt Bay     | Samoa Industrial Area<br>Wastewater Treatment Plan | \$20.0                                | mid                             | increases<br>capacity /<br>environmental<br>improvements |
| North Coast<br>Railroad<br>Authority           | Port/rail intermodal access<br>facility            | \$4.0                                 | mid                             | improves<br>capacity                                     |
| Port of<br>Oakland/<br>Port of<br>Humboldt Bay | Barge shuttle infrastructure<br>Oakland            | \$90.0                                | short                           | increases<br>capacity                                    |

*Rail Improvements*

| <b>Railroad/<br/>Location</b> | <b>Project Title/Description</b>  | <b>Cost<br/>(2006 in<br/>million)</b> | <b>Short/Mid/<br/>Long Term</b> | <b>Primary<br/>Impact</b> |
|-------------------------------|---|---------------------------------------|---------------------------------|---------------------------|
| North Coast<br>Railroad       | Reestablish rail freight<br>service from Eureka to<br>Fairfield on Highway 80 | \$80.1                                | short                           | increases<br>capacity     |
| North Coast<br>Railroad       | Rail crossings improvement<br>project   | \$10.0                                | mid                             | relieves<br>bottlenecks   |

*Airport Access Improvements*

| <b>Sponsor/<br/>Location</b> | <b>Project Title/Description</b>                         | <b>Cost<br/>(2006 in<br/>million)</b> | <b>Short/Mid/<br/>Long Term</b> | <b>Primary<br/>Impact</b> |
|------------------------------|--|---------------------------------------|---------------------------------|---------------------------|
| Humboldt<br>County           | Arcata/McKinleyville<br>runway extension<br>improvements | \$21.6                                | mid                             | increases<br>capacity     |



NATURAL RESOURCES DEFENSE COUNCIL

April 8, 2005

*Via U.S.P.S. and Email (without attachment)*

Gwen Strivers  
Executive Assistant  
Business, Transportation and Housing Agency  
980 9th Street, Suite 2450  
Sacramento, CA 95814

Re: Goods Movement Action Plan Phase I: Foundations

Dear Ms. Strivers:

On behalf of the over 1 million members and activists of NRDC (Natural Resources Defense Council), more than 250,000 of whom are Californians, we submit the following comments on the Draft Goods Movement Action Plan (Draft Plan). Preliminarily, we are pleased that this goods movement process has elevated a discussion of the need to reduce the harmful impacts to the environment and public health of the goods movement system. We are deeply concerned, however, that the wrong emphasis is being placed on this critical issue.

Given that the report of the California Environmental Protection Agency (Cal EPA) and the Business, Transportation & Housing Agency (BT&H) projects that ports will be the *number one source* of toxic and smog pollution in California by 2020 (greater than every car on the road and every truck on the road), it is imperative that issues of public health take *center stage* in determining *whether* to expand our state's goods movement system in the first place. Moreover, *if* we decide to expand, public health needs to be a factor in which expansion projects to choose. Unfortunately, the Draft Plan, as well as the process thus far, already takes the tripling of the goods movement system in our state *as a given*. It also takes as a given—without discussion or debate—that such an expansion is good for the people of California. And finally, it concludes that we need to expedite this expansion process as quickly as possible. Given these assumptions, public health and the reduction of harmful air pollution and toxics becomes nothing more than an afterthought—a sort of band-aid solution to offset the “inevitable” impacts of expansion. This is the wrong direction for our state to take.

We urge BT&H, Cal EPA, and the Administration to:

1. Shift the focus of this process to include public health and environmental concerns as *central* factors in determining whether and how to expand the goods movement system;
2. Recognize, as discussed below, that the expansion of the goods movement system may *not* necessarily benefit Californians (not only from a public health perspective, but an economic perspective as well); and
3. Create an aggressive plan that regulates *existing* pollution from ports and the goods movement system (as well as pollution from any further expansion) through specific and unambiguous requirements that do not rely on voluntary approaches and MOUs with industry.

***Public Health and Pollution Need to Be Central Factors In Determining Whether and How California's Goods Movement System Should Expand***

California has the worst air quality in the nation, and our state already hosts the two largest ports in the country—the Ports of Los Angeles and Long Beach. Together, these two ports move approximately 40% of the nation's cargo. In addition, the Port of Oakland is also one of the ten largest ports in the U.S. As the Draft Plan makes clear, the goods movement system is a major source of toxic diesel particulate matter (PM) in our state. Everything in the goods movement system—from ships, to trucks, to heavy yard equipment—runs on diesel. In the Los Angeles region, for example, the ports of Los Angeles and Long Beach alone will contribute 25% of the diesel PM pollution in 2005. This will have regional and local consequences. As the California Air Resources Board (CARB) previously recognized, diesel PM is responsible for *more than 70%* of the cancer risk from air pollution in our state. It has also been connected to premature death, asthma, and other respiratory illnesses. Children and the elderly are particularly vulnerable to diesel's effects. Last year alone, the State of California incurred over \$21 billion in health related costs associated with diesel pollution.

In fact, Governor Schwarzenegger recognized the desperate need to improve California's air quality when he pledged to reduce health-threatening air pollution by 50 percent by 2010. However, achieving the Governor's goal of a 50 percent reduction will be impossible unless public health and the environment play a central role in forming California's goods movement policy.

Accordingly, the environmental, public health and associated health care costs *must* be considered *before* we decide to triple the goods moved through our state.

***Further Expansion of California's Goods Movement Is Not Necessarily a Good Thing—Economically—for Californians***

Even putting aside the human cost of goods movement, a recent report by the Public Policy Institute concludes that further expansion of California's goods movement system is not necessarily beneficial for the residents of California *from an economic perspective*. Specifically, the report notes that much of the goods imported through California go to other states. Thus, when industry and others remark that this expansion is necessary so that "Californian's can have their Starbucks" (as one person remarked at the hearing) or other goods, that is not accurate. Moreover, as a result of this, California essentially acts as a distribution center for the rest of the nation.

The report acknowledges that there are some benefits to this status—including some economic benefits and the creation of goods-movement related jobs. But the report also explains that there are many costs to the people of California from this status, for which we are not compensated by shipping companies or manufacturers, such as health costs (both in terms of human costs and economic health care costs), infrastructure costs, congestion, and wear and tear to our roads. As a result, Californian's effectively subsidize the real costs of cheaper raw materials to manufacturers in other states, at the expense of our health and welfare. The report does not conclude whether these costs outweigh the benefits of expansion, but rather, states that this is a complex policy question that needs to be discussed and debated *before* we decide to triple the goods movement system in our state. This process has so far skipped that crucial step. We urge BT&H, Cal EPA and the Administration to publicly discuss and weigh these critical factors. We enclose this economic report for your review and consideration.

***Cal EPA should move ahead with an aggressive plan to require reductions in current levels of pollution at ports and the goods movement system***

Putting aside the central question of whether we should further expand California's goods movement system, we strongly support an aggressive plan to reduce pollution from *current* port and other goods movement operations (as well as any future expansion of those operations). Cal EPA has put together a solid laundry list of measures that are needed to reduce pollution and health risks from goods movement. Unfortunately, the current plan does not *commit* to implementing these measures. We urge Cal EPA to do so. In addition, the report places too much of an emphasis on voluntary measures and memoranda of understanding with the "regulated" industry. Given the magnitude of pollution and health risks caused by goods movement, as well as the fact that this industry has long remained virtually unregulated, voluntary measures are far from sufficient. We strongly urge Cal EPA to adopt these measures as mandatory regulations, in order to truly get the reductions needed to protect the health of California residents.

Ms. Strivers  
April 8, 2005  
Page 4

Finally, we request that Cal EPA estimate the number of fatalities that will occur in California, given the estimated increase in pollution from expansion. We understand that CARB makes such calculations whenever it determines the cost-effectiveness of its regulations. Such information is crucial for the public and decisionmakers to know *before* this expansion occurs.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Julie Masters", with a large, sweeping flourish on the left side.

Julie Masters  
Senior Project Attorney  
Natural Resources Defense Council

cc: Peggy Taricco, California Air Resources Board

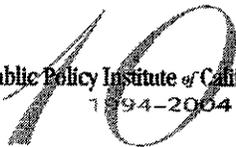
Enclosure

# California's Global Gateways: Trends and Issues

• • •

Jon D. Haveman  
David Hummels

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# Foreword

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In the late 1990s, PPIC launched a research effort on California's economy called Global California. At that time, there were plenty of reasons to study the state's economy in a global context. Immigrant labor, for example, had long influenced the character of California's economic activity. Moreover, foreign direct investment in California was a significant engine of growth. Indeed, foreign investors owned and operated 25 percent of the firms registered in Silicon Valley and employed an equal share of the labor force. Throughout this period, too, Asian imports became an increasingly large share of total U.S. imports, and critics blamed job losses on the "hollowing out" of a labor force losing ground to offshore production. Yet shortly after PPIC launched Global California, it became even clearer that the only practical way to understand California's economy was in its global context. Both the threat of terrorist attacks after September 2001 and the West Coast port closure of 2002 underscored the fact that international trade—and the ports that made it possible—were critical factors in the regional economy.

As part of PPIC's research effort, Jon Haveman and David Hummels undertook an analysis of the state's shipping activities in *California's Global Gateways: Trends and Issues*. As they point out, political obstacles to trade have eroded or in some cases disappeared, and the demand for shipping services has increased dramatically. California's seaports and airports reaped the benefits of that heightened demand and, while increased trade traffic brought profits, jobs, and tax revenues, it also produced unwelcome by-products such as congestion, pollution, and infrastructure wear and tear in and around the state's major urban areas. Investing enormous sums of money, California's ports expanded their facilities to absorb this increased trade volume. Even so, some of them lost market share to other ports during this time.

For these and other reasons, Haveman and Hummels note that further growth in California's trade traffic, should the state decide to pursue it, will require a significant policy response. Part of this response would likely focus on the more efficient use of current facilities, including off-hours distribution schemes. A related option is to impose user fees at or around the state's major gateways. Although there is already resistance to this proposal, the alternative seems to be an ever-increasing demand for precious space on nearby freeways and local roads. Expanding the state's trade infrastructure facilities is yet another option, but building consensus for that expansion—much less planning, financing, and implementing it—is by no means a straightforward or easy task.

The challenges facing California's trade gateways are similar in type and importance to those facing the infrastructure system more generally. Expansion is slow, difficult, and expensive, but neglect or even maintaining the status quo will lead to higher transaction costs and dampen future economic growth. This quandary often shifts the focus of the policy discussion to more efficient uses of existing facilities. Whether the topic is schools, parks, roads, water supply systems, or ports, the message is the same—make better use of what we have. In this sense, Haveman and Hummels make it abundantly clear that Global California is finally inseparable from Local California, and that visionary solutions at this level can affect the state's competitive position in the world economy.

David W. Lyon  
President and CEO  
Public Policy Institute of California

## Summary

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The ability to transport goods efficiently and the quality of trade infrastructure have become key determinants of international competitiveness. At the same time that political barriers to trade have dropped, the transportation requirements of manufacturers have become more complex. Multinational firms rely on fast, flexible, and reliable shipping to link far-flung plants into a well-integrated manufacturing chain. Transportation breakdowns or problems as simple as port congestion can idle an entire global production network. In this environment, the capacity of ocean ports, airports, and multimodal linkages becomes critical to a region's competitive position.

These issues are especially important in California, whose airports and seaports are among the busiest in the country. Los Angeles and San Francisco International Airports rank second and third (behind only New York's JFK International Airport) in terms of the value of imports and exports processed, and the Ports of Los Angeles and Long Beach are the two largest port complexes in the country. Combined, these two ports handle a greater volume than all of the world's ports other than Hong Kong and Singapore.

Although California's businesses are active importers and exporters, much of the trade passing through its global gateways either originates in or is destined for use in other states. This fact makes California a significant entrepôt, or distribution center, for the country's trade. In 2000, California serviced \$297 billion in trade for other states, \$176 billion in excess of California's trade that was shipped through other states. This difference represents an extra 32 billion kilograms worth of goods flowing on California's highways and railways. Although this flow is a relatively small proportion of all goods movement in the state, it is very heavily concentrated in the large urban areas with Los Angeles and San Francisco at their centers. Mingling as it does with already significant traffic flows, this international trade traffic contributes

significantly to congestion and pollution in these regions. Quantifying these deleterious effects of California's entrepôt status is extremely difficult, but the severity of the congestion and pollution problems in Los Angeles and the San Francisco Bay area are sufficient to give one pause when considering the benefits to the state of handling this trade.

Although California's entrepôt status also benefits the gateway regions through increased employment, business profits, and state and local tax revenue, congestion, pollution, and wear and tear on California's highways generated by shippers are costs for which the taxpayers and citizens of California are not compensated. In effect, California is subsidizing economic activity in other states. In principle, these services could be paid for through the collection of user fees or transfers of federal tax dollars, but this is not currently happening. That Californians are only partially compensated for the services required to move goods through the state suggests that promoting California's entrepôt status is not obviously beneficial but is part of a large and complex policy calculus.

Trade through California's gateways will wax and wane for a variety of reasons, only one of which is its entrepôt status. Principal among these reasons are changes in the pattern of overall U.S. trade. As trade shifts regionally from Europe to Asia, trade flows through California will naturally expand. Between 1970 and 2002, imports from Asia as a share of U.S. trade increased by a factor of five from 8 percent to 40 percent, dramatically increasing the flow of imports through California's gateways. Further, the composition of U.S. trade has been shifting toward lighter goods that are more likely to be shipped by air. Bulk commodities as a share of U.S. imports have fallen from 38 percent to just 19 percent. Manufactured goods, which tend to be lighter and higher in value, have experienced a corresponding increase as a share of U.S. imports.

Although there is very little that can be done regarding changes in the regional and compositional changes in U.S. trade flows, port authorities and politicians are keenly aware of the competitive position of local gateways vis à vis gateways in other states. There is in fact significant evidence that some of California's global gateways, airports in particular, are not keeping pace. Although the value of trade through

California's airports increased in the latter half of the 1990s, their share in U.S. trade dropped precipitously between 1995 and 2002 (from 38 percent to 21 percent). Some of this decline was a result of changes in the commodity and country composition of U.S. trade, but over half was simply because shippers preferred other points of entry or exit. There is little question that congestion in and around the airports is partially responsible, but increases in the range of airplanes and an expansion of cargo-handling facilities in Alaska have also contributed to the erosion in the growth of trade through California's airports. Although not an obvious transit point for Asian trade, Anchorage lies much closer than airports in California to the path representing the shortest distance from Asia to much of the Eastern portion of the United States.

Discrete events, such as the West Coast port closure of 2002 and the terrorist attacks in September 2001, also play a significant role in determining shippers' preferences for one gateway over another. Given that alternatives to shipping through West Coast ports do exist, events such as the port closure are likely to result in a diversification of shipping patterns for domestic importers and exporters. This diversification shifts trade to other seaports or to other modes of transport. In either case, the port shutdown may well have resulted in a permanent reduction in the share of U.S. trade flowing through California. It is too soon to tell whether the port closure will have such long-term effects, but in the months following the shutdown, the share of trade processed by West Coast ports was lower than it has been in any of the previous five years. Between 1998 and 2001, the share of U.S. imports from Asia entering California ports was consistently between 77 and 78. Through the first six months of 2003, this share has fallen to just under 74 percent. This is a significant drop, but it remains to be seen if it represents a permanent or transitory diversion of imports away from California's gateways.

The response to terrorist attacks also has the potential to affect trade through California's ports. If expanded security measures—designed to protect the ports from attack and the movement of weapons material beyond the ports—reduce the efficiency with which goods flow into the country, overall, U.S. trade will diminish as could ocean relative to air shipping. The primary federal initiative, the Container Security Initiative, mandates that suspect cargos be inspected at their foreign port.

Presumably, this initiative will result in a greater frequency with which containers are inspected. As a result, shipping delays will be more common and arrival times at U.S. ports will be less certain. For firms with a just-in-time inventory system in place, by increasing uncertainty in the shipping process, increased inspections effectively raise the cost of importing.

Initiatives are also being implemented that are likely to reduce the cost of trading. In particular, the Customs-Trade Partnership Against Terrorism encourages shippers and carriers to develop security plans for their cargo while it is in transit. These enhanced security measures will not only protect cargo from tampering related to terrorist activity but will also protect it from more mundane dangers such as simple theft. As the process of protecting U.S. trade from terrorist activities is still relatively young, it is unclear how these offsetting influences will affect shipping costs and hence trade flows.

Despite these events, and the recent reorientation of air trade away from California's airports, trade flows through California are expected to increase dramatically in the next 15 to 20 years. By 2020, the value of exports through California is expected to nearly triple and imports to nearly double. By weight, overall trade flows are expected to triple, with the overwhelming majority of this increase occurring at the seaports. However, this increase in trade through California will not occur without an accommodative policy response. Should infrastructure provision remain at its current levels, much of this trade will surely find a path of less resistance.

Trade with Asia is expected to provide almost three-quarters of the trade growth through California. Despite this fact, and China's growing contribution to U.S. and world trade flows, imports through California are expected to grow more slowly than are imports through other U.S. gateways. This trend in import growth applies to both ocean- and air-based trade and is almost equally explained by changes in commodity and country mix. At the same time, exports through California are expected to grow more quickly than are overall U.S. exports. Here, it is primarily changes in the country composition of exports as Asia is expected to grow rapidly in the coming decades. Despite this imbalanced growth through California, the gap between imports and

exports is expected to increase over time, especially when measured by weight.

Certainly growth in trade through the state requires some policy response. Without it, congestion and pollution problems most assuredly will worsen. However, the form of this response is unclear. Most frequently, policy responses have focused on accommodating the increased flow, with too little consideration given to managing it. Too little thought is given to assessing alternative routes through which the trade might flow—for instance, greater use of the Panama Canal for Asia trade destined for the Eastern United States—or to alternative means of transport—encouraging rail over trucking. At the same time, there does seem to be an increasing recognition among policymakers and port authorities that existing infrastructure must be used more efficiently. In Los Angeles, for instance, there is an active movement to encourage the delivery of cargo from the ports to inland distribution centers at all hours of the day rather than concentrating them in the highly congested daylight hours.

Regardless of the form of policy response that is appropriate, accommodating or managing the expected growth in trade through California will require the application of significant resources to bolster the capacity of the local infrastructure in both the Los Angeles and San Francisco regions. This need comes at a time that is opportune on the federal level but a tremendous challenge at the state level. Given the current budgetary problems facing the state, the financial resources need to come from other sources. There is potential in a pair of other sources. First, the federal government is in the process of reauthorizing TEA-21, the Transportation Equity Act for the 21st Century, which regulates the allocation of federal funds to surface transportation infrastructure. In an effort to expand California's share of federal resources for goods movement infrastructure, policymakers at the state, regional, and federal level have been actively involved in efforts to highlight California's trouble spots. Second, imposing user fees at the ports and on some surrounding infrastructure holds significant potential for raising needed resources. Efforts to impose these fees have been aggressively resisted by shippers, carriers, and others involved in goods movement, making them very difficult to implement politically.

Although the expansion of resources for trade infrastructure is important for the smooth functioning of economic activity in parts of California, it remains an open question as to what is the best source of these funds and just how they should be spent. Should increasingly scarce tax revenues continue to be used for these projects, or should the users of the infrastructure bear a greater portion of the cost? Should policy be focused on accommodating anticipated increases in trade flows, or should it be devoted to managing those flows? Answers to these questions are far from clear, but the increased demand that international commerce is likely to place on California's ports and people make their consideration crucial.

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# 1. Introduction

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*“Transportation is the industry that connects other industries . . . it is the key to globalization.”*

Lawrence H. Summers, Secretary, U.S. Department of Treasury  
International Transportation Symposium  
October 10, 2000, Washington, D.C.

The ability to transport goods efficiently has become a key determinant of international competitiveness. The rising importance of transportation can be traced to the removal of other barriers to integration and the increased demands of manufacturing firms for sophisticated shipping services. Recent studies conducted by academic researchers and transportation specialists at the World Bank and the International Monetary Fund confirm the importance of shipping costs and transportation infrastructure in global trading arrangements.<sup>1</sup> They demonstrate that inland shipping and port costs constitute the majority of international freight costs, and that improving port administration and efficiency significantly lowers shipping costs. Shipping costs, in turn, dramatically affect the sourcing decisions of firms engaged in international trade.

At the same time that political barriers to trade have dropped, the transportation requirements of manufacturers have become more complex. Multinational firms rely on fast, flexible, and reliable shipping to link far-flung plants into a well-integrated manufacturing chain. Transportation breakdowns, or problems as simple as port congestion, can idle an entire global production network. In this environment, the efficiency of ocean ports, airports, and multimodal linkages become critical to a region's competitive position in manufacturing.

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<sup>1</sup>For an overview of these studies, see Fink (2002).

These issues are especially important in California. Were California an independent country, it would be the 11th largest exporter in the world, between Singapore and the Russian Federation. California also serves as an international commerce gateway between the United States and some of its most important trade partners. A majority of U.S. trade with Asia passes through California's ports, and Asia trade has seen much more rapid growth than historically important trading partners such as Europe. Since 1990, East Asian exports to the United States have grown 7 percent per year but European exports have grown only 4.5 percent per year. And this is only the beginning. U.S. trade with China is forecast to grow by more than 220 percent in the next two decades.

California's gateways are important for their regional economic effects as well. International commerce requires ancillary services, including transportation and warehousing. As a result, regions that process significant volumes of international trade experience positive economic spillovers. In particular, the sectors listed above employed over 420,000 workers in California. A large share of this employment is due to the high volume of traded goods flowing through California's ports. For this reason, competition among port regions is intense. Like water, internationally traded goods take the path of least resistance. Costly and inefficient port operation can lead to a significant decline in the demand for trade services, and hence employment, at any particular location. California port facilities compete among themselves, with domestic ports in other states, and with foreign alternatives in Canada and Mexico.

This report provides an overview of issues related to California's international trade infrastructure as well as trends in goods transportation into, out of, and through the state. We analyze these trends to ask if California is keeping up, and we look forward to ask what California must do next. The analysis raises more basic policy questions. Does California really want a significant increase in the movement of freight through its ports and cities? Should California be doing more to facilitate freight movement or, by failing to respond to growing demand, let international cargo go elsewhere? These are not research questions, and we do not seek to answer them here. The report's findings, however, provide useful context for those larger policy questions.

The report begins with an overview of California's gateways and recent changes in the economic environment in which they operate. Chapter 2 describes California's gateways for ocean, air, and land transport, highlighting the distinctive nature of each major gateway, the type of cargo it moves, and the problems facing each. Although California producers and consumers contribute to the trade flows through its gateways, significant quantities, particularly of imports, also flow through California to facilitate commerce for producers in other states. In Chapter 3, we discuss the importance of California as an international trade entrepôt. Our focus is on the shipping service balance for California, that is, to what extent California is a net provider of shipping services to other U.S. states. Providing this service is potentially costly to California and we provide a discussion of potential benefits and costs.

Chapter 4 presents evidence on trends for trade through California and the United States as a whole. It also draws out the implications of these trends for transportation demand. Chapter 5 analyzes the competitive position of California's gateways, focusing on changes in the demand for and use of these facilities relative to other U.S. gateways. If California's facilities are improving in terms of quality and cost of service, shippers will make use of them, and we will see this most clearly in the trade statistics. If California's facilities are lagging, this too will be clear in declining market share.

In Chapter 6, we discuss important recent events that affect demand for California's transportation services, including the port lockout and security considerations in the wake of the 9/11 terrorist attacks. Initial estimates of the costs of the port lockout to the U.S. economy were almost certainly overstated, largely because they ignored the ability of shippers to respond flexibly, to build up anticipatory inventories, and to divert traffic around West Coast ports during and after the lockout. We provide some evidence for these responses including data that suggest continued diversion long after the lockout had ended. We also provide detailed information on the Container Security Initiative, enacted in the wake of 9/11, and what it implies for goods movement through California.

Chapter 7 forecasts demand for transportation services and compares these estimates to California's current transport capacity. Output in East Asia is growing much faster than output in traditional European trading partners. Further, the "weight" of Asian output is growing even faster than overall output growth, as Pacific Rim countries specialize in heavy manufacturing, whereas the United States and European countries specialize in information-intensive goods. These facts in combination mean that U.S. trade and transport capacity will become increasingly West Coast oriented. We combine estimates of trade growth with calculations that enable us to pinpoint likely entry locations to determine whether California's transport capacity stands ready to absorb the coming deluge.

Chapters 2 through 7 of this report illuminate a variety of policy issues pertaining to California's international trade infrastructure. In Chapter 8, we discuss some remaining policy implications of our work and the key points of our analysis. In many ways, that analysis raises more questions than it answers, and we therefore see this report as the first part of a research agenda designed to study California's trade infrastructure and its relationship to dramatic changes in the trade landscape. These include shifts in the types of goods being traded (microchips versus steel), the countries with whom trade takes place (Latin America and the Pacific Rim replacing Europe), and the use of transportation modes (air replacing ocean). Sensible policy must be forward-looking because infrastructure investment can be extremely costly with economic effects that last for decades. Given the competition in the shipping services industry, mistakes or missteps can have significant long-term costs.

## 2. California's Major Gateways

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In 2002, California's international gateways handled one-fifth of all U.S. international trade. A quick snapshot of major gateways into the United States indicates the importance of California's ports. In particular, California's top airports and seaports are among the largest in the country and serve as major gateways for goods from and to locations all across the country. Although Mexico is America's second largest trading partner, the flow of internationally traded goods through the heavily populated Southern California border region is small compared to that of other U.S. border crossings.

Regardless of their importance for U.S. trade flows, each gateway is likely to face the common challenge of handling rapidly growing trade flows. The problems faced in accommodating this increased demand, however, vary by mode of transportation. This chapter provides a discussion of the trade that moves through California's major gateways, highlighting the problems facing each.

### Airports

California's airports are among the busiest in the country in moving U.S. merchandise trade (Table 2.1). California's airports handle 23 percent of U.S. airborne trade by value (19 percent by weight). JFK in New York handles the largest load, but Los Angeles and San Francisco Airports are ranked second and third by value; by weight, they are third and fifth, respectively. Oakland International Airport is the only other California airport handling significant volumes of international trade, ranked 18th by value (30th by weight). California's airports handle trade with a significantly higher value per kilogram than other airports. San Francisco, in particular, has a value-to-weight ratio more than twice that of most other major airports. Outside California's big three, six other airports in California handle internationally traded goods, although their

**Table 2.1**  
**Top 25 U.S. Airports for U.S. International Merchandise Trade, by Value and Weight, 2002**

| Rank, by Value | Rank, by Weight | Air Gateway                              | Value (billion \$) | Weight (million kg) |
|----------------|-----------------|--|--------------------|---------------------|
| 1              | 1               | J.F.K. International Airport, New York   | 112.7              | 1,102.7             |
| 2              | 3               | Los Angeles International Airport, CA    | 60.6               | 763.3               |
| 3              | 5               | San Francisco International Airport, CA  | 49.7               | 317.8               |
| 4              | 2               | Chicago, IL                              | 47.8               | 768.4               |
| 5              | 7               | New Orleans, LA                          | 26.6               | 219.0               |
| 6              | 8               | Anchorage, AK                            | 22.7               | 205.8               |
| 7              | 4               | Miami International Airport, FL          | 21.1               | 717.1               |
| 8              | 9               | Dallas-Fort Worth, TX                    | 19.7               | 159.6               |
| 9              | 6               | Atlanta, GA                              | 17.5               | 291.4               |
| 10             | 10              | Cleveland, OH                            | 16.4               | 139.4               |
| 11             | 25              | San Juan International Airport, PR       | 8.7                | 21.7                |
| 12             | 15              | Philadelphia International Airport, PA   | 8.7                | 83.2                |
| 13             | 13              | Logan Airport, Boston, MA                | 8.5                | 93.2                |
| 14             | 11              | Newark, NJ                               | 8.3                | 124.7               |
| 15             | 12              | Houston Intercontinental Airport, TX     | 7.4                | 107.7               |
| 16             | 16              | Seattle-Tacoma International Airport, WA | 7.3                | 75.5                |
| 17             | 14              | Washington, D.C.                         | 6.3                | 86.7                |
| 18             | 30              | Oakland, CA                              | 3.0                | 14.2                |
| 19             | 17              | Detroit, MI                              | 2.7                | 75.1                |
| 20             | 19              | Indianapolis, IN                         | 2.7                | 36.8                |
| 21             | 23              | Cincinnati-Lawrenceburg, OH              | 2.6                | 26.1                |
| 22             | 22              | Memphis, TN                              | 2.6                | 28.4                |
| 23             | 18              | Honolulu International Airport, HI       | 2.6                | 39.2                |
| 24             | 28              | Nashville, TN                            | 2.5                | 14.8                |
| 25             | 20              | Huntsville, AL                           | 2.3                | 32.3                |
|                |                 | Total, top 25 airports                   | 471.2              | 5,544.1             |
|                |                 | Total, airborne trade                    | 498.5              | 5,869.1             |

SOURCE: MISER Port SITC database.

collective volume accounts for less than 1 percent of California's air trade.<sup>1</sup>

In 2002, the Los Angeles International Airport (LAX) handled 68 percent, by weight, of all trade through California's airports, and just over half by value. Goods shipped through LAX are dominated by

<sup>1</sup>Listed in order of their volume in 2002, they are San Jose International Airport, San Diego International Airport, Sacramento International Airport, Southern California Logistics Airport VI, Ontario International Airport, and the San Bernardino International Airport.

electronic integrated circuits, computers and parts, and parts for aircraft and spacecraft. Exports through LAX slightly exceed imports. The primary markets for these products are in Asia, particularly, Japan, South Korea, and Taiwan.

Trade through the San Francisco International Airport (SFO), although smaller in volume than that through LAX, is very similar in its product and partner country composition. Differences include the absence of aircraft and parts from SFO exports and a much larger role played by electronic integrated circuits in both imports and exports. Japan, South Korea, and Taiwan are again the top three trading partners for goods through SFO.

The volume of trade handled at the Oakland International Airport (OAK) is significantly less than that of the other major California airports. Part of the reason for its small size is that OAK is focused almost entirely on exports. In 2002, \$2.9 billion in U.S. exports and \$121 million in imports passed through OAK. As with LAX and SFO, exports through Oakland are dominated by electronic integrated circuits, which account for more than one-half of the total. The remainder consists of small amounts of computer and office equipment, measuring and controlling devices, medical instruments and supplies, and aircraft and parts. Trade through OAK is primarily with Japan, Hong Kong, and Taiwan.

Other airports in California handle very small amounts of trade. As a group, they receive greater quantities of imports than exports, with most of the trade consisting of electronic components, aircraft and parts, and computer and office equipment. Japan is the primary source of both imports and exports for these airports, and nontraditional countries make up much of the rest. For example, in 2002, Kazakhstan was the number two destination for exports, whereas Italy and Brazil were the number two and number three sources of imports into these airports, respectively. The exports to Kazakhstan appear to be a one-off shipment of spacecraft and spacecraft launch vehicles through the San Jose International Airport. Coincidentally, the imports from Italy were also spacecraft and spacecraft launch vehicles.

The primary issues constraining California's airports revolve around congestion beyond the airport gate and limitations on the expansion of

facilities. Congestion surrounding the airports results from factors outside the airports' control. For LAX and SFO, the primary constraint is passenger traffic on nearby highways. In both cases, the primary highways providing access to the airports are major commuter thoroughfares. In the case of SFO, it is federal highway 101, which links the peninsula and Silicon Valley to San Francisco. In Los Angeles, Interstates 105 and 405 provide the most direct access to the airport, but both are used heavily by passenger as well as commercial vehicles. The Oakland International Airport is similarly constrained by external traffic congestion, but the primary cause of its congestion is its proximity to the Port of Oakland and its associated truck traffic.

The inability to expand airport facilities poses an even greater constraint on airport operations. All three airports are bounded on one side by water. Residential developments surround them on other borders, and each airport has confronted community concerns over noise levels. Expansion seaward is technically possible only for SFO and OAK. SFO has developed plans to expand seaward, but the plans have generated concerns regarding the environmental impact on the greater San Francisco Bay. Oakland has not developed such plans but has instead focused on developing more of the land already under its control. This effort has also been stalled by environmental impact concerns as much of the undeveloped area is categorized as wetlands.

## Seaports

California's seaports are the heavy lifters of California's global gateways. Table 2.2 describes the top 25 U.S. maritime ports, ranked by value, four of which are in California. Los Angeles and Long Beach top the list in value terms, although both are much further down the list in weight terms. Gulf Coast ports are oriented toward handling bulk commodities, especially crude oil, whereas the California ports handle a much higher fraction of high-value manufactured trade, resulting in a lower volume by weight. Los Angeles, Long Beach, Oakland, and Port Hueneme handled 42 percent of all containers moved through U.S.

**Table 2.2**  
**Top 25 U.S. International Maritime Ports, by Value and Weight, 2001**

| Rank, by Value | Rank, by Weight | Maritime Port           | Value (million \$) | Weight (million kg) |
|----------------|-----------------|-------------------------|--------------------|---------------------|
| 1              | 7               | Los Angeles, CA         | 104.2              | 41.9                |
| 2              | 9               | Long Beach, CA          | 94.7               | 40.0                |
| 3              | 3               | New York, NY            | 85.9               | 71.7                |
| 4              | 1               | Houston, TX             | 44.5               | 118.2               |
| 5              | 22              | Charleston, SC          | 33.4               | 16.1                |
| 6              | 25              | Seattle, WA             | 28.6               | 13.4                |
| 7              | 24              | Oakland, CA             | 25.0               | 14.8                |
| 8              | 15              | Norfolk, VA             | 24.9               | 22.5                |
| 9              | 13              | Baltimore, MD           | 20.8               | 23.3                |
| 10             | 28              | Tacoma, WA              | 18.7               | 10.4                |
| 11             | 23              | Savannah, GA            | 17.2               | 15.1                |
| 12             | 4               | New Orleans, LA         | 17.0               | 65.3                |
| 13             | 38              | Miami, FL               | 16.6               | 5.6                 |
| 14             | 31              | Jacksonville, FL        | 10.8               | 9.3                 |
| 15             | 27              | Portland, OR            | 10.7               | 12.3                |
| 16             | 34              | Port Everglades, FL     | 10.3               | 7.8                 |
| 17             | 2               | Port of South LA        | 10.0               | 75.4                |
| 18             | 10              | Philadelphia, PA        | 10.0               | 36.8                |
| 19             | 6               | Morgan City, LA         | 7.8                | 47.7                |
| 20             | 5               | Corpus Christie, TX     | 7.7                | 48.8                |
| 21             | 8               | Beaumont, TX            | 7.7                | 41.2                |
| 22             | 26              | Boston, MA              | 6.1                | 12.7                |
| 23             | 17              | Christiansted, VI       | 5.8                | 21.9                |
| 24             | 21              | Wilmington, DE          | 5.7                | 16.6                |
| 25             | 85              | Port Hueneme, CA        | 4.8                | 1.0                 |
|                |                 | Total, top 25 ports     | 628.8              | 789.8               |
|                |                 | Total, waterborne trade | 719.2              | 1,160.6             |

SOURCE: U.S. Department of Transportation, *Waterborne Databank*.

seaports, turning them over at a rate of 20,760 20-foot-equivalent units (TEUs) per day.<sup>2</sup>

The top ten container ports handle 83 percent of all U.S. trade, a substantial increase over even the recent past. The driving force behind this concentration is the growing size of container ships. As ships grow

<sup>2</sup>Container data are taken from U.S. Department of Transportation, *U.S. International Trade and Freight Transportation Trends* (2003).

larger, there are fewer ports deep enough or capable of providing the larger cranes, berths, and storage yards necessary to handle them. This concentration, in turn, creates growing congestion inland of these megaports. Inland investments, such as the Alameda Corridor in Southern California and the FAST Corridor in Washington, become necessary to handle the increased traffic.

The Ports of Los Angeles and Long Beach occupy contiguous spaces on San Pedro Bay; together they form the third-largest port in the world, handling 10.5 million containers in 2002. These ports are primarily used for importing: Imports arriving in San Pedro Bay outstrip exports by a ratio of almost seven to one.<sup>3</sup> These ports handle primarily containerized cargo but continue to accept cargo in bulk, break-bulk, and ro-ro ("roll-on, roll-off") forms. Increasingly, the ports find noncontainerized cargo to be unprofitable because land is at a premium and noncontainerized cargo is land-intensive. (Containers are packed more densely and can be stacked to yield much more efficient land use.) Noncontainerized cargos, such as automobiles, are increasingly being displaced to nearby ports such as Port Hueneme and San Diego.

China and Japan are the primary sources of imported products, accounting for nearly 60 percent of all imports. Imports from China have the largest share at more than 37 percent. Other significant sources of supply include Taiwan and South Korea. Imported goods are heavily dominated by motor vehicles and equipment and computer and office equipment. Also important are toys, sporting goods, and household audio and video equipment. Exports through these ports are similarly destined for Japan and China, with Japan absorbing more than 24 percent and China 12 percent. Australia, Hong Kong, and Taiwan are also important export markets. Primary export goods are plastic materials and synthetics, industrial organic chemicals, and meat products.

Between 50 and 60 percent of all shipments arriving at these ports are bound for points beyond the local area. This means that cargo beginning at San Pedro Bay must transit a massive and crowded

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<sup>3</sup>The numbers of containers arriving at and departing from these ports are almost equal, with many containers departing empty.

metropolis to reach its ultimate destination. Further, the majority of goods are transported through the port's gates and to points inland on the bed of a truck. As a consequence, traffic from the port generates substantial congestion, with the I-710 Corridor heavily populated with trucks pulling containers. Passenger travel through this corridor is adversely affected in terms of speed, safety, and general driver comfort.<sup>4</sup> Congestion is also a serious problem on local streets because of the rail traffic into and out of the port. Opening the Alameda Corridor has significantly reduced this burden but has not led to a significant reduction of truck traffic through the ports (see Box 2.1).

Port traffic also contributes to substantial air pollution, both directly from trucks entering and exiting the plants and indirectly from idling cars stuck in the traffic congestion these trucks create. As one prong of an attack on this problem, the Port of Los Angeles is considering a terminal capable of storing liquefied natural gas. Over time, the conversion to trucks powered by liquid natural gas could help alleviate the direct, if not the indirect, pollution problem.

The Port of Oakland is the 7th largest U.S. port by value. It handles exclusively containerized cargo with 1.7 million TEUs passing through it in 2002, making it the 4th largest U.S. container port. Relative to other large ports in the state, the Port of Oakland has relatively balanced trade flows, with loaded containers for export exceeding containers for import by about one-third. A partial explanation for the preponderance of exports shipped out of Oakland results from common shipping patterns. A common routing is for a ship from Asia to unload first at either Los Angeles or Long Beach and then to head north to Oakland. This practice is beneficial for two reasons. First, organizing imports and exports on the same ship is logistically difficult—it is much easier to load the exports once all of the imports have been unloaded. Second, delivering goods directly to Oakland reduces shipment delays associated with making a second port call.

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<sup>4</sup>The Southern California Association of Governments (SCAG) has estimated that travel on some highways in the Los Angeles region is slowed by more than 60 percent because of port traffic.

### Box 2.1

#### The Alameda Corridor

The Alameda Corridor is a 20-mile-long series of bridges, underpasses, overpasses, and trenches that links the Ports of Los Angeles and Long Beach to the transcontinental rail yards in downtown Los Angeles. Construction was initiated in April 1997 and completed in April 2002. The corridor replaces over 90 miles of branch railroad lines, combining them into a single 20-mile expressway, including the 10-mile Mid-Corridor Trench that lies entirely below street level.

The corridor was meant to increase the efficiency of the cargo distribution system beyond the fences of the San Pedro Bay ports. Such efficiency enhancements were crucial in light of the growing flow of internationally traded goods that transit through the region. According to James C. Hankla, CEO of the Alameda Corridor Transit Authority (Hankla, n.d.),

The purpose [of the Corridor] is not to reduce truck traffic on local freeways. The principal market for the Alameda Corridor is cargo bound for or originating in markets outside of Southern California—approximately half of the cargo handled by the ports. The other half of the cargo is bound for or originates in Southern California, and those containers are transported principally by truck.

The corridor has been relatively successful. By eliminating conflicts with surface streets at 200 street-level rail crossings, it has cut the transit time between the ports and the rail yard in half. In the process, it has slashed emissions from idling cars, trucks, and locomotives. The Alameda Corridor currently handles 35 train movements daily, carrying approximately 36 percent of all containers transiting the ports. By 2020, the corridor is expected to handle over 100 train movements, approaching a capacity of 150 movements per day.

The corridor was built at a cost of \$2.4 billion. These funds were raised through a public-private partnership, with most of the funds coming from a \$1.165 billion bond issue. Much of the rest came in roughly equal shares in the form of loans from the federal government, grants from the Ports of Los Angeles and Long Beach, and funds from the Los Angeles County Metropolitan Transportation Authority. The debt will be retired through the collection of fees of containers originating or terminating at the San Pedro Bay port facilities.

The fees are determined by the Alameda Corridor Transportation Authority (ACTA) and are to be in effect for 35 years. Currently, the fee is approximately \$15 for a loaded 20-foot equivalent container and \$4 dollars for a similar container if it is either empty or not for waterborne use. Through May 2003, ACTA has assessed the railroads approximately \$60.9 million on 4.6 million 20-foot equivalent container units. The revenue from fees is consistent with initial projections, so the corridor appears to be on schedule for the repayment of its debts.

SOURCES: Alameda Corridor Transportation Authority (1998, 2003); Melendres (2003).

Trade through the Port of Oakland is primarily with China (including Hong Kong) and Japan. Together, they account for more than half of all exports and half of all imports. Other major markets on the export side include South Korea and Taiwan. The largest non-Asia destination for exports through the port is the United Kingdom, which accounts for slightly less than 4 percent by volume. On the import side, Australia, Thailand, and Taiwan are important sources. The Netherlands, Italy, and France are the largest sources outside Asia, accounting for slightly less than 3 percent of imports by volume.

The primary item exported through the Port of Oakland in 2002 was waste paper, accounting for just over 19 percent of the volume of all exports. Animal feeds, red meat, and wine are also exported through the port in significant volumes. The vast majority of exported products originate in California, primarily in the San Francisco Bay region but also in the northern part of California's Central Valley. Imports were led by auto parts, iron and steel, and wood and wood products other than furniture. The auto parts were largely destined for the New United Motor Manufacturing, Inc. (NUMMI) plant just north of San Jose on the eastern side of the San Francisco Bay. NUMMI is a joint venture between General Motors and Toyota Motor Corporation.

Although the port has a significant intermodal facility on site, most shipments enter and exit the port by truck. Ninety percent of imported products are shipped inland by truck, indicating that goods are largely destined for locations within 700 miles of Oakland. As is the case with the Ports of Los Angeles and Long Beach, a major metropolitan area lies between the port and the origin or destination of most shipments. Consequently, pollution and congestion on local highways are increasingly problematic. Two potential solutions to crowding have been suggested by the port management. The first involves transporting containers by barge to or from the Stockton area for further distribution. The second is to implement short-haul rail service between the port and an inland distribution center. Desirable locations for an inland port are somewhere in the Central Valley between Stockton and Fresno. Such an inland port would dramatically reduce truck traffic in the broader Oakland region.

More immediate opportunities for the port, however, lie entirely within its gates. These include dredging, expanding landside space, and updating existing facilities. A dredging project in progress will deepen the shipping channel to just over 50 feet. This depth is necessary to make the port accessible to the latest generation of shipping vessels. The opportunities for expanding existing land space are limited at the Port of Oakland. The port is in the process of turning the former Oakland army base into useful space, but further expansion is severely limited, primarily by I-880, which delineates the eastern boundary of the port. Updating these facilities takes other forms as well: One wharf is supported by wood beams, which are neither practical nor environmentally sound, and other wharves lack the technology to make efficient use of the available land.

The Port of Hueneme is considerably smaller than its nearby cousins to the south. Its low volume is primarily due to the commodities it handles. A so-called "niche" port, Hueneme primarily handles five products: citrus and collectible automobiles exports and banana, pineapple, and automobile imports. Hueneme is the most active California port for shipping automobiles, including those produced by BMW, Jaguar, Land Rover, and Mazda. Despite its relatively modest and highly constrained size, the Port of Hueneme grew rapidly during the 1990s, almost tripling both the value and weight of cargo handled between 1990 and 2001. The value of imports transiting Hueneme, as with that for the ports on San Pedro Bay, vastly exceeds the value of exported products. This imbalance arises primarily from the high value of imported automobiles relative to the low value of exported citrus products.

Unlike the larger ports on San Pedro and San Francisco Bays, however, Port Hueneme is significantly more constrained inside the fence than out. Although located on a sizeable inlet, the port shares the available wharf space with the Port Hueneme Navy base. However, the prospects for expansion are favorable, given a new round of base relocation and conversion (BRAC) negotiations to be launched by the federal government next year. The wharfage provided by the base is underused, so some handover to the port seems likely. Congestion outside the port is much less pressing. Relatively low volumes move through the port, the neighboring urban area is small, and the movement

of goods by truck and rail to major transit routes is generally unobstructed.

A significant project currently under way will improve the intermodal land access between the port and major transportation arteries. This \$88.4 million access project has been partially completed with over \$44 million in state, local, and federal formula funds provided under both the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21). Following the completion of this project, other needs remain, including the construction of an on-dock intermodal rail yard, the widening of some local roads, and a grade separation for improved rail and truck freight movement.

The depth of the channel is currently 35 feet, which significantly limits the size of vessels that call on the port. Only refrigerated vessels, ro-ros, and first- and second-generation container vessels are within this range. Dredging could expand the fleet of ships that could access Hueneme, and the port has recently purchased its first container crane. Unlike many major ports, the inlet is not at the mouth of a river, reducing the need for regular dredging.

The remaining seaports collectively handle trade valued at about 10 percent of either of the San Pedro Bay ports. Approximately 36 percent of this trade is with Japan. Imports are highly concentrated in the motor vehicles and equipment category in addition to crude petroleum and natural gas. Exports consist of a wide variety of products, with no one category standing out. As is the case with most California ports, exports are far outpaced by imports, both by value and by volume.

## Land Gateways

California has four significant international land border crossings. They are, from west to east, San Ysidro, Otay Mesa, Tecate, and Calexico. Of these, San Ysidro accommodates the smallest volume of trade and Otay Mesa and Calexico handle the largest volume (Table 2.3). The largest California land gateway, Otay Mesa Station, ranks sixth in the country, well behind the major access points to Canada (Detroit, Port Huron, and Buffalo) and to Mexico (Laredo and El Paso). Of the

Table 2.3

## Top 25 Land Ports for North American Merchandise Trade, 2002

| Rank, by Value | Land Ports                                  | Value (billion \$) |
|----------------|---|--------------------|
| 1              | Detroit, MI                                 | 100.8              |
| 2              | Laredo, TX                                  | 79.3               |
| 3              | Port Huron, MI                              | 57.4               |
| 4              | Buffalo-Niagara Falls, NY                   | 55.1               |
| 5              | El Paso, TX                                 | 38.5               |
| 6              | Otay Mesa Station, CA                       | 20.4               |
| 7              | Champlain-Rouses Pt., NY                    | 14.8               |
| 8              | Hildago, TX                                 | 12.7               |
| 9              | Blaine, WA                                  | 11.4               |
| 10             | Nogales, AZ                                 | 10.8               |
| 11             | Alexandria Bay, NY                          | 10.7               |
| 12             | Brownsville-Cameron, TX                     | 10.3               |
| 13             | Pembina, ND                                 | 8.7                |
| 14             | Calxico-East, CA                            | 8.4                |
| 15             | Sweetgrass, MT                              | 7.5                |
| 16             | Eagle Pass, TX                              | 6.1                |
| 17             | Portal, ND                                  | 6                  |
| 18             | Highgate Springs-Alburg, VT                 | 4.7                |
| 19             | Int. Falls-Ranier, MN                       | 4.5                |
| 20             | Eastport, ID                                | 4.2                |
| 21             | Chicago, IL (customs district) <sup>a</sup> | 2.9                |
| 22             | Calais, ME                                  | 2.7                |
| 23             | Del Rio, TX                                 | 2.7                |
| 24             | Great Falls, MT                             | 2.3                |
| 25             | Burlington, VT                              | 2.1                |
|                | Total, top 25 land ports                    | 485                |
|                | U.S. North American trade                   | 539.6              |

SOURCE: U.S. Department of Transportation, *Transborder Surface Freight Database* (2002).

<sup>a</sup>Nonborder ports with low activity are combined at their parent customs district.

\$541 billion of international trade that passed through a U.S. land border in 2002, only \$29 billion made use of California's gateways.

Although it seems that California would have a natural advantage for Mexican trade, a large fraction of this trade takes place through Texas. This is likely because these goods are bound for the Midwest or Eastern states, and Texas presents the more direct routing. It is also the case that the primary port of embarkation for Mexican exports to Asia is Houston,

not Los Angeles. The infrastructure for delivery to Houston from much of Mexico is more advanced than it is south of the California border.

Table 2.4 further sorts land access into truck and rail traffic.<sup>5</sup> Nearly all the flows transiting to and from Mexico come via truck. Unlike air and ocean modes, and to a lesser degree rail, trucking does not exhibit the same degree of geographic concentration. Air, sea, and rail require substantial infrastructure and are therefore arranged around central hubs. Hubs are important because they attract ancillary industries, such as warehousing, as well as manufacturers seeking easy access to the hub. In contrast, trucking takes place on a far smaller scale, allowing greater dispersion of ancillary industries and manufacturing. In short, California ranks low as a truck gateway to Mexico, but truck gateways are far less important than air and ocean gateways as generators of spillover benefits.

Trucking far outweighs rail at California's land gateways, but this is not because there are no significant congestion issues: quite the contrary. Otay Mesa, the largest truck gateway, has almost legendary congestion issues, with trucks sitting idle for the better part of a day on some occasions. This congestion goes both ways, north and south, as many empty containers return to Mexico for another load. Calexico suffers from similar problems but to a lesser degree.

Goods transiting U.S. land borders by rail are far outnumbered by those carried by truck, and this is especially true for goods passing through California's land gateways. Less than one-fifth of 1 percent of all rail-based land trade across U.S. borders occurs in California. Further, less than 1 percent of U.S. land trade by rail with Mexico occurs at a California gateway. Although this small fraction currently has as much to do with infrastructure investments deep in Mexico as it does with constraints at the border, rail infrastructure at the border is in need of significant improvement. In particular, the primary rail line through San Ysidro flows directly through downtown San Diego, slowing progress significantly.

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<sup>5</sup>Trade does flow through land gateways via other modes of transportation, for example, pipeline. However, this flow is less than 10 percent of all U.S. land-based trade and accounts for only trace amounts of trade through California's land gateways.

**Table 2.4**  
**California and Top Five Land Ports for North American Merchandise Trade**  
**by Truck and Rail, 2002**

| Rank in 2002 | U.S. Port                 | Annual Trade Value (million \$) | Value per Day (million \$) | Annual Incoming Truck Crossings or Rail Containers | Truck Crossings or Rail Container/Entries per Day |
|--------------|---------------------------|---------------------------------|----------------------------|--|---|
| <b>Truck</b> |                           |                                 |                            |  |   |
|              | U.S. North American trade | 397,763                         | 1,090                      | 11,342,566   | 31,076  |
| 1            | Detroit, MI               | 85,062                          | 233                        | 1,670,565  | 4,577   |
| 2            | Laredo, TX                | 55,801                          | 153                        | 807,291  | 2,212   |
| 3            | Buffalo-Niagara Falls, NY | 43,732                          | 120                        | 1,208,095  | 3,310   |
| 4            | El Paso, TX               | 35,094                          | 96                         | 705,199  | 1,932   |
| 5            | Port Huron, MI            | 32,876                          | 90                         | 907,729  | 2,487   |
| 6            | Otay Mesa Station, CA     | 20,368                          | 56                         | 731,291  | 2,004   |
| 13           | Calexico, CA              | 8,281                           | 23                         | 276,390  | 757   |
| 28           | Tecate, CA                | 950                             | 3                          | 57,655   | 158   |
| <b>Rail</b>  |                           |                                 |                            |  |   |
|              | U.S. North American trade | 91,875                          | 252                        | 2,427,298  | 6,650   |
| 1            | Laredo, TX                | 23,265                          | 64                         | 296,782  | 813   |
| 2            | Port Huron, MI            | 22,376                          | 61                         | 424,635  | 1,163   |
| 3            | Detroit, MI               | 15,607                          | 43                         | 293,300  | 804   |
| 4            | Buffalo-Niagara Falls, NY | 8,786                           | 24                         | 149,359  | 409   |
| 5            | Int. Falls-Ranier, MN     | 4,093                           | 11                         | 238,515  | 653   |
| 23           | Calexico, CA              | 128                             | 0                          | 5,549  | 15  |
| 25           | San Ysidro, CA            | 66                              | 0                          | 3,548  | 10  |
| 104          | Tecate, CA                | (a)                             | 0                          | 1,635 <sup>b</sup>                                 | 4   |

SOURCES: Trade value data are from U.S. Department of Transportation, *Transborder Surface Freight Database* (2002). Crossings data are from U.S. Department of Transportation, *Border Crossings Data* (2002).

NOTE: Nonborder ports with low activity are combined at their parent customs district.

<sup>a</sup>Value is less than \$500,000.

<sup>b</sup>Does not include empty containers.

### 3. California as an Entrepôt

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The previous chapter explored the flows of internationally traded goods through California's gateways. Some of these flows come from California itself, which is both a significant source of U.S. exports and a consumer of imports. Of course, inland states wishing to import or export via ocean vessels must first send goods through coastal states to reach ports. Trade flows involving inland states represent a significant portion of the cargo handled in California's gateways. Over half the cargo moving through the Ports of Los Angeles and Long Beach is either destined for, or originates in, other parts of the country. This makes California a kind of international trade entrepôt, or distribution center, for other states.

California's entrepôt status generates economic benefits and costs. The benefits take the form of direct employment in the transportation sector as well as indirect employment in ancillary industries and manufacturing supported by the ports. The costs involve the provision and maintenance of transportation infrastructure, congestion, and pollution. User fees and federal funding offset some of the infrastructure costs, but congestion and pollution costs are largely uncompensated.

Of course, some internationally traded goods produced and consumed in California are shipped through other states as well. As surely as trade through California burdens residents here, California's trade through other states imposes a burden on others. This chapter provides an accounting of the shipping services surplus or deficit between California and the other states in the continental United States.<sup>1</sup>

A "shipping services surplus" measures the extent to which one state provides more shipping services to another state than it receives in return.

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<sup>1</sup>This chapter is drawn from Haveman (2003b), which includes detailed methodological notes, data sources, breakdowns by industrial sector, and complete tables by state.

The tabulation of this surplus considers both imports and exports, implying four components to the calculation. From California's perspective, these components include

- Exports flowing through California that originate in some other state,
- Exports flowing out of California but leaving U.S. shores from a portal in another state,
- Imports arriving in California that are ultimately destined for use in another state, and
- Imports destined for use in California but that first arrived on U.S. shores in another state.

This calculation omits both California exports that go abroad without traveling through another state and imports into California that are absorbed by consumers and producers in California.

In what follows, we present an overview of California's international freight-related shipping services balance. This overview is followed by separate presentations of the contribution of exports and imports to the services balance. In each case, we present evidence on the balance by value and weight. The balance by value indicates the level of economic activity that is supported by this trade, whereas the balance by weight is a better indicator of the actual burden placed on infrastructure resources.

### **Overall Shipping Services Balance**

In 2000, \$297.4 billion worth of traded goods entered California with an ultimate source or destination outside the state. This figure represents some 111 billion kilograms, or approximately 3.2 percent of the weight of all freight shipped through the state. When California's trade through other states is factored in, California's gateways handled some \$177 billion worth of goods weighing in at over 32 billion kilograms in excess of what Californians demand from other states (Table 3.1). The majority of this shipping surplus arose from the transshipment of imported products. Almost 90 percent, or \$156 billion, of the \$177 billion surplus came from imports. By weight, imported products account for two-thirds, or 22 billion kilograms, of the 32 billion kilogram imbalance.

**Table 3.1**  
**California's Aggregate International Trade-Related Shipping**  
**Services Surplus, 2000**

|                 | Shipments for<br>California Through<br>Other States <sup>a</sup> | Shipments for Other<br>States Through<br>California <sup>b</sup> | Shipping<br>Services<br>Surplus |
|-----------------|--|--|---------------------------------|
| Billion dollars |  |  |                                 |
| Exports         | 29.1   | 49.4   | 20.3                            |
| Imports         | 91.8   | 248.0  | 156.2                           |
| Total           | 120.9  | 297.4  | 176.5                           |
| Billion kg      |  |  |                                 |
| Exports         | 9.9  | 20.5   | 10.6                            |
| Imports         | 68.2   | 90.0   | 21.8                            |
| Total           | 78.1   | 110.5  | 32.4                            |

<sup>a</sup>These figures include both imports for Californians that arrive on U.S. shores in other states and California exports that depart from U.S. shores via port facilities in other states.

<sup>b</sup>Similarly, the figures in this column also account for both imports arriving in California and exports departing through California ports.

To put this surplus in perspective, we compare the flows presented above to total freight shipments in California. From U.S. Department of Transportation (2002a), we are able to generate figures for both the total value and weight of all freight shipments making use of California's infrastructure. The data there indicate total shipments originating in and destined for California in 1997. These figures are not directly comparable to those in Table 3.1, which are for 2000. Instead, we assume that freight shipments involving California grew at the same rate as gross state product for the United States as a whole between 1997 and 2000. After making this adjustment, we estimate that total freight shipments through California totaled \$1,908 billion and weighed a total of 1,757 billion kilograms. Accordingly, the shipping services surplus for California amounted to 9.3 percent of the total value and 1.8 percent of the weight of all goods placing demand on California's infrastructure.

Servicing this traffic is costly to California, particularly when the modes of transportation employed are financed in large part from state

Table 3.2

Shipping Services, by Mode of Transportation

| Mode                | By Value (million \$) |              |                           | By Weight (million kg) |              |                           |
|---------------------|-----------------------|--------------|---------------------------|------------------------|--------------|---------------------------|
|                     | Shipments for         |              | Shipping Services Surplus | Shipments for          |              | Shipping Services Surplus |
|                     | California            | Other States |                           | California             | Other States |                           |
| Total               | 121,021               | 297,509      | 176,488                   | 78,097                 | 110,537      | 32,440                    |
| Air                 | 6,337                 | 16,006       | 9,669                     | 4                      | 12           | 8                         |
| Rail                | 5,899                 | 9,554        | 3,655                     | 3,816                  | 3,147        | -669                      |
| Truck               | 81,607                | 201,985      | 120,378                   | 73,116                 | 106,151      | 33,035                    |
| Parcel              | 17,600                | 50,192       | 32,592                    | 68                     | 200          | 132                       |
| Water               | 1,176                 | 1,451        | 275                       | 425                    | 397          | -28                       |
| Pipeline            | 695                   | 714          | 19                        | 246                    | 216          | -30                       |
| Rail and water      | 59                    | 37           | -22                       | 56                     | 34           | -22                       |
| Truck and rail      | 1,584                 | 3,263        | 1,679                     | 7                      | 12           | 5                         |
| Truck and water     | 65                    | 121          | 56                        | 0                      | 0            | 0                         |
| Other multiple mode | 11                    | 12           | 1                         | 0                      | 0            | 0                         |
| Other unknown       | 5,988                 | 14,173       | 8,185                     | 358                    | 369          | 11                        |

resources. Table 3.2 presents a decomposition of the surplus by mode of transportation. Both by value and by weight, the majority of the surplus is shipped by truck. Trucking is likely to be the most costly form of transport for a state to bear, given that it is the most heavily supported by state resources.<sup>2</sup> A larger proportion of air transportation infrastructure is borne by the federal government, and the rail system is largely privately owned and operated. Likewise, the costs of intrastate transportation by water are largely borne by those engaged in the activity rather than by the state. Given the composition of the shipping surplus by mode, this service to other states is likely to be very costly for California.

All states are not uniformly engaged in international trade, and it is therefore helpful to assess the sources of the imbalance on a state-by-state basis. Table 3.3 lists the states with which California has the largest surpluses and deficits, by weight. In all, there are 38 states with which California maintains a surplus. This surplus is particularly significant for five states: Ohio, North Carolina, New Jersey, Illinois, and Indiana. The imbalances with these states are largely the result of an imbalance with respect to imports. Three of these are large inland states, and the flow of imports that enter through California and find their way to these states is substantial. Conversely, both the value and weight of imports that are used by California that first arrive in these states are very small.

California runs a deficit with the remaining ten states in the continental United States. The deficits with two states in particular are sizable. Louisiana and New York combined account for almost 14 billion kilograms of deficit, implying that they service substantially more trade for California than California services for them. These states both receive significant volumes of imports, which is the driving force behind this imbalance.

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<sup>2</sup>U.S. Department of Transportation, *Government Transportation Financial Statistics 2001* (2001), provides great detail on transportation expenditures by mode and by state. On a ton-mile basis, trucking received 200 times the government expenditures than did rail. Data on relative expenditures for the other modes are much more difficult to come by. By ton shipped, highway expenditures were five times those for water transportation. A comparison by air is complicated by expenditures on passenger travel facilities.

Table 3.3  
Selected Shipping Services Balances, by State

| State          | By Value (million \$)                         |   |                           | By Weight (million kg)                        |   |                           |
|----------------|---|---|---------------------------|---|---|---------------------------|
|                | Shipments for California Through Other States | Shipments for Other States Through California | Shipping Services Surplus | Shipments for California Through Other States | Shipments for Other States Through California | Shipping Services Surplus |
|                | Total   | 121,021                                       | 297,509                   | 176,488                                       | 78,097  | 110,537                   |
| Ohio           | 5,574   | 14,362  | 8,788                     | 1,012   | 5,315   | 4,302                     |
| North Carolina | 324   | 9,238   | 8,914                     | 254   | 3,933   | 3,679                     |
| New Jersey     | 1,231   | 9,850   | 8,619                     | 626   | 3,844   | 3,218                     |
| Illinois       | 4,699   | 16,192  | 11,493                    | 2,282   | 5,285   | 3,002                     |
| Indiana        | 615   | 8,489   | 7,873                     | 100   | 3,081   | 2,981                     |
| Montana        | 1,075   | 568   | -507                      | 1,509   | 292   | -1,217                    |
| Michigan       | 14,726  | 14,504  | -221                      | 6,085   | 4,675   | -1,410                    |
| Washington     | 9,331   | 7,060   | -2,271                    | 5,197   | 2,502   | -2,695                    |
| Texas          | 19,502  | 30,718  | 11,217                    | 15,472  | 12,733  | -2,739                    |
| Louisiana      | 7,959   | 4,323   | -3,636                    | 8,955   | 3,134   | -5,821                    |
| New York       | 26,989  | 21,091  | -5,898                    | 14,777  | 6,675   | -8,102                    |

To shed additional light on these patterns, we decompose the shipments into their export and import components. In each case, the state-to-state relationships are disaggregated by mode of transport.

## Exports

This section discusses the extent to which California provides more in the way of export transportation services to other states than it requires in return. This exercise takes into account both goods exported by other states through California and goods exported by California through other states. In fact, a significant proportion of California's exports do not flow directly through a California port. Approximately one-quarter of California's 2001 exports, by value, left U.S. soil by way of a port in some other state.

California is running a significant trade surplus, both by weight and by value, in the provision of export freight transportation services (Table 3.4). On a value basis, exports account for only 12 percent of the total trade shipping surplus, and almost a third of the weight-based surplus.

By value, more than \$20 billion more exports flow through California on their way to foreign shores than California ships through other states.<sup>3</sup> Given California's position on the West Coast of the

Table 3.4  
California's Export Shipping Trade Balance

|                        | California's<br>Exports Through<br>Other States | Other States'<br>Exports Through<br>California | California's<br>Shipping<br>Surplus |
|------------------------|---|--|-------------------------------------|
| By value (billion \$)  | 29.1  | 49.4   | 20.3                                |
| By weight (billion kg) | 9.9   | 20.5   | 10.6                                |

<sup>3</sup>This number may actually understate California's surplus. These statistics are based on a series maintained by the Census Bureau that is referred to as the Origin of Movement series. This series records the location where goods started their export journey, which is often not the same as where they were produced. There is a tendency for shipments to be attributed to California when in fact the goods were manufactured in other states. The same problem arises when calculating the value of California's exports through other states. However, if the same proportion of goods is misclassified regardless of state of origin, the figures for California are understated by a smaller amount than are the figures for other U.S. exports through California and the surplus is understated.

United States, this result is not surprising. Regardless of their state of origin, most goods destined for Asia or the South Pacific by ship will travel through California. According to the U.S. Department of Transportation (2002b), the \$49 billion figure represents approximately 16 percent of all goods shipped to California from other states. Reflecting this significant excess of goods flowing through California over those shipped by California through other states, the surplus is almost 11 billion kilograms by weight.

Table 3.5 provides detail on California's export shipping surplus by mode of transportation. Of a shipping surplus in excess of \$20 billion, just under three-quarters is accounted for by truck, the mode that imposes the greatest cost on a hosting state. Parcel mode is a distant second, followed by air and rail.<sup>4</sup> Other modes, or mode combinations, are rare relative to those four, with correspondingly small trade balances, but all are nonetheless positive. This is also true on a weight basis, with trucking accounting for more than 95 percent of the surplus.

California is a net provider of shipping services to exporters in 39 of the 48 continental states, and the surplus is distributed quite evenly across them. In fact, California runs a trade surplus of over \$1 billion with only one state (Texas) and a deficit of the same size with only one other (Louisiana). Table 3.6 presents greater detail on California's state-to-state export freight balances for those states with the largest surpluses and deficits. By far, the largest amount of state-to-state export swapping is undertaken with Texas. Total export flows between the two states amount to almost \$14 billion. Texas is also the state to which California is the largest net provider of export shipping services. The excess of Texas's exports through California over California's exports through Texas accounts for one-third of California's surplus by value and almost one-quarter of the surplus by weight, more than twice as much as any other state.

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<sup>4</sup>Goods shipped by parcel also travel by truck, air, and rail. As such, the other categories are to some extent understated.

Table 3.5  
Export Balance, by Mode

| Mode                | By Value (million \$)                         |   |                           | By Weight (million kg)                        |   |                           |
|---------------------|---|---|---------------------------|---|---|---------------------------|
|                     | Shipments for California Through Other States | Shipments for States Through California | Shipping Services Surplus | Shipments for California Through Other States | Shipments for Other States Through California | Shipping Services Surplus |
|                     |   |   |                           |   |   |                           |
| Total               | 29,185  | 49,492                                  | 20,308                    | 9,898   | 20,490  | 10,592                    |
| Air                 | 1,690   | 2,647                                   | 957                       | 1   | 2   | 1                         |
| Rail                | 943   | 1,898                                   | 955                       | 263   | 752   | 489                       |
| Truck               | 19,249  | 33,318                                  | 14,069                    | 9,475   | 19,470  | 9,995                     |
| Parcel              | 5,264   | 8,142                                   | 2,878                     | 20  | 30  | 10                        |
| Water               | 226   | 409                                     | 183                       | 70  | 108   | 38                        |
| Pipeline            | 85  | 210                                     | 125                       | 28  | 49  | 20                        |
| Rail and water      | 2   | 6                                       | 5                         | 1   | 6   | 5                         |
| Truck and rail      | 306   | 529                                     | 223                       | 1   | 2   | 1                         |
| Truck and water     | 15  | 28                                      | 13                        | 0   | 0   | 0                         |
| Other multiple mode | 2   | 3                                       | 2                         | 0   | 0   | 0                         |
| Other unknown       | 1,404   | 2,302                                   | 898                       | 39  | 72  | 33                        |

Table 3.6  
Selected California Export Freight Balances, by State

| State          | By Value (million \$)                         |   |                           | By Weight (million kg)                        |   |                           |
|----------------|---|---|---------------------------|---|---|---------------------------|
|                | Shipments for California Through Other States | Shipments for Other States Through California | Shipping Services Surplus | Shipments for California Through Other States | Shipments for Other States Through California | Shipping Services Surplus |
|                | Total   | 29,185  | 49,492                    | 20,308  | 9,898   | 20,490                    |
| Texas          | 3,987   | 9,868   | 5,881                     | 1,407   | 3,699   | 2,291                     |
| Oregon         | 354   | 2,943   | 2,589                     | 308   | 1,153   | 844                       |
| Utah           | 1   | 1,200   | 1,200                     | 0   | 792   | 792                       |
| Arizona        | 388   | 4,761   | 4,373                     | 84  | 857   | 773                       |
| Virginia       | 78  | 1,154   | 1,076                     | 46  | 812   | 766                       |
| North Carolina | 36  | 1,155   | 1,119                     | 63  | 821   | 758                       |
| Washington     | 2,055   | 988   | -1,067                    | 950   | 420   | -530                      |
| New York       | 4,519   | 1,480   | -3,039                    | 1,303   | 523   | -780                      |
| Michigan       | 4,434   | 1,538   | -2,897                    | 1,446   | 566   | -880                      |
| Louisiana      | 4,312   | 849   | -3,463                    | 2,242   | 962   | -1,280                    |

## Imports

Imports are the other side of the trade equation, and they are responsible for the majority of California's overall surplus both by value and by weight. In 2000, California was a net provider of shipping services in the amount of \$156 billion or almost 22 billion kilograms of imports (Table 3.7). Comparing the import figures by value to shipping data from U.S. Department of Transportation (2002a), the \$156 billion in imports handled by California for other states accounts for almost 17 percent of the value but only 3.8 percent of the weight of all goods shipped from California to other states.

As with exports, imports are shipped primarily by truck (Table 3.8). By value, trucking accounts for a little over two-thirds of the shipping services surplus that California holds over other states. By weight, however, trucking makes up the vast majority of imports shipped and is equal to 115 percent of California's import-related shipping services surplus. This surplus in trucking is primarily offset by a deficit in the rail category equal to about 5 percent of the surplus in trucking. Four other categories also have small deficits. Compared to other states' shipments of imported goods, California's imports are more commonly shipped by rail and less commonly shipped by truck.

The distribution of the surplus resulting from the shipment of imported goods is much more even than is the case for exports (Table 3.9). California has a significant surplus with several states and a significant deficit with several others. When the states listed in Table 3.9 are compared to those in Table 3.3, it is clear that the shipment of

Table 3.7  
California's Import Shipping Trade Balance

|                        | California's<br>Imports Through<br>Other States | Other States'<br>Imports Through<br>California | California's<br>Trade<br>Surplus |
|------------------------|---|--|----------------------------------|
| By value (billion \$)  | 91.8  | 248.0  | 156.2                            |
| By weight (billion kg) | 68.2  | 90.0   | 21.8                             |

**Table 3.8**  
**Import Balance, by Mode**

| Mode                | By Value (million \$)                               |   |                                 | By Weight (million kg)                              |   |                                 |
|---------------------|---|---|---------------------------------|---|---|---------------------------------|
|                     | Shipments for<br>California Through<br>Other States | Shipments for<br>Other States<br>Through California | Shipping<br>Services<br>Surplus | Shipments for<br>California Through<br>Other States | Shipments for<br>Other States<br>Through California | Shipping<br>Services<br>Surplus |
|                     | Total   | 91,836  | 248,017                         | 156,180   | 68,199  | 90,047                          |
| Air                 | 4,647   | 13,359  | 8,711                           | 3   | 10  | 6                               |
| Rail                | 4,956   | 7,656   | 2,700                           | 3,553   | 2,395   | -1,158                          |
| Truck               | 62,358  | 168,667   | 106,309                         | 63,641  | 86,681  | 23,040                          |
| Parcel              | 12,336  | 42,050  | 29,713                          | 48  | 170   | 122                             |
| Water               | 950   | 1,042   | 92                              | 355   | 289   | -66                             |
| Pipeline            | 610   | 504   | -106                            | 218   | 167   | -52                             |
| Rail and water      | 57  | 31  | -26                             | 55  | 28  | -26                             |
| Truck and rail      | 1,278   | 2,734   | 1,457                           | 6   | 10  | 5                               |
| Truck and water     | 50  | 93  | 43                              | 0   | 0   | 0                               |
| Other multiple mode | 9   | 9   | 0                               | 0   | 0   | 0                               |
| Other unknown       | 4,584   | 11,871  | 7,287                           | 319   | 297   | -22                             |

Table 3.9

## Selected California Import Freight Balances, by State

| State          | By Value (million \$)                         |   |                           | By Weight (million kg)                        |   |                           |
|----------------|---|---|---------------------------|---|---|---------------------------|
|                | Shipments for California Through Other States | Shipments for Other States Through California | Shipping Services Surplus | Shipments for California Through Other States | Shipments for Other States Through California | Shipping Services Surplus |
| Total          | 91,836  | 248,017                                       | 156,180                   | 68,199  | 90,047  | 21,848                    |
| Ohio           | 1,924   | 12,721  | 10,797                    | 470   | 4,558   | 4,088                     |
| North Carolina | 287   | 8,083   | 7,795                     | 191   | 3,112   | 2,920                     |
| New Jersey     | 961   | 9,096   | 8,135                     | 564   | 3,479   | 2,914                     |
| Indiana        | 84  | 7,433   | 7,349                     | 21  | 2,705   | 2,684                     |
| Illinois       | 4,209   | 13,565  | 9,357                     | 2,202   | 4,519   | 2,317                     |
| North Dakota   | 995   | 504   | -491                      | 1,099   | 198   | -901                      |
| Montana        | 550   | 537   | -12                       | 1,330   | 256   | -1,074                    |
| Washington     | 7,276   | 6,072   | -1,204                    | 4,247   | 2,082   | -2,165                    |
| Louisiana      | 3,647   | 3,473   | -173                      | 6,713   | 2,173   | -4,541                    |
| Texas          | 15,515  | 20,851  | 5,336                     | 14,064  | 9,035   | -5,030                    |
| New York       | 22,470  | 19,611  | -2,859                    | 13,473  | 6,152   | -7,322                    |

imports is driving the overall freight shipping balances between California and other states. The same states are listed here as having the largest import freight shipping surplus as were listed in Table 3.3. In addition, five of the six states listed in Table 3.3 are listed here as having the largest freight shipping deficits with California. North Dakota replaces Michigan in this table, indicating that Michigan services a greater volume of exports for California than does North Dakota.

### Summary and Discussion

California provides shipping services on \$177 billion worth of traded goods for other states in excess of what other states provide for California's international trade activities. Of perhaps greater importance is the finding that, when measured by weight, this surplus amounts to more than 32 billion kilograms of goods shipped via California's transportation facilities. Further, California's highways support a surplus of 33 billion kilograms with other states.

Although both the value and weight of trade with Texas dwarfs the totals of any of California's other bilateral relationships, it is with inland states (such as Ohio, Illinois, and Indiana) that California has a significant shipping surplus. These large states have important industrial sectors and demand significant quantities of imports, much of which enter the United States through ports in California. The surplus is large because none of these states is likely to be the first point of contact for imports to California or the point of departure for exports from California.

By value and weight, imports contributed the most significantly to the surplus. This surplus, along with the fact that most intracontinental shipping takes place on highways, is very important for California. The provision of infrastructure for trucking is, by a significant margin, the most costly in terms of wear and tear on California's infrastructure investments. It is also very costly in terms of the pollution and congestion problems plaguing much of California. Although this surplus represents a relatively small share (1.8 percent by weight) of all shipping that takes place in California, it is highly concentrated on a small number of very important highways. The fact that San Pedro Bay lies on the other side of a vast metropolis from the source or destination of these

goods is especially relevant. The contribution of traded goods to the congestion and pollution problems of the Los Angeles area are significant; the horror stories of congestion on I-710, in particular, are well known throughout the Los Angeles region.<sup>5</sup>

Despite these congestion costs, playing the part of an entrepôt for other states is a mixed bag for California. There are certainly positive elements of the role in the form of greater demand for services provided by Californians. This demand then results in more jobs and tax revenues for the state. At the same time, however, the flow of traded goods through the state imposes an uncompensated burden on the state's residents. Although this discussion is relevant for many states, including inland states through which many traded goods flow, it is decidedly more important for California and other states possessing significant global gateways.

In excess of 10 billion kilograms of exports and 20 billion kilograms of imports travel on a select number of California's highways in excess of what California ships on the highways of other states. Although there are benefits and costs to providing these services, it is reasonably clear that there are uncompensated costs for the state. The total cost of moving goods through Southern California includes the cost of labor and other compensable services provided, in addition to the cost of pollution, congestion, and deterioration of the highways. The benefits, jobs, business profits, and tax revenue are derived from fees paid by shippers for services. The costs of providing this service, then, exceed the benefits received, as pollution, congestion, and highway wear and tear remain uncompensated.

This imbalance between benefits and costs represents a subsidy from the state of California to producers and consumers in other states. This subsidy, when applied to exports, makes it less expensive for producers in other states to make their product available for sale in foreign markets, potentially disadvantaging California producers exporting to those same markets. When applied to imports, this subsidy reduces either the cost

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<sup>5</sup>Approximately 30 percent of the goods arriving at the Ports of Los Angeles and Long Beach now exits the area by way of the Alameda Corridor, which leaves these goods just east of downtown Los Angeles. These goods must still travel by rail through much of the Los Angeles metropolitan region.

to individuals in their consumption of imports or the cost to producers of obtaining intermediate inputs for the production of some good. By artificially lowering the costs of production in other states relative to the costs for California producers, the subsidization of imports is even more likely to disadvantage California producers as it affects competition in domestic markets rather than abroad.

The extent to which the subsidization of imports or exports affects the competitive dynamics between firms depends on the size of the subsidy and the extent to which it is concentrated in specific industries. If it is widely dispersed across industries in other states, then the burden borne by California producers is likely to be small. The overall size of the subsidy, however, is likely to be large and unrelated to its concentration across industries.

In principle, federal highway funds could be used to offset a portion of this subsidy, but federal formulas for the disbursement of those funds do not sufficiently account for the burden of goods movement in allocating these funds across states.<sup>6</sup> Solutions to the burden imposed by pollution and congestion are less clear. Although some form of user fee could be imposed to solve the problem, such fees are historically very difficult to implement politically. Although both of these measures have received some attention, it appears likely that California will have to continue to bear this burden for the foreseeable future.

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<sup>6</sup>See Ransdell and Bolorian (2003) for more on these formulas.

## 4. U.S. Trade Trends

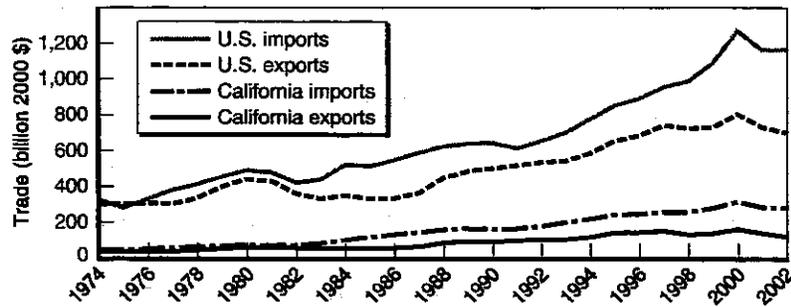
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Because international trade flows determine the demand for services at California's numerous trade gateways, familiarity with trends in this area is critical for thinking about California's trade infrastructure issues. This chapter describes trade trends for California and the United States as a whole, paying particular attention to trade growth and its composition across products, partner countries, and transport modes. Along the way, it emphasizes the implications of these trends for transportation demand and provides important background for the discussion and analysis in subsequent chapters.

### U.S. Trade Growth

In the last three decades of the 20th century, international trade grew rapidly. Between 1974 and 2000, U.S. imports by value quadrupled and exports more than doubled. After accelerating in the 1990s, however, trade growth came to an abrupt halt in 2000 (Figure 4.1).

The lower series in Figure 4.1 show the portion of aggregate trade that flowed through California's gateways. From 1974 to its peak in 2000, trade through California grew from \$71 billion to just over \$460 billion, or nearly one-quarter of all U.S. trade. The rate of increase in imports through California was much more rapid than that of the United States as a whole. By 2000, imports entering California represented a quarter of the U.S. total, increasing particularly quickly between the mid-1980s and the mid-1990s. Exports departing from California also increased faster than those of the United States as a whole, but again, not as rapidly as imports. The trade imbalance we see in the U.S. data is mirrored in the California data, with imports exceeding exports by some \$155 billion in 2000. A striking observation from this chart is the faster growth of aggregate U.S. imports relative to imports through California in the late 1990s. As we will see in the next chapter,



SOURCES: Council of Economic Advisers (2003); U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.

Figure 4.1—Growth in Real U.S. Imports and Exports<sup>1</sup>

this is a result of air trade being diverted away from California's airports resulting in slower growth through these gateways.

During the period depicted in Figure 4.1, U.S. trade flows grew more rapidly than did U.S. gross domestic product. This means that increased trade flows were not directly attributable to increased incomes in the United States. This trade growth has three primary explanations: growth in world income, reductions in tariffs, and improvements in communications and transportation technology. During the 1970s and 1980s, growth outside the United States, and in Asia in particular, exceeded U.S. growth. Although an expansion in world income does not appear to have been a significant driving force behind this growth, trade growth through California between 1985 and 1995 coincided with rapid growth in Asia, a primary source of trade through California's gateways.

Tariffs, or import taxes, raise the cost of imported goods relative to those produced domestically. Historically, tariffs have been an important political barrier to international trade, with U.S. tariff rates as high as 60 percent before World War II. In the postwar era, successive rounds of negotiations through the General Agreement on Trade and Tariffs (GATT), now the World Trade Organization (WTO), have whittled tariffs down to very low levels. U.S. tariffs currently average 1.9 percent.

<sup>1</sup>The import and export value data presented in this report are all presented in constant 2002 dollars. The gross domestic product implicit price index was used as a deflator.

Tariffs in other countries have a similar history, with very high tariffs early in the last century and steady postwar declines. In 1974, tariffs in the major industrial countries averaged 7.1 percent; today, they are less than 2 percent. As the vast majority of U.S. trade is with other industrialized nations, these are the tariffs that shape U.S. trade flows most directly. Average tariffs for all U.S. trading partners are now 3 percent.

Obviously, the actual distance between countries never changes, but improvements in transportation and communications technology reduce the effective distance between them. It is well known how recent changes in communications technology have substantially eased worldwide information exchange. However, these are just the most recent in a long line of innovations with similar effects. On the transportation side, changes in technology and scale have been critical. Two technological changes stand out. The first was the adoption of jet engines in the 1960s, which increased the carrying capacity, range, and speed of commercial aircraft. The second was "unitized" cargo, in which a single storage container is packed once and then moved intact from one mode to the next. This saves considerably on loading and unloading expenses and eases the movement of cargo between modes. Some unitization has occurred with air cargo, but most of the real efficiencies have been in maritime transport with the use of standardized containers and container ships.

Trade growth depends on the costs of transportation, which in turn depend on growth in trade. That is, transport costs can rise when trade grows and key transportation inputs are scarce. At the same time, however, larger trade flows allow the use of technologies that would be too costly with smaller volumes. In particular, the size and technological sophistication of the vessels committed to a particular trade route can be easily adjusted as trade grows. This means that densely traded shipping routes can handle large volumes without encountering a shortage of shipping capacity. In fact, there is some evidence for substantial scale benefits in higher volumes. The source of these scale benefits lies in ship scheduling, technology adoption, and pro-competitive effects on prices. The capacity of a modern ocean-going liner is large relative to the quantities that an exporter has available to ship at any given time. Shipping companies can respond either by visiting ports less frequently

or by stopping at dozens of ports in many different countries. On more heavily traded routes, liners can take more direct routes with fewer port calls, visit each port more frequently, and more effectively exploit hub and spoke shipping economies.

The efficient movement of some goods also requires specialized vessels. Examples include ships specialized to move bulk commodities, petroleum products, refrigerated produce, and automobiles. Increased quantities allow introduction of these specialized ships along a route. Similarly, larger ships will be introduced on heavily traded routes, and these ships enjoy substantial cost savings relative to older smaller models still in use. (One source of scale advantage is in crew costs, which are roughly independent of ship size.)

### **Commodity Composition of U.S. Trade**

An additional trend that has contributed to trade growth has to do with the composition of commodities commonly traded. Table 4.1 shows the share of trade by broad commodity classification for the United States and the world as a whole. The trade shares of chemicals, machinery and transportation, and miscellaneous manufactures have risen substantially, whereas trade shares of bulk commodities, including agriculture and mining, have fallen dramatically.<sup>2</sup>

A result of this compositional shift can be seen in Figure 4.2, which displays the average price per kilogram of goods shipped through California and through the United States as a whole. Trade by weight has grown but much more slowly than trade by value. In other words, trade is growing "lighter." A (real) dollar of U.S. trade in 1974 weighed just over 4.4 kilograms; that same dollar of trade today weighs less than one kilogram.

Two differences between the price of all U.S. trade and the price of goods flowing through California are notable. First, the value per kilogram is between two and four times higher for California's trade than for U.S. trade as a whole throughout the period. This reflects the fact that California's trade is much less oriented toward bulk commodities than is trade through the East and Gulf Coasts. Second, the average price

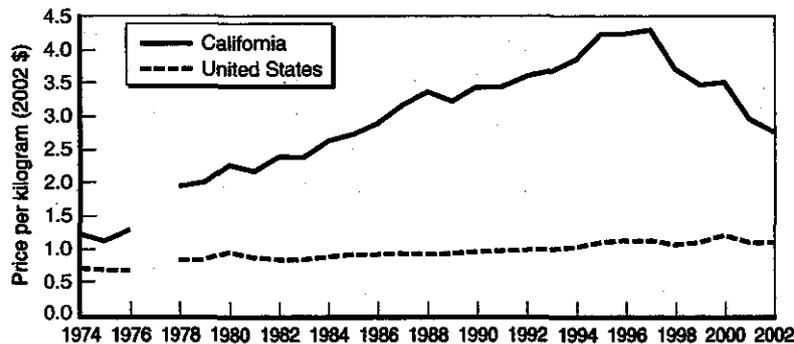
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<sup>2</sup>Import shares of beverages and tobacco also increased during this period, but their share of trade is so small that its effect on infrastructure demand is negligible.

**Table 4.1**  
**The Commodity Composition of U.S. and World Imports**

| Commodity                         | U.S. Imports |      |                         | World Imports |      |                         |
|-----------------------------------|--------------|------|-------------------------|---------------|------|-------------------------|
|                                   | 1974         | 1997 | %                       | 1974          | 1997 | %                       |
|                                   |              |      | Change<br>1974-<br>1997 |               |      | Change<br>1974-<br>1997 |
| Food and live animals             | 10.0         | 6.5  | -35.6                   | 9.3           | 3.7  | -60.0                   |
| Beverages and tobacco             | 0.9          | 1.1  | 14.0                    | 1.2           | 0.8  | -27.9                   |
| Crude materials                   | 7.9          | 3.6  | -54.3                   | 5.8           | 2.6  | -55.6                   |
| Mineral fuels                     | 19.3         | 7.5  | -61.1                   | 25.2          | 8.2  | -67.5                   |
| Animal and vegetable oils         | 0.8          | 0.5  | -45.5                   | 0.5           | 0.2  | -65.8                   |
| Chemicals                         | 7.6          | 8.9  | 18.2                    | 3.9           | 5.9  | 53.5                    |
| Manufactures (by material)        | 18.3         | 14.9 | -18.4                   | 18.1          | 11.1 | -38.6                   |
| Machinery and transport equipment | 23.2         | 38.7 | 66.8                    | 25.2          | 45.4 | 80.4                    |
| Miscellaneous manufactures        | 7.1          | 13.1 | 85.2                    | 8.7           | 17.2 | 96.9                    |

SOURCE: Statistics Canada bilateral trade database.



SOURCE: U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.

**Figure 4.2—Average Price of Traded Goods Shipped by Air and Vessel**  
per kilogram of U.S. trade grew steadily throughout the period, whereas the price per kilogram for California rose more sharply, peaked in 1997, and has dropped sharply since. The sharper rise and fall for California closely reflects trends in air cargo through California.<sup>3</sup> Goods that are air-

<sup>3</sup>The causes of this sharp change are further discussed in Chapter 5.

shipped have, on average, a much higher price per kilogram than those ocean-shipped. As a consequence, rises and falls in the air share of trade lead to increases and decreases in the price per kilogram shipped.

The lightening of trade has three interesting implications. First, the growth of trade by value significantly overstates demand for freight services. When imports by value were increasing fourfold, freight demand in weight terms only doubled. Second, as trade gets lighter, demand for air relative to ocean-shipping grows, largely because the cost of air-shipping a kilogram is much higher than that for ocean-shipping. Goods with very high weight-to-value ratios (notably bulk commodities, such as grains, iron ore, and scrap metal) are invariably shipped via ocean vessel because it is less expensive to do so. As traded goods become lighter, air cargo becomes a feasible alternative for a growing fraction of traded goods.

Third, the ad valorem cost of shipping (i.e., the cost of shipping a good measured relative to that good's value) drops as traded goods get lighter. To illustrate this, a kilogram of computer memory chips is much more valuable than a kilogram of scrap metal, but the shipping price per kilogram is roughly the same for the two. Because the foreign demand for traded goods depends on their price inclusive of ad valorem costs, reductions in the per unit weight of traded goods lead to an expansion in the value of trade.

This last point has interesting implications for the pricing power of shipping firms and ports. Consumers do not value transportation directly; rather, they value it only as part of a process of accessing internationally traded goods. Put another way, consumers are sensitive to changes in the delivered price of products, not to changes in the transportation price. When goods get lighter, the contribution of transport costs to the delivered price of the product falls. As a result, consumers become less sensitive to changes in transport prices. This gives shipping firms and ports more pricing power. The diminishing effect of transportation costs on the final product price also means that decisions about modal use and port choice are increasingly driven by such factors as timeliness or reliability.

## Regional Orientation of U.S. Trade

Changes in the regional orientation of U.S. trade can also have important consequences for global gateways and their infrastructure needs. U.S. trade is roughly split into thirds between Asia, North America, and all others combined. This composition represents a substantial westward shift in trade orientation. Between 1970 and 2002, imports from Asia increased from 8 percent to 36.9 percent of total U.S. imports, and U.S. exports to Asia rose from 8 percent to 25.7 percent of the total. North American trade has also seen substantial growth. Between 1989 and 2002, trade with Mexico and Canada grew from 25 percent to 33 percent of total U.S. trade.

When the orientation of U.S. trade shifts from one continent to another, there can be substantial consequences for cargo-shipping services on one coast relative to another. To illustrate these points, Table 4.2 reports the major U.S. coast that serves as the origin of or destination for U.S. trade with each continent. It also reports the share of vessel trade and air trade accounted for by the major destination.

In each case, the main entry/exit point for U.S. trade depends primarily on geographic proximity. Cargo ships and planes take direct routes whenever possible: Countries bordering the Pacific will naturally

Table 4.2  
Continental Patterns of U.S. Trade Flows, 2002

| Continent     | Continental Shares of U.S. Trade Flows (%) |              |           | Value of Shipments Through California's Gateways (billion \$) |        |       |
|---------------|--|--------------|-----------|---|--------|-------|
|               | Nearest U.S. Coast                         | Vessel Share | Air Share | Air   | Vessel | Other |
| Africa        | East                                       | 95           | 81        | 0.4   | 1.0    | 0.0   |
| Asia          | West                                       | 73           | 52        | 85.5  | 204.3  | 1.8   |
| Europe        | East                                       | 88           | 67        | 20.6  | 14.5   | 0.4   |
| Latin America | East                                       | 96           | 88        | 0.3   | 1.2    | 0.0   |
| Middle East   | East                                       | 88           | 82        | 1.5   | 3.6    | 0.0   |
| North America | East                                       | 87           | 44        | 2.5   | 1.6    | 30.2  |
| Oceania       | West                                       | 57           | 55        | 3.1   | 6.4    | 0.4   |
| South America | East                                       | 93           | 85        | 1.0   | 3.4    | 0.0   |
| Total         |  |              |           | 114.9   | 236.0  | 32.8  |

SOURCE: U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.

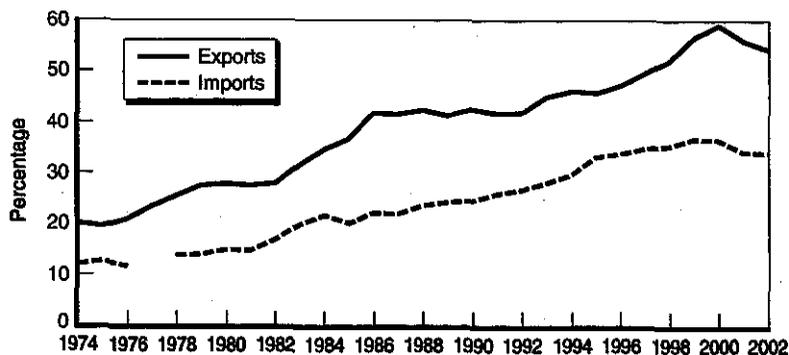
move goods through the West Coast; countries bordering the Atlantic will use either the East or Gulf Coasts; Mexico and Canada route land trade through bordering states. Of course, air cargo can overfly coasts; in Table 4.2 we see that the majority of air cargo enters through the nearest coast, but the share of the nearest coast is much smaller than that for ocean-shipping. As air cargo grows in importance, the grip of geography begins to loosen. As we discuss below, flights originating in Asia that overfly California have substantially grown in importance.

Finally, Table 4.2 also shows the value of U.S. trade with each region that flows through California. In much of the past 30 years, the natural linkage to Asia has been good news for West Coast ports in general and California in particular. Asian countries have enjoyed unparalleled economic dynamism, with growth spurred by an unusually high degree of trade orientation. Looking forward, output growth in China and India, combined with their enormous populations, promises to spur continued trade with West Coast gateways.

This high degree of regional dependence has two drawbacks. First, lacking geographic diversification, California's gateways can be hit hard by regional downturns. One prominent example is the East Asian crisis of the last 1990s. As Figure 4.1 showed, exports through California stagnated after 1997. Second, the recent trend in tariff liberalization has been toward regional rather than worldwide integration. North American Free Trade Agreement (NAFTA) tariff reductions in particular have caused a shift in U.S. trade toward North America, most of which enters through gateways outside California.

## **Modal Composition of U.S. Trade**

Finally, we describe modal trends in how goods move. In our discussion, we address North American trade in addition to U.S. trade as a whole, as the former is dominated by ground-shipping and the latter by air and ocean modes. We have seen two important patterns outside North America in modal choice by value. The first is a tremendous shift toward air-shipping (Figure 4.3). Over a third of imports are shipped by air, a steady increase from 11 percent in 1974. More than 54 percent of exports were air-shipped, up from 20 percent in 1974. The second broad pattern is that the use of air-shipping differs substantially across

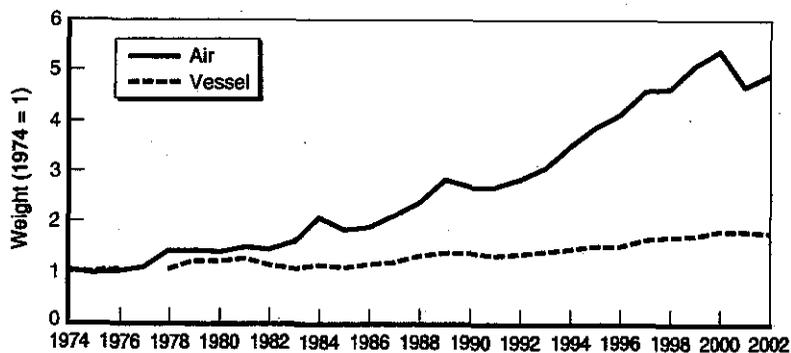


SOURCE: U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.

Figure 4.3—Share of Shipments by Air (World)

geographic origin and destination. Trade with Asia and Europe goes via air to a much greater extent than trade with Latin America, Africa, and the Middle East.

In terms of weight, ocean-shipping dominates. Considering all goods, 99.6 percent of trade by weight is ocean-shipped. Even excluding bulk commodities, 98 percent of trade by weight goes via ocean. Still, there have been significant trends. Figure 4.4 graphs trade by weight for ocean and air, normalizing the weights to equal 1 in 1974. Ocean trade



SOURCE: U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.

Figure 4.4—Growth of Trade, by Weight

by weight has increased 78 percent, whereas air trade by weight has increased roughly fivefold.

Table 4.3 describes North American trade by transport mode for 2002. Apart from very heavy goods, for which ocean-shipping is preferred, trucking dominates trade in and out of Mexico and exports to Canada. In contrast, ground-based U.S. imports from Canada are evenly distributed between rail, truck, and pipeline. This pattern reflects differences in transport infrastructure (in particular, the density of rail links across the northern border) and the bulk commodity structure of Canadian trade.

**Table 4.3**  
**Composition by Mode, 2002**  
(value in billion \$, weight in billion kg)

|              | Mexico       |        |              |        | Canada       |        |              |        |
|--------------|--------------|--------|--------------|--------|--------------|--------|--------------|--------|
|              | U.S. Imports |        | U.S. Exports |        | U.S. Imports |        | U.S. Exports |        |
|              | Value        | Weight | Value        | Weight | Value        | Weight | Value        | Weight |
| Total        | 134.7        | 123.1  | 97.6         |        | 210.6        | 258.3  | 160.8        |        |
| By mode      |              |        |              |        |              |        |              |        |
| Ocean        | 17.1         | 93.6   | 6.3          |        | 7.0          | 61.1   | 2.4          |        |
| Air          | 3.2          | 0.1    | 6.1          |        | 8.8          | 0.1    | 12.0         |        |
| Land         | 114.4        | 29.4   | 85.2         |        | 194.8        | 197.1  | 146.4        |        |
| Of which     |              |        |              |        |              |        |              |        |
| Rail         | 20.8         | 7.8    | 10.1         |        | 47.0         | 63.0   | 14.3         |        |
| Truck        | 90.6         | 21.2   | 70.9         |        | 118.0        | 66.2   | 118.3        |        |
| Pipe         | 0.0          | 0.0    | 0.6          |        | 21.8         | 67.9   | 0.2          |        |
| Other        | 3.0          | 0.4    | 3.5          |        | 8.0          | 0.1    | 14.0         |        |
| Total (%)    | 100.0        | 100.0  | 100.0        |        | 100.0        | 100.0  | 100.0        |        |
| By mode (%)  |              |        |              |        |              |        |              |        |
| Ocean        | 12.7         | 76.0   | 6.5          |        | 3.3          | 23.7   | 1.5          |        |
| Air          | 2.4          | 0.1    | 6.3          |        | 4.2          | 0.0    | 7.5          |        |
| Land         | 84.9         | 23.9   | 87.3         |        | 92.5         | 76.3   | 91.0         |        |
| Of which (%) |              |        |              |        |              |        |              |        |
| Rail         | 18.2         | 26.5   | 11.9         |        | 24.1         | 32.0   | 9.8          |        |
| Truck        | 79.2         | 72.1   | 83.2         |        | 60.6         | 33.6   | 80.8         |        |
| Pipe         | 0.0          | 0.0    | 0.7          |        | 11.2         | 34.4   | 0.1          |        |
| Other        | 2.6          | 1.4    | 4.1          |        | 4.1          | 0.1    | 9.6          |        |

SOURCES: Data for ocean and air are from U.S. Census Bureau, *U.S. Imports/Exports of Merchandise* (2002). Land data are from U.S. Department of Transportation, *Transborder Surface Freight Database*.

NOTE: Weight data are not available for U.S. exports.

## Summary and Discussion

U.S. trade has grown rapidly in the past three decades, and its composition has shifted considerably. Manufactures have grown relative to bulk commodities, leading to a marked rise in the value per kilogram shipped. Trade with Asia has grown relative to that with other partner countries, and air cargo has risen relative to ocean cargo. All of these trends in U.S. trade are even more pronounced for California's trade.

These trends have significant implications for infrastructure needs at California's gateways. In particular, the growth of trade flows through the state has required significant investments in technology and equipment simply to efficiently process the greater flow. As pointed out, increased flows can result in the employment of different, more efficient shipping technologies. Ships become larger, and more specialized vessels play a larger role in the movement of goods internationally. Such changes have implications for the ports. For the Ports of Los Angeles, Long Beach, and Oakland, it has meant increasing specialization in a smaller number of shipping technologies. In particular, each of these ports is now focused on containerized cargo. Neighboring ports, such as San Diego and Hueneme, have picked up the slack in handling "niche" cargos, such as automobiles, which arrive on ro-ro vessels.

The changing composition of international trade suggests an increasing reliance on airports relative to seaports. This change has several interesting implications. First, it suggests a reorientation of infrastructure funds toward California's airports. Second, it introduces the possibility that trade could bypass California altogether, and the next chapter introduces evidence that this is happening to a significant extent. Finally, as ocean-going trade becomes cheaper on a per-pound basis, the pricing power of ports and shippers declines.

Changes in modal preferences have similar implications. In particular, as U.S. trade relationships become stronger with Canada and Mexico, there is a trend away from both air and seaports toward trucking and rail. This trend implies an increased relative burden on California's land ports and a shift in trade away from California's gateways more generally.

## 5. Are California's Gateways Keeping Up?

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California's position on the West Coast makes it a natural gateway for U.S. trade with Asia and other nations along the Pacific Rim. However, this natural advantage could erode over time. Congestion near California's gateways combined with the falling costs of air cargo may lead shippers to use other means to reach both other nations and inland destinations. Meanwhile, other states may improve their trade infrastructure to lure international traffic through their gateways. In this chapter, we investigate the extent to which California's gateways are keeping up with the competition for international trade traffic.

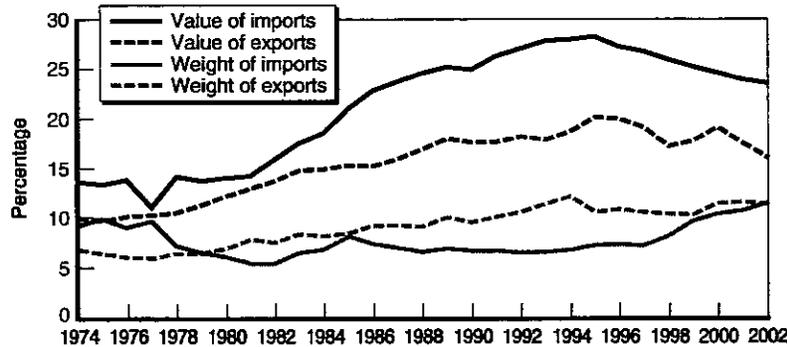
To address this question, we could use an approach that emphasizes transport infrastructure as an input into moving cargo, by calculating expenditures on roads, rail, ports, and multimodal facilities to see if California is investing at the rate of other competitors. But expenditures by themselves are poor indicators. Building a ten-mile corridor through a crowded metropolis could be much more expensive, but no more effective from a logistical standpoint, than building the same corridor through unpopulated land. A better approach would be to directly measure the quantity and quality of the infrastructure itself, counting miles of paved highway, density of rail coverage, container cranes and terminals, and so on. Unfortunately, the data for this approach either omit assessments of quality or are difficult to obtain. An ocean port may have many container cranes, but if they are idled by a poorly arranged terminal or inland congestion, they are less valuable than fewer cranes operating at high efficiency.

These problems suggest an alternative approach. Rather than examining the inputs into moving cargo, we look at movements of the cargo itself. The rationale is simple: Shippers vote with their feet. If trade infrastructure is inadequate, management is poor, traffic is

congested, or fees are too high, shippers will take their cargo elsewhere. In this sense, an analysis of trade flows offers a kind of referendum on the cost and quality of trade infrastructure. Even this straightforward approach, however, must consider other factors, including changes in the country and commodity patterns of U.S. trade.

In Figure 4.1, we showed a steady rise in the flow of goods through California's gateways. However, since U.S. trade as a whole rose rapidly in this period, growth in trade through California tells us little about the competitiveness of or relative demand for services at California's gateways. To better understand relative demand, we examine the *share* of California's gateways in total U.S. trade flows. These shares are depicted in Figure 5.1 and provide a direct indication of the flow of goods through California relative to the total amount of U.S. trade. Expanding shares imply that California's gateways are becoming more attractive, whereas declining shares indicate an erosion in the demand for their services relative to that for other gateways.

In value terms, the share of U.S. trade handled by California's gateways doubled between 1974 and 1995. The share of imports increased from just 13.5 percent to just over 28 percent, and the share of exports passing through California increased from 9.9 percent to 20



SOURCE: U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.

NOTES: Weight share includes only air and vessel shipments. Value share also includes shipments by land.

Figure 5.1—California's Share of U.S. Trade Flows

percent. These shares have fallen significantly, however, to 23.4 and 16.1 for imports and exports, respectively. In weight terms, California's share of U.S. exports exhibits a similar pattern, doubling between 1974 and 1994 and then tailing off. The outlier is California's share of U.S. imports by weight. This series declined by almost half from 1974 to 1982 and then increased sharply in the late 1990s.

To illustrate the sharp changes in California's trade share in the 1990s, we break out changes by mode in Table 5.1. California's rising share of trade before 1995 is attributable to an increased flow through all three types of gateways: air, ocean, and land. This holds true for imports and exports as well as for trade measured in both value and weight terms. California's share of air-based trade grew especially quickly and, as with other modes, the import share grew faster than the export share.

What explains the evolution in California's trade share and, in particular, the sharp reversal in shares that occurred during the mid-1990s? As discussed in the previous chapter, gateway shares can evolve for a number of reasons, the majority of which lie outside the influence of the gateways themselves. Three such reasons are the country composition, commodity composition, and modal composition of trade.

Table 5.1  
California's Trade Shares

|       | Imports Share (%) |        | Exports Share (%) |        |
|-------|-------------------|--------|-------------------|--------|
|       | Value             | Weight | Value             | Weight |
| Air   |                   |        |                   |        |
| 1990  | 29.9              | 19.1   | 29.2              | 20.5   |
| 1995  | 37.5              | 20.7   | 33.1              | 20.7   |
| 2002  | 20.8              | 18.5   | 25.7              | 19.5   |
| Ocean |                   |        |                   |        |
| 1990  | 32.2              | 6.6    | 20.6              | 9.3    |
| 1995  | 37.6              | 7.0    | 22.5              | 10.4   |
| 2002  | 36.6              | 11.2   | 20.5              | 11.2   |
| Land  |                   |        |                   |        |
| 1990  | 3.8               | —      | 4.1               | —      |
| 1995  | 4.5               | —      | 4.5               | —      |
| 2002  | 5.3               | —      | 5.2               | —      |

SOURCE: U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.

In Table 4.2, we showed a basic geographic relationship: Pacific Rim countries trade with the U.S. West Coast; Europe and much of Latin America with the East and Gulf Coasts. Apart from a few minor fluctuations, this relationship remains fairly constant over time. As trade with Asia rises and falls, the share of West Coast gateways will rise and fall. For example, most of California's rising share of air trade from 1974 through the early 1990s is attributable to expansions of U.S. trade with Asian countries, especially Malaysia, South Korea, Singapore, and Japan. By ocean, increased imports and exports with China were instrumental in driving up California's shares.

Similarly, particular ports may be well suited for trade in particular commodities. Ports on the Gulf Coast are specially equipped to handle large shipments of bulks—iron ore, grains, and crude oil—whereas California's ports are oriented toward containerized goods. As the share of bulk commodities in trade rises, the share of Gulf Coast gateways rises. From 1974 through the early 1990s, there was a dramatic increase in U.S. imports and exports of technology products, computer and office equipment, and other electronic equipment, in particular. These goods have long had a significant presence in California's gateways. Similarly, increases in U.S. imports of motor vehicles and equipment, and increased exports of computer and office equipment drove up California's share.

Finally, changes in the price of air versus ocean transport will shift trade between these modes in a way that the gateways involved cannot easily affect. If air cargo becomes cheaper, more shipments will over fly the coast, and the Port of Los Angeles will see vessel shipments drop.

In this section, we use a technique known as a "shift-share decomposition" to explain the evolution of California's market share. The technical details of this decomposition are reported in Appendix C, but the idea behind it is simple. We take changes in the trade share of California's gateways and separate them into two "control" bins: changes in trade composition by country and by commodity.<sup>1</sup> Conceptually, this technique poses the question: Suppose U.S. trade with Asia rose, but

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<sup>1</sup>The figures presented here represent share changes within a category and are abstracting away from mode changes during this period. Changes in the demand for various modes were very small between 1995 and 2002.

there were no other changes in trade. In which direction, and by how much, would California's trade share change? We then repeat the exercise, examining changes in commodity composition, holding all else constant. At the end, we are left with changes in California's trade share that cannot be explained by changes in trade composition. We think of this as shifts in demand that are specific to individual gateways.

Table 5.2 reports changes in California's value share of U.S. trade from 1995 to 2002, separating imports from exports, and examining changes by mode. The first column of numbers reports the total change in shares. The next three columns use the shift-share decomposition to attribute changes in total gateway shares to commodity composition, country composition, and gateway-specific demand factors.

The changes in California's share of ocean- and land-based-shipping have been quite modest. The small reductions in ocean share and small increases in land share are largely explained by country composition factors. The change in land share reflects the continued growth of land-based trade through Mexico in the wake of NAFTA.

Most of the decline in California's value share comes from changes in the use of California's airports, primarily resulting from reduced imports. Shifts in country and commodity composition are important. They explain just under half the change in California's air share of

Table 5.2  
Explaining California's Changing Percentage Share of Trade,  
by Value, 1995 to 2002

|         | Share<br>Changes | Commodity<br>Changes | Country<br>Changes | Demand<br>Changes |
|---------|------------------|----------------------|--------------------|-------------------|
| Imports |                  |                      |                    |                   |
| Air     | -16.4            | -3.6                 | -4.2               | -8.6              |
| Ocean   | -1.3             | -0.4                 | -1.5               | 0.6               |
| Land    | 0.8              | 0.1                  | 1.2                | -0.5              |
| Exports |                  |                      |                    |                   |
| Air     | -7.3             | -1.3                 | -0.5               | -5.6              |
| Ocean   | -1.9             | 1.2                  | -2.6               | -0.5              |
| Land    | 0.9              | 0.1                  | 1.0                | -0.1              |

SOURCE: Authors' estimates from U.S. Census Bureau, *U.S. Exports/Imports of Merchandise* (1995, 2002).

imports and about a quarter of the change in California's air share of exports. Imports and exports of computer and office equipment and imports of electronic components and accessories each contribute significantly to the commodity composition change. By country, declines in U.S. imports from and exports to Japan and imports from Singapore explain most of the changing share of airfreight handled by California's airports.

Still, most of the post-1995 drop in California's air share of trade cannot be explained by compositional shifts in trade. They instead reflect reductions in demand, which should be thought of as indicating changes in the desirability of California's gateways generally. One component of desirability is the financial and logistical ease with which goods flow through these gateways. A second component relates to the location of production (for exports) and consumption (for imports). If manufacturing facilities shift to inland locations, and falling air costs make it easier to fly over California, these factors combine to reduce the desirability of California's global gateways.

To further explain demand shifts, we looked for cases where trade with a particular partner and commodity through California has fallen while rising elsewhere. There was a significant decline in imports of electronic components and accessories from Japan through California. At the same time, Savannah and New York experienced significant increases in imports of these same products. Their expansion explains roughly 56 percent of California's decline. Looking further, we find that New York picked up about three-fifths of California's decline in computer peripherals and hard drives, particularly from Singapore. Similarly, a decline in imports of integrated circuits through California's airports occurred during this time. This was coincident with a dramatic increase, equal to about half of the California decline, in their flow into the Savannah airport.

Similar changes occurred in computer and office equipment trade with Japan. In particular, imports of hard drives and laptops have shifted dramatically from California's airports to those in Chicago and New York. This decline in imports through California goes above and beyond the general decline in U.S. imports of hard drives. In 2002, overall U.S. imports of hard drives had fallen to about 30 percent of their 1995 level.

Despite this overall decline, imports into Chicago more than doubled, whereas imports through California fell to about 15 percent of their 1995 level.

Although imports of Japanese hard drives have been diverted, particularly to Chicago, imports of laptops from Japan are now more likely to arrive in New York. This decline is, however, just the tip of the iceberg. Many laptops from Malaysia, Taiwan, and Singapore that would have come through California in 1995 are now rerouted through Anchorage, New Orleans, and Savannah. Anchorage, in particular, appears to be growing in popularity as a distribution point for laptops entering the United States.

What explains these shifts? During this period, both Northwest Airlines and Federal Express developed and expanded their cargo distribution centers in Anchorage. This seems to be a case where California's competitive advantage is eroding. Anchorage is a more cost-effective location than California because it lies closer to the most direct path between Asia and the U.S. East Coast. Between 1995 and 2002, international freight flows through Anchorage airport increased by 95 percent, whereas SFO showed no increase and LAX increased by only 13 percent.<sup>2</sup> In 2002, Anchorage airport handled more freight than did any other U.S. airport with the exception of Memphis, home to the main FedEx distribution center.<sup>3</sup> (Although Oakland possesses a major regional Federal Express distribution center, making Oakland the 12th largest freight-handling airport in the country, nearly all of its throughput is domestic in origin and destination.)

By some accounts, this shift away from California's airports could be the result of increased congestion in and around SFO and LAX. Although much of this congestion is external to the airports, it affects the efficiency with which distribution operations at the airports function. Affected industries have voiced concerns about congestion in California

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<sup>2</sup>In 2002, LAX and Anchorage airport (ANC) handled comparable amounts of total freight, domestic and international, and were the fourth and fifth busiest airports in the world in terms of freight-handling, behind Memphis, Hong Kong, and Tokyo.

<sup>3</sup>This is true when considering all freight through the airports, including transit freight. Table 4.1 excludes transit freight, which explains the rank of the Anchorage airport presented there.

for more than a decade, but congestion levels may have reached a tipping point in 1995, when carriers such as Northwest Airlines and Federal Express enabled the movement of trade out of the state.

On the export side, the reduction in demand shares for California airport services largely reflects a change in the export origin point for integrated circuits bound for the Philippines, Malaysia, Singapore, and Japan. Many exports now originate in Dallas, Boston, New Orleans, and New York rather than California. Although the decline is common to California airports, the San Francisco district experienced the largest decline in share. Exports out of the San Francisco area to the Philippines have largely been rerouted to Dallas, the site of a major Federal Express distribution center.

In general, Los Angeles and San Francisco share responsibility for the declining shares, although San Francisco has suffered a larger loss of demand than has Los Angeles. San Francisco has experienced a drop in its exports of electronic components and accessories to Philippines, Malaysia, and Singapore, and Los Angeles has exported fewer electronic components and accessories to Japan, Korea, and Hong Kong. On the import side, shipments of computer and office equipment from Japan, Singapore, and South Korea through San Francisco have dropped, and shipments of the same from Malaysia and Singapore through Los Angeles also declined.

Although the value share of trade through California fell in the late 1990s, the weight share of trade continued to increase. These changes are decomposed in Table 5.3. Changes in air weight were driven by changes in demand; shifts in country composition actually pulled California's share up. The causes of the decline in air weight share closely mirror the causes of the decline in air value. Changes in ocean weight share are influenced heavily by changes in demand, but in the case of exports, the commodity composition of U.S. exports by ocean explains the bulk of the changes.

Between 1995 and 2002, California's share of the weight of all U.S. imports by ocean increased by more than three points. This growth was driven by a favorable shift in the countries with which the United States trades, most notably, China, and a favorable shift in the demand for entry into the country through California's ports relative to other

Table 5.3  
**Explaining California's Changing Percentage Share of Trade,  
 by Weight, 1995 to 2002**

|         | Share<br>Changes | Commodity<br>Changes | Country<br>Changes | Residual<br>Demand<br>Changes |
|---------|------------------|----------------------|--------------------|-------------------------------|
| Imports |                  |                      |                    |                               |
| Air     | -2.3             | -0.3                 | 2.1                | -4.1                          |
| Ocean   | 3.1              | 0.3                  | 1.0                | 1.5                           |
| Exports |                  |                      |                    |                               |
| Air     | -1.2             | -0.2                 | 0.7                | -1.7                          |
| Ocean   | 0.9              | 1.1                  | -0.5               | 0.4                           |

SOURCE: Authors' estimates from U.S. Census Bureau, *U.S. Exports/Imports of Merchandise* (1995, 2002).

U.S. ports. In particular, crude petroleum and natural gas imports from Saudi Arabia, Ecuador, and Argentina increasingly entered through California. Argentine increases all went into the Los Angeles customs district, whereas shifts in imports from Ecuador and Saudi Arabia were split between San Francisco and Los Angeles. We also can identify the ports from which imports were diverted. Saudi Arabian crude shifted away from Mobile, Alabama, and the U.S. Virgin Islands, Ecuadoran crude shifted away from Houston and Port Arthur, and Argentina's crude shifted away from New Orleans.

California's share of the U.S. export volume also increased, but by only 0.9 points. This increase was largely driven by U.S. exports of scrap and waste and refined petroleum. As for demand, the 0.4 increase in share was driven entirely by a reorientation of bituminous coal exports to Japan through California ports, and Los Angeles and Long Beach specifically. These exports had previously originated primarily in Savannah, Georgia, but also in Mobile, Alabama.

In contrast with the changes by value, the change in weight shares are not evenly distributed across ports in the state. In fact, the state's gains in share accrue entirely to ports in the Los Angeles customs district. Ports in the San Francisco area lost share during this period. These losses amount to about two-thirds of the gain in share that was experienced by

the Los Angeles ports for exports. On the import side, however, ports in the San Francisco customs district roughly maintained their 1995 share.

Finally, California's trade share by weight continues to grow, although its trade share by value fell in the latter half of the 1990s. What explains this result? Consider a manufacturer who wants to ship a product from the U.S. Midwest to Asia, or the reverse. If the product is heavy relative to its value, ocean-shipping is the only cost-effective option. If the product is light relative to its value, air-shipping dramatically cuts time, avoids congestion delays in California, and costs a small additional premium relative to ocean-shipping. The data show a clear shift away from California's gateways for these light products, especially electronics, and a shift toward California's gateways for heavy products. In particular, the Los Angeles region experienced a significant increase in its handling of bulk commodities, including petroleum and natural gas imports and bituminous coal exports. All of these are very heavy and have a low price per pound.

The implications of this shift are twofold, and neither bodes well for California. Port operators tend to be focused on quantities moved, weight, number of containers, and number of flights. However, the pricing power of gateways and inland transport network fees depends on the value of the item shipped. Shipping costs are a small fraction of the delivered price for light products, meaning that consumers are less sensitive to changes in shipping costs. In contrast, the shipping costs for bulk items make up a much larger fraction of the delivered price, making consumers much more sensitive to changes in shipping costs. Our finding suggests that these changes in U.S. trade patterns and overall competitiveness are compromising the ability of California's gateways to raise revenues through fee increases. If these trends persist, they may result in a real decrease in the level of charges these ports can collect.

The second unfortunate implication relates to the value-added embodied in traded goods. Local ports may generate positive benefits to local manufacturers by reducing their overland shipping costs and travel times and creating ancillary industries. Manufacturers, in turn, benefit local governments by providing a taxable base of value-added: land rent, returns on capital, and wages. But our data show that high-value-added goods such as electronics are being crowded out of California's ports in

favor of low-value-added goods such as coal, scrap iron, and petroleum. Why should an electronics manufacturer fight congestion in and around California's ports when it can relocate to an uncongested location farther inland? The danger in the trends we have identified is that they reduce the benefits ports generate in their regions while leaving in place the burdens of congestion and pollution. These trends may be temporary, but they are worth watching.

## 6. Vulnerability of California's Goods Movement: Labor Relations and Security

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NAFTA and the growth of Asian trade have increased the demand for international freight shipping services in California. At the same time, competitors are increasingly able to divert traffic from California's gateways, especially its airports. This chapter discusses several recent events and issues—including the West Coast port lockout and security concerns following the terrorist attacks of September 11, 2001—that also have the potential to alter demand for California's gateway services.

Both labor disputes and terrorist attacks can permanently alter the direction of trade flows. The former can affect the use of West Coast ports by reducing their attractiveness compared to other seaports or to air shipment. The effects of terrorist activity could lead to a general reduction of maritime trade, substantially affecting flows through California's ports as they currently handle a large amount of total trade. How California's ports and policymakers respond to these events can be crucial to managing the flow of traded goods through the state.

### West Coast Port Lockout

For ten days beginning September 27, 2002, all 29 seaports on the West Coast of the United States closed their doors. These ports handled approximately 42 percent of all U.S. waterborne trade in 2001 and were responsible for more than half of all U.S. containerized imports and exports. During the lockout, an estimated \$6.2 billion in imports were disrupted in the Ports of Los Angeles and Long Beach alone. Yet the effects of these disruptions were not limited to West Coast states. According to the ports, 60 percent of imports used in the Chicago area

come through the Ports of Los Angeles and Long Beach.<sup>1</sup> Even after the ports reopened in early October, the backlog of ships sitting off the West Coast did not clear until December.<sup>2</sup>

This closure was precipitated by a lack of progress in contract negotiations between the Pacific Maritime Association (PMA) and the International Longshore and Warehouse Union (ILWU). The longshoremen had been working since July 1, 2002, without a contract. The reason for the shutdown is a matter of some dispute. The port owners claimed that the longshoremen had engaged in a work-to-rules slowdown of activity, thereby forcing the shutdown as a disciplinary mechanism.<sup>3</sup> The longshoremen claimed that evidence of the slowdown was manufactured to invite federal intervention that would strengthen the PMA's negotiating position. The Bush administration invoked the Taft-Hartley Act of 1947, forcing the ports to reopen and the longshoremen to return to work. This was the first time since 1978 that this law was invoked, and the first time ever that it was used to end an employer-initiated work stoppage. The ports resumed operations on October 7, 2002. A new contract was negotiated during the ensuing cooling-off period, and traffic has been flowing fluidly through the ports since the backlog of ships was cleared.

Regardless of its cause, the shutdown imposed large costs on the U.S. economy. A study by Martin Associates (2002) arrived at a figure of \$2 billion per day. Although this figure seems too high, it is widely cited and formed the basis for federal intervention. Where does it come from? In 2001, West Coast ports handled \$302 billion in goods, around \$827 million per day. Were the cargo to be dumped in the ocean, the direct cost would be less than half the claimed \$2 billion figure. Involved workers, including 16,000 longshoremen and workers in related trucking

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<sup>1</sup>State of California (2002, p. 10).

<sup>2</sup>It is estimated that one week is necessary to clear a backlog created by a one-day port closure. For some ports, this process took much less time. Port Hueneme cleared its backlog in about a week.

<sup>3</sup>Such a slowdown occurs when the workers adhere strictly to the letter of the rules and regulations governing their on-the-job behavior. Evidently, many rules and regulations are not followed strictly during the course of normal business, allowing for a more expeditious processing of containers.

sectors, suffered a loss of earnings, estimated as no more than \$43 million per day.<sup>4</sup> Thus, the major contributor to the costs identified in the Martin study clearly is the hampering of economic activity beyond the port.

Consider the following scenario: U.S. manufacturers have become increasingly reliant on parts and supplies sourced from Asian nations. If those supplies are suddenly cut off, factories cannot run, workers are laid off, and output grinds to a halt. Similarly, retailers taking orders for the holiday buying season find their shelves bare and sales lost. And because the shutdown closes off cargo flows in both directions, exporters can not ship their items out to Asian destinations. Were all this to occur, the cost of the shutdown could easily reach \$2 billion a day. This is the essence of the method underlying the results published by Martin Associates.

The problem is that the Martin analysis essentially assumes that the involved parties have no option but to wait out the reopening of the ports. This is clearly not the case. There is evidence that "many shippers rushed to get goods in the country ahead of the deadline for resolving the labor dispute with dockworkers."<sup>5</sup> There are also anecdotes that many enterprises negotiated contingent contracts with the airlines in the event that their goods were not able to arrive by sea.<sup>6</sup> That a shutdown or a strike was possible would have been clear to firms working with the PMA and the ILWU. Strikes had occurred in 1948, 1951, and 1971, and the ILWU had conducted work-to-rule slowdowns as recently as 1999, when the previous contract was being negotiated.

Once the shutdown occurred, there were other actions available to firms on the receiving end of imports. Some enterprises engaged in maintenance and training exercises, exploiting the free time of their workers for necessary activities. Others obtained their inputs from alternative sources, including domestic suppliers, or brought goods in via

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<sup>4</sup>Hall (2003).

<sup>5</sup>*New York Times* (2002).

<sup>6</sup>Port of Oakland officials have informed us that managers at the NUMMI plant made efforts, and succeeded in some measure, to have containers put on airplanes and delivered to the Oakland International Airport.

air cargo. Rising air freight prices during this period suggest that modal substitution occurred.

Studies that incorporate these substitution responses estimate much lower per day costs. Anderson (2002) suggests that the costs start small, as firms rely on buffer stock inventories to wait out the shutdown, but could grow rapidly as those inventories run out. At the time, his estimate was that a four-week shutdown would cost approximately \$4.7 billion. He views the "figure of \$1 billion or \$2 billion per day as closer to the economic impact of *sinking* the ships than delaying them."

Although the shutdown ended and the resulting backlog was cleared, its occurrence may have a lasting effect on shipments through West Coast seaports. In particular, firms bringing goods through West Coast ports are now more acutely aware of the costs of a disruption such as the port closure. These firms may, as a result, seek to diversify this risk by using other modes or entry points. Whether by altering mode or entry point, diversification would have the effect of reducing the future flow of products through West Coast ports generally and California's ports in particular.

An entirely unforeseen consequence of the shutdown was the traffic holiday it provided to commuters. In particular, traffic on the I-710 highway in the region was greatly diminished and the flow of passenger vehicles along this route was both faster and safer.<sup>7</sup> Southern Californians were provided with an unusually stark demonstration of the negative effects that shipping enormous volumes of goods through Los Angeles and Long Beach has on their lives.

### ***Port Closure and International Trade***

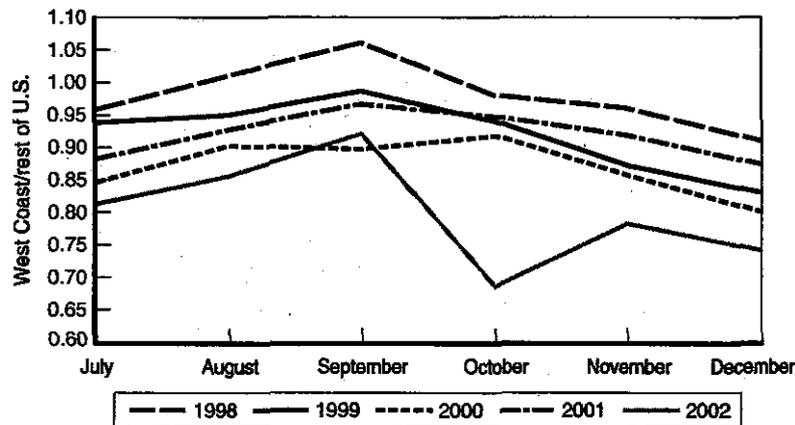
We argue above that the costs of the port crisis would have been mitigated if firms had anticipated it or diverted traffic around it. We provide some simple calculations designed to identify whether this anticipation and diversion took place. We look for three effects. First, did shipments through West Coast ports accelerate before the shutdown? Second, were alternative modes of transportation employed during the

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<sup>7</sup>Research by SCAG indicates that average traffic speeds along the I-710 Corridor increased by 67 percent during the shutdown.

shutdown? Third, did firms shift entry points and modes away from West Coast ports after the shutdown to diversify their shipping portfolio and minimize the risk of another disruption?

Figure 6.1 provides some suggestive evidence on the first set of these questions. The chart plots the monthly value of imports flowing through West Coast ports relative to the value of imports flowing into the United States. For comparison, 2002 is charted alongside each of the previous five years. Three observations can be made from this chart. First, the share of trade through West Coast ports was lower in 2002 than in each of the previous five years. This decline could be related to the port crisis, but it could also be due to business cycle downturns that have hit high-technology trade, and hence trade through California, especially hard. Second, the West Coast share of imports rose from June through September in four of the five years, but the rate of increase in September was higher for 2002 than for other years. This could reflect anticipation of the port lockout and an inventory stocking effect. Third, although the West Coast share declined in October in four of the five years, the decline was dramatic in 2002. The decline clearly reflects the period of the port closure and the failure to clear the backlog of goods until November or December.



SOURCE: U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.

Figure 6.1—Monthly Ratio of Vessel Imports

Whereas the decline of import flows in October is not surprising, the low levels of import flows in November and December are. During November and December, these ports were handling the normal flow of goods, plus clearing the backlog created during the port shutdown. This dual tasking should have caused a rising share in these months. The only explanation is that goods were diverted around the West Coast, either by rerouting sea traffic to the East Coast or by shifts to air freight. The latter diversion could reduce the value of imports through the West Coast ports significantly as it would likely be goods with high value-to-weight ratios that would be diverted to the air.

The third implication of the port shutdown is that freight may well be diverted away from West Coast ports toward other U.S. ports on a more permanent basis. Although it is too soon after the event to be certain that much permanent diversion has taken place, data from the first five months of 2003 are suggestive. For comparison, we consider January through June 2003 alongside the same months in five previous years. In each of the five previous years, between 77 and 78 percent of U.S. imports from Asia entered through West Coast ports. In the first six months of 2003, however, imports from Asia entering through West Coast ports had dropped to 73.9 percent. It is unclear whether this decline represents a temporary blip or a significant permanent diversion away from the West Coast, but the trend bears watching.

In summary, shipments into the West Coast accelerated in September 2002 in apparent anticipation of the lockout, diversion toward other modes and entry points occurred during the lockout, and those diversions continued for months after the lockout ended. The apparent willingness of importers to divert goods in the short run has implications for their willingness to do so in the longer term. In particular, it suggests that events such as the lockout may well encourage future diversification of shipping away from West Coast ports. This diversification implies a longer-term reduction of traffic through California's ports.

It should be emphasized that the foregoing remarks do not represent a rigorous statistical analysis of the anticipation and diversion hypotheses. Moreover, it would be necessary to evaluate many additional months of data to determine whether diversion was temporary or permanent.

However, the basic trends indicate the need for careful study beyond the scope of the current work.

### **Port Security Issues and Initiatives**

Since the terrorist attacks on the World Trade Center in New York City and the Pentagon in Washington, D.C., concerns over safety and the prevention of similar attacks have become paramount both on the national political scene and in the daily lives of Americans. The initial security focus was on air passenger traffic, including increased passenger screening and restricting cockpit access. As the debate broadened, however, the issue of goods movement moved to the fore. U.S. ports, and seaports in particular, are vulnerable to two sorts of attacks. The first aims to disrupt economic activity. A tremendous volume of goods flows through U.S. ports. In 2001, the Port of Los Angeles alone handled more than \$104 billion in goods. The detonation of an explosive device within its confines would have a devastating effect on economic activity not only in Los Angeles but, arguably, throughout the entire country.

In the aftermath of 9/11, the immediate response was to close down the nation's aviation system until the scope of the threat could be assessed. It seems likely that the effect of a waterborne attack would similarly result in the closing of all ports around the country. During the height of the West Coast port lockout in the fall of 2002, estimates of the daily cost of the disrupted flow of goods ranged from the hundreds of millions to \$2 billion per day. Even if the costs were in the lower end of that range, they represent a significant disruption of economic activity.

The short-run costs of a terrorist attack on a U.S. port would likely be higher, precisely because a broad shutdown would preclude the diversion of cargo that minimized costs of the port lockout. Not only would the other U.S. waterborne traffic be disrupted while the ports were closed, all cargo loaded before the attack would probably be subjected to intense scrutiny before docking at a U.S. port. Therefore, not only would there be significant costs while the ports were closed, but the costs would continue as cargo destined for U.S. shores was slowed for some time thereafter.

A second vulnerability presented by the ports is the possibility that an explosive device could arrive on U.S. shores in a container and be

successfully transported inland. Containers, once loaded, are rarely opened or otherwise inspected before their arrival in the United States. A container can be loaded onto the back of a truck and make its way inland to a target quite independent of the port. The task of inspecting all containers is currently infeasible, and the current inspection rate is startlingly low. As late as May 2002, only 2 percent of all containers unloaded at U.S. ports were subject to any sort of inspection.<sup>8</sup>

These vulnerabilities pose the following challenge: How does the United States realize the gains of international trade when opening its ports to foreign goods poses substantial security risks? As Flynn (2002) notes, "Ultimately, getting homeland security right is not about constructing barricades to fend off terrorists. It is, or should be, about identifying and taking the steps necessary to allow the United States to remain an open, prosperous, free, and globally engaged society." Just how to strike a balance between the provision of protection from an attack and the normal pursuit of economic activity is a puzzle that will plague policymakers for some time. Despite this unresolved challenge, policies are being implemented that are likely to enhance the safety of maritime activities.

### ***Federal Initiatives and Port Security***

Current federal policy initiatives are designed to strike a balance between safety and commercial efficiency. The Container Security Initiative (CSI) is a cooperative agreement that places U.S. customs officials at foreign ports and places reporting requirements on shippers loading cargo onto a ship bound for the United States. It is intended to interdict explosive devices before they arrive at U.S. ports. The Customs-Trade Partnership Against Terrorism (C-TPAT) is designed to more closely control the movement of goods between their foreign source and final U.S. destination. The goal of the program is to essentially limit the cargo flowing through the system that might require inspection. Goods flowing under the control of shippers certified under the C-TPAT program will be presumed to be secure and safe.

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<sup>8</sup>Nacht (2002).

Under the CSI, an invoice for all containers through partner ports will be filed with the appropriate authorities 24 hours in advance of that container's arrival at the port. Upon receipt of the invoice, U.S. customs officials at the foreign port will screen the manifest submitted for each container, assessing the potential threat that is implied by the contents or the identity of the shipper. Threatening containers will be inspected at the foreign port and will not reach U.S. shores unless they pass muster.

CSI consists of four core elements:

- Using intelligence and automated information to identify and target high-risk containers,
- Pre-screening containers identified as high risk, at the point of departure,
- Using detection technology to quickly pre-screen high-risk containers, and
- Using smarter, tamper-evident containers.

The CSI has been implemented in two stages. In the first stage, arrangements were made with 23 ports in 19 countries to implement the inspection process. These ports, listed in the first column of Table 6.1, are the source of 68 percent of all container traffic into U.S. ports.<sup>9</sup> A second phase of negotiations resulted in the addition of the ports in the second column. Between phase one and phase two, approximately 80 percent of all container traffic into U.S. ports is covered by the CSI.

The eligibility of entry into the CSI program for foreign ports is subject to the following criteria:<sup>10</sup>

- A country's customs administration must be able to inspect cargo originating in or being transshipped through a country,
- The seaport must have or be in the process of acquiring nonintrusive inspection equipment—large x-ray-type systems—and radiation detection equipment to conduct security, and

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<sup>9</sup>U.S. Department of Homeland Security (2003).

<sup>10</sup>See U.S. Customs website at [http://www.customs.ustras.gov/xp/cgov/import/cargo\\_control/csi/](http://www.customs.ustras.gov/xp/cgov/import/cargo_control/csi/).

**Table 6.1**  
**Foreign Ports Participating in the CSI**

| Phase I Ports              | Phase II Ports                     |
|----------------------------|------------------------------------|
| Hong Kong                  | Port Kelang, Malaysia              |
| Shanghai, China            | Tanjung Pelepas, Malaysia          |
| Singapore                  | Göteborg, Sweden                   |
| Kaohsiung, Taiwan          | Marseilles/Fos, France             |
| Rotterdam, The Netherlands | Livorno, Italy                     |
| Pusan, Korea               | Gioia Tauro, Italy                 |
| Bremerhaven, Germany       | Naples, Italy                      |
| Tokyo, Japan               | Barcelona, Spain                   |
| Genoa, Italy               | Valencia, Spain                    |
| Shenzhen, China            | Southampton, United Kingdom        |
| Antwerp, Belgium           | Thamesport/Tilbury, United Kingdom |
| Nagoya, Japan              | Liverpool, United Kingdom          |
| Le Havre, France           | Zeebrugge, Belgium                 |
| Hamburg, Germany           | Osaka, Japan                       |
| La Spezia, Italy           | Colombo, Sri Lanka                 |
| Felixstowe, United Kingdom |                                    |
| Algeciras, Spain           |                                    |
| Kobe, Japan                |                                    |
| Yokohama, Japan            |                                    |
| Laem Chabang, Thailand     |                                    |
| Montreal, Canada           |                                    |
| Vancouver, Canada          |                                    |
| Halifax, Canada            |                                    |

SOURCE: [http://www.customs.ustras.gov/ImageCache/cgov/content/import/cargo\\_5fcontrol/csi/ports\\_5fcsi\\_5flandscape\\_2eppt/v3/ports\\_5fcsi\\_5flandscape.ppt](http://www.customs.ustras.gov/ImageCache/cgov/content/import/cargo_5fcontrol/csi/ports_5fcsi_5flandscape_2eppt/v3/ports_5fcsi_5flandscape.ppt) (accessed July 15, 2003).

- The seaport must have regular, direct, and substantial container traffic to ports in the United States.

These are fairly onerous conditions, making it unlikely that complete coverage of all sources of containers is achievable. In fact, the third point appears to rule out the notion of complete coverage altogether. Of the 2,600 commercial ports in the world, 575 handle significant numbers of containers.<sup>11</sup>

C-TPAT is a joint government-business initiative to build cooperative relationships that strengthen overall supply chain and border

<sup>11</sup>See <http://www.lloydsports.com>.

security. Through this partnership, the U.S. government is asking businesses to develop security procedures designed to maintain the integrity of their shipments and to have these procedures certified by the government. Businesses must apply to participate in C-TPAT and, in so doing, commit to the following actions:

- Conduct a comprehensive self-assessment of supply chain security using the C-TPAT security guidelines jointly developed by Customs and the trade community. These guidelines, which are available for review on the Customs website, encompass the following areas: procedural security, physical security, personnel security, education and training, access controls, manifest procedures, and conveyance security;
- Submit a supply chain security profile questionnaire to Customs;
- Develop and implement a program to enhance security throughout the supply chain in accordance with C-TPAT guidelines; and
- Communicate C-TPAT guidelines to other companies in the supply chain and work toward building the guidelines into relationships with these companies.

C-TPAT is currently open to all importers and carriers (air, rail, and sea), with the intention of opening enrollment to the broader trade community in the near future, including all sectors of the supply chain.

Participation in C-TPAT produces positive spillovers primarily associated with the better tracking of containers. Shippers acknowledge that this will reduce theft and other losses of containers, thereby lowering costs. It has been reported that from 6 to 10 percent of the containers in yards of some West Coast terminals are in the “unable to locate” category.<sup>12</sup> Presumably, the closer supervision over the loading, unloading, and transporting of individual containers by shippers will serve to reduce this figure, reducing costs.

In addition to initiating these programs, the United States passed the Maritime Transportation Security Act in November 2002. This act imposes many security responsibilities on U.S. ports and vessels traveling

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<sup>12</sup>Nacht (2002).

in U.S. waters. The overall thrust of the law is to reduce the probability of a transportation security incident, whether terrorist-related or otherwise. It mandates the assessment of all vessels and facilities on or near the water to identify those at high risk of being involved in an incident that produces significant loss of life, environmental damage, transportation system disruption, or economic disruption. For vulnerable infrastructure, additional security measures are to be adopted. For all ports, facilities, and vessels, a comprehensive security plan and incident response plan are to be devised. It also mandates identification cards for crew members and select employees at domestic ports.

A rough evaluation of the costs of this act for California has been undertaken.<sup>13</sup> The following are major upgrades needed at some of California's busiest ports: worker ID systems, terminal traffic controls, surveillance and monitoring equipment, and utility upgrades. The costs associated with installing this equipment at Oakland, San Francisco, Hueneme, Los Angeles, and Long Beach run in excess of \$205 million.<sup>14</sup> According to a survey of U.S. ports, the implementation of the security measures mandated by the Department of Homeland Security will take 20 years at current funding levels.<sup>15</sup>

### ***The Container Security Initiative and California Ports***

In 2001, California ports handled more than 7.5 million TEUs.<sup>16</sup> Container imports were handled by 13 of California's 20 seaports and originated in some 925 foreign ports, only 3.9 percent of which participate in the CSI. Although the vast majority of source ports for imports into California do not participate in the CSI, more than 64 percent, by value, of waterborne containerized imports into California

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<sup>13</sup>According to Armstrong (2003), new Department of Homeland Security regulations for shipping at the nation's 361 seaports will cost an estimated \$7.3 billion during the next ten years.

<sup>14</sup>Respectively, Oakland, \$55 million; San Francisco, \$70 million; Hueneme, \$660,000; Los Angeles and Long Beach, \$79 million each (California Marine and Intermodal Transportation System Advisory Council, 2003).

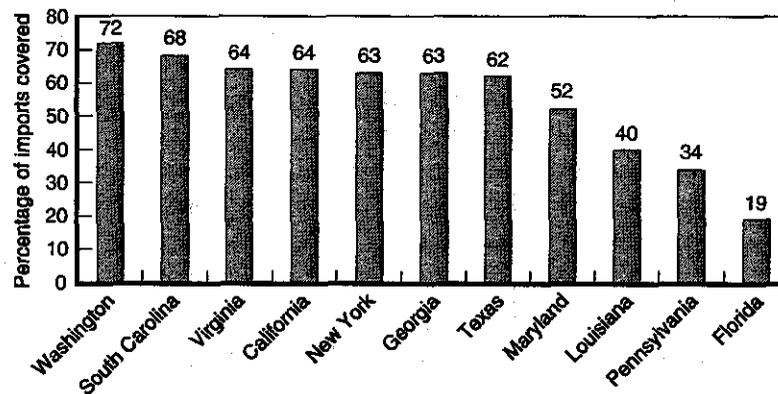
<sup>15</sup>Rosen Lum (2003).

<sup>16</sup>This includes imports, exports, and transshipments. Transshipments pass through the United States on a journey from one foreign country to another.

are covered by it. This coverage ranges from a high of 100 percent of containerized imports arriving at the San Joaquin River Port to a low of 11 percent of containerized imports arriving in San Diego. The state's major ports—Los Angeles, Long Beach, and Oakland—each have coverage ranging between 60 and 70 percent.

By national standards, these coverage figures are relatively high. Among states receiving more than \$10 billion in imports, only one state, Washington, at just under 72 percent, has a higher coverage rate than does California. This contrasts sharply with major East Coast states such as Florida, Pennsylvania, Maryland, and New York (Figure 6.2). Container imports arriving on the Eastern Seaboard tend to arrive from smaller ports, many of which are in Latin America and not yet covered by the CSI.

Yet the number of source ports covered by CSI is perhaps a more relevant number than the value covered, if only because it takes only a single container to wreak local physical and broader economic havoc. As the final column of Table 6.2 indicates, there is substantial variation in the extent of port coverage among California's gateways. More than two-thirds of all ports of origin are outside the CSI for nine of the 13



SOURCE: Author's estimates from U.S. Department of Transportation, *Waterborne Databank*.

Figure 6.2—Coverage of Imports by the Container Security Initiative

**Table 6.2**  
**Containerized Import Flows Through California Ports, 2001**

| Name              | Imports<br>(billion \$) | Containerized Imports          |                        |                                |
|-------------------|-------------------------|--------------------------------|------------------------|--------------------------------|
|                   |                         | Total<br>Value<br>(billion \$) | CSI<br>Coverage<br>(%) | Covered<br>Source Ports<br>(%) |
| Los Angeles       | 86.8                    | 77.1                           | 59.7                   | 4.8                            |
| Long Beach        | 78.0                    | 69.3                           | 67.8                   | 5.0                            |
| Oakland           | 17.3                    | 15.9                           | 65.5                   | 6.6                            |
| Port Hueneme      | 4.7                     | 0.2                            | 34.3                   | 33.3                           |
| San Diego         | 4.0                     | 0.0                            | 11.4                   | 23.1                           |
| El Segundo        | 1.5                     | 0.0                            | 9.0                    | 14.3                           |
| San Francisco     | 1.3                     | 0.7                            | 55.0                   | 15.2                           |
| Richmond          | 0.6                     | 0.0                            | 53.0                   | 42.9                           |
| Stockton          | 0.1                     | 0.0                            | 86.8                   | 62.5                           |
| San Pablo Bay     | 0.1                     | 0.0                            | 50.5                   | 30.0                           |
| San Joaquin River | 0.1                     | 0.0                            | 100.0                  | 100.0                          |
| Sacramento        | 0.0                     | 0.0                            | 0.0                    | 0.0                            |
| Eureka            | 0.0                     | 0.0                            | 51.7                   | 62.5                           |

SOURCE: U.S. Department of Transportation, *Waterborne Databank*.

NOTE: Percentages represent authors' estimates.

ports receiving containers. The numbers are especially low for California's largest ports, for which less than 7 percent of all ports of origin are covered by the CSI.

Although California appears to receive better coverage from the Container Security Initiative than do many other states with port facilities, this is not true of all ports in California. In particular, San Diego is left vulnerable, with only 11.4 percent of its containers originating in CSI ports. Furthermore, California's largest ports continue to receive containers from many foreign ports that are not participating in the CSI. It remains an open question as to just how much security is being provided by the Container Security Initiative.

### Summary and Discussion

Although the 9/11 attacks and the port lockout are very different in nature, they are closely related in their implications for the flow of internationally trade goods through California. Uncertainty with regard to both the labor environment and the costs of port security can result in

a diversion of international trade away from California's seaports. In either case, the efficiency with which goods move through California is eroded. The uncertainty arising from the labor dispute increases the implicit cost of goods through West Coast ports. The labor agreements are also restrictive in the use of technology at California's ports. In comparison to some foreign ports, or even ports on the East Coast, California's ports are considered much less efficient in their ability to move goods smoothly and quickly to land-based modes of transportation.<sup>17</sup> The labor environment on the West Coast leads to the possibility of both a diversion of trade to East Coast ports and shipment by air. Although it is not practical or possible to ship all traded goods by air, increases in shipping costs are likely to be met with a shift of goods with high values relative to weight from sea to air.

The recently imposed security measures also bring increased costs and uncertainty. Should cargo require inspection, ships departures and arrivals may be delayed. Given just-in-time inventory techniques, these delays are very costly to firms importing inputs to their production process. Yet the failure to implement security measures comes with an abstract cost of uncertainty because of the higher likelihood of a terror-related event at any given port. The imposition of security measures, including efforts to track individual containers, may increase costs, but they also come with associated cost savings. The incidence of container loss and theft will surely decline, producing direct savings to all shippers.

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<sup>17</sup>The Rotterdam port is hailed as a model of efficiency, operating 24 hours per day with far fewer workers than are necessary at West Coast ports.

## 7. Forecasting Trade and Transport

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Transporting merchandise globally requires investing in infrastructure locally. The construction of highways, railways, ports, and intermodal facilities all demand significant financial resources for their completion. These investments also tend to have a long shelf life—few governments can afford to scrap ill-considered infrastructure. Moreover, private market activity is shaped by these projects, as firms make decisions based on the provision of public goods. As a result, infrastructure decisions made today can influence economic activity for decades.

A critical component in the infrastructure planning and development process is forecasting growth. In this chapter, we provide estimates on the growth of international trade through 2020.<sup>1</sup> In particular, we combine the results of a long-horizon world trade forecast with our current data on freight demands to provide a picture of transportation needs, by mode, for California and the United States as a whole for the next 20 years. The forecasts for California are further broken out into customs districts for air-based trade and major ports for ocean shipments.

### Method

The forecasts presented in this chapter are based on results from the GTAP.<sup>2</sup> GTAP was established in 1992 to facilitate quantitative analyses of international economic issues. At the heart of this widely consulted project is a standard general equilibrium model of international output

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<sup>1</sup>These estimates draw on work done by GTAP, the Global Trade Analysis Project. GTAP is the pre-eminent tool used by academics and government agencies alike to predict how changes in trade policy will affect trade patterns.

<sup>2</sup>See Hertel (1997), Dimaranan and McDougall (2002), or <http://www.gtap.agecon.purdue.edu>, for more information on GTAP.

and trade. It is designed to examine how changes in economic fundamentals, including investment rates, population growth, and tariff rates, would affect patterns of specialization and trade worldwide.

The forecasts presented here are derived from an extension of the basic GTAP model that incorporates dynamic aspects of the world's economies.<sup>3</sup> The model draws on World Bank forecasts of growth rates in gross domestic product, gross domestic investment, capital stocks, population, skilled labor and unskilled labor for each country. The model further assumes a set of trade policy changes, including the full implementation of Uruguay Round commitments, the implementation of China's accession to the World Trade Organization, and the implementation of the agreement on textiles and clothing. It further assumes that, after the full implementation of the Uruguay Round commitments, there will be gradual tariff reductions commensurate with the rate of liberalization that has occurred in recent decades.

The model is highly disaggregated, allowing analysis of 66 countries that generate the vast majority of world output and trade, with results for 37 sectors in the economy, including agriculture, mining, services, and multiple manufacturing activities. The results from the GTAP simulations forecast changes in the composition of U.S. trade flows by country of origin or destination and also by commodity.

This disaggregation is critical to our exercise. As Chapter 3 indicates, the sectoral composition of trade and its eastward or westward orientation have important implications for the quantity that must be transported and which modes and international gateways are employed. For example, were the model to predict significant growth in imports of iron ore from Africa, that outcome would likely entail substantial weight to be moved via ocean into the Gulf Coast. Suppose, however, that the model predicted the same dollar value in import growth, but in Taiwanese microchips. This would entail less weight and perhaps air shipment to California.

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<sup>3</sup>See Walmsley et al. (2000) for a description of the macroeconomic and policy scenario under which these forecasts were generated. See Ianchovichina (1998) and Ianchovichina et al. (1999) for details on the dynamic version of the GTAP model.

To complete the exercise, we translate GTAP's forecasted trade values into freight demands for each mode and international gateway (customs district). For each commodity and trade partner combination, we assume that trade will be distributed across modes and gateways in a manner that reflects trends in trade flows and gateway use between 1990 and 2002.

### Caveats

Forecasting trade growth 20 years out, like forecasting anything 20 years out, is fairly ambitious. What are the weak links in our process? The first is the reliance on World Bank estimates of GDP and factor supply growth for each country. They are the best available, but their ultimate accuracy is unknown. Second, the model assumes that trade relations worldwide continue on their present trajectory toward liberalization. That may be a reasonable extrapolation from the last 50 years, but is by no means assured. Many experts see successive failures of WTO negotiations and increasingly hostile disputes between the United States, Europe, and China as indicators of a rising trade war or protectionism. Third, the model cannot foresee any sort of sudden technological change. A similar exercise conducted 25 years ago would have no doubt focused heavily on trade in petroleum and largely ignored computing machinery, with the attendant overestimate of the need for supertankers and underestimate of the need for air cargo. Fourth, the model cannot foresee changes in modal demand that would be occasioned either by technological changes or by increases in exporters' demands for time savings.

Most important, our analysis assumes that ports are capable of absorbing an ever-rising volume of trade. Considering that many of California's ports are already near capacity, and local highways are groaning under the weight of the congestion they create, tripling volumes seems implausible. Accordingly, the forecasts should not be read in terms of the volumes of trade that shippers *will* move through California, but rather as a projection of the volumes that shippers *would like* to move through California. Given constraints on expansion, this volume may be moved through other ports, by some other mode, or not at all. This last

possibility suggests that increased port congestion may raise shipping costs and result in less trade.

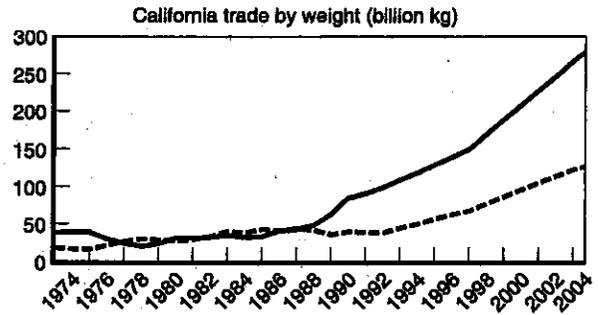
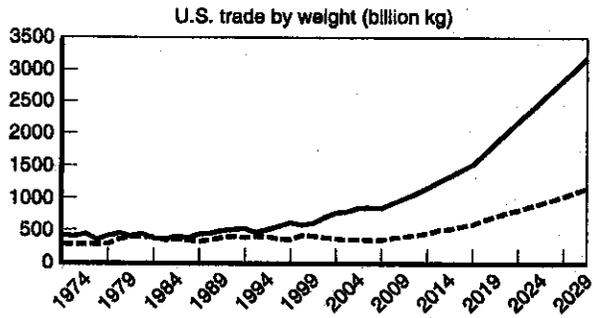
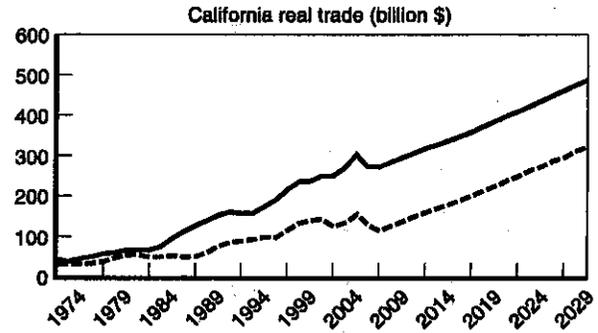
## **Main Results**

Figure 7.1 shows forecast trade growth, by value, for imports and exports. Between 1974 and 2000, the real value of all U.S. imports increased more than fourfold. Our forecast exercise predicts roughly an 87 percent increase in imports and a 148 percent increase in exports between 2002 and 2020 for the United States as a whole. Import growth through California is predicted to rise 81 percent and export growth through California to rise 187 percent.

The source of this trade growth is twofold. First, output growth is predicted to be higher outside the United States, meaning a relative expansion of foreign markets to buy from and sell to. Second, the scenario assumes a gradual reduction of tariff barriers by all countries during this period. Although the United States currently has low tariffs, this reduction of barriers implies more significant liberalization in foreign markets than in the United States.

The second panel of Figure 7.1 shows trade growth by weight. For both California and the United States as a whole, we see an extremely rapid growth in the weight of imports and a widening gap between imports and exports. Here, the commodity composition of trade comes to the fore. As the United States continues to specialize in and export lighter manufactured goods, it will import more and more heavy goods from abroad.

A chronic problem faced by ports and shippers, particularly in the San Pedro Bay, is the dramatic imbalance in container volume through the port. Containers arrive full and depart empty. Figure 7.1 suggests that this problem will only worsen. In 2002, the volume of imports exceeded the volume of exports by almost 55 billion kilograms. By 2020, this imbalance is projected to reach something in excess of 150 billion kilograms. Nationwide, this imbalance grows from nearly 500 billion kilograms in 2002 to almost 2050 billion kilograms in 2020. This contrasts sharply with the top panels in Figure 7.1; by value, the U.S. trade balance is projected to remain fairly constant between 2002 and 2020.



SOURCE: 1974–2002 data are from U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.  
NOTE: Actual trade for 1974–2002 and projected figures for 2005, 2010, and 2020.

As we highlighted in Chapter 5, the growth of heavy trade through California has several unfortunate implications. First, the ad valorem incidence of shipping costs is much higher for goods with high weight-to-value ratios. This means that final demand for these goods is much more sensitive to transportation costs, limiting the ability of ports to increase fees. Second, the effect of shipping on local infrastructure depends on the weight of trade, whereas the potential benefits to ancillary industries depend on value. So a rising weight-to-value ratio implies rising costs without corresponding benefits. Our forecasts indicate that this problem will not improve much for exports and will worsen for imports.

In Table 7.1, we separate growth in the value of trade by mode. On the export side, the simulation predicts similar growth rates for air and

Table 7.1

Projected Growth in the Value of U.S. Trade Through 2020

|                               | Exports |       |       | Imports |       |       |
|-------------------------------|---------|-------|-------|---------|-------|-------|
|                               | 2002    | 2010  | 2020  | 2002    | 2010  | 2020  |
| U.S. Total (billion \$)       |         |       |       |         |       |       |
| Total                         | 671     | 1,080 | 1,665 | 1,115   | 1,451 | 2,089 |
| Air                           | 223     | 384   | 591   | 254     | 306   | 397   |
| Vessel                        | 190     | 314   | 500   | 536     | 733   | 1,131 |
| Other                         | 258     | 381   | 574   | 325     | 411   | 561   |
| Percent Increase over 2002    |         |       |       |         |       |       |
| Total                         |         | 61    | 148   |         | 30    | 87    |
| Air                           |         | 72    | 165   |         | 20    | 56    |
| Vessel                        |         | 65    | 163   |         | 37    | 111   |
| Other                         |         | 48    | 122   |         | 26    | 73    |
| California Total (billion \$) |         |       |       |         |       |       |
| Total                         | 110     | 196   | 316   | 267     | 354   | 482   |
| Air                           | 58      | 106   | 167   | 53      | 63    | 74    |
| Vessel                        | 39      | 68    | 112   | 196     | 266   | 368   |
| Other                         | 14      | 22    | 37    | 18      | 25    | 39    |
| Percent Increase over 2002    |         |       |       |         |       |       |
| Total                         |         | 78    | 187   |         | 33    | 81    |
| Air                           |         | 83    | 188   |         | 19    | 40    |
| Vessel                        |         | 74    | 187   |         | 36    | 88    |
| Other                         |         | 57    | 164   |         | 39    | 117   |

SOURCES: Authors' estimates. 2002 data are from U.S. Census Bureau, *U.S. Exports/Imports of Merchandise* (2002).

ocean modes and slightly lower rates for other (land) modes. This is true for California and the United States as a whole. The numbers on the import side are quite different, showing much higher growth in ocean than in air or land usage. Table 7.2 shows modal growth by weight and tells a similar story: high growth rates on the export side and growth favoring ocean transport on the import side.

To better understand how these changes affect the importance of California in U.S. trade, we perform a shift-share analysis similar to that presented in Chapter 5. The analysis here is limited to the effect of changes in country and commodity composition, as mode and port shares are predetermined by the assumptions of our forecast model.

Table 7.3 indicates that California is expected to handle an increasing share of both air and ocean exports but a declining share of both air and ocean imports. From Column 4 of Table 7.3, we find that this trend is driven largely by changes in the country mix of U.S. trading partners. The destinations for U.S. exports tend to require the use of

Table 7.2  
Projected Growth in the Volume of U.S. Trade Through 2020

|                               | Exports |       |          | Imports |          |          |
|-------------------------------|---------|-------|----------|---------|----------|----------|
|                               | 2002    | 2010  | 2020     | 2002    | 2010     | 2020     |
| U.S. Total (billion kg)       |         |       |          |         |          |          |
| Total                         | 319.5   | 566.9 | 1,113.10 | 816.8   | 1,499.50 | 3,155.20 |
| Air                           | 2.3     | 3.7   | 5.8      | 3.5     | 4.3      | 5.5      |
| Vessel                        | 317.2   | 563.2 | 1,107.40 | 813.3   | 1,495.20 | 3,149.70 |
| Percent Increase over 2002    |         |       |          |         |          |          |
| Total                         |         | 77    | 248      |         | 84       | 286      |
| Air                           |         | 61    | 152      |         | 23       | 57       |
| Vessel                        |         | 78    | 249      |         | 84       | 287      |
| California Total (billion kg) |         |       |          |         |          |          |
| Total                         | 35.9    | 65.3  | 125.8    | 92.0    | 147.8    | 276.7    |
| Air                           | 0.4     | 0.7   | 1.2      | 0.6     | 0.8      | 1.1      |
| Vessel                        | 35.4    | 64.6  | 124.7    | 91.3    | 147.0    | 275.6    |
| Percent Increase over 2002    |         |       |          |         |          |          |
| Total                         |         | 82    | 250      |         | 61       | 201      |
| Air                           |         | 75    | 200      |         | 33       | 83       |
| Vessel                        |         | 82    | 252      |         | 61       | 202      |

SOURCES: Authors' estimates. 2002 data are from U.S. Census Bureau, *U.S. Exports/Imports of Merchandise* (2002).

Table 7.3  
California's Changing Percentage Share of Trade,  
by Value, 2002 to 2020

|         | Share<br>Changes | Commodity<br>Changes | Country<br>Changes |
|---------|------------------|----------------------|--------------------|
| Exports |                  |                      |                    |
| Air     | 2.1              | -0.3                 | 2.3                |
| Ocean   | 1.9              | -0.2                 | 2.1                |
| Land    | 1.0              | -0.2                 | 1.1                |
| Imports |                  |                      |                    |
| Air     | -2.7             | -1.5                 | -1.2               |
| Ocean   | -5.0             | -1.2                 | -3.9               |
| Land    | 1.2              | 0.3                  | 0.9                |

SOURCES: Authors' estimates from GTAP projections and U.S. Census Bureau, *U.S. Exports/Imports of Merchandise* (2002).

NOTE: Columns 2 and 3 may not add to the first column because of rounding.

California as a gateway, whereas imports are increasingly from countries that do not. Much of Central and South America, Europe, and Africa fall in this category.

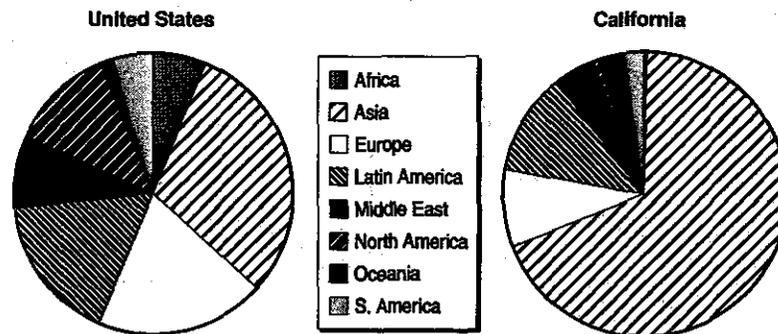
The effect of the changes in country mix is largely driven by developments in trade with China and Japan, two countries that figure prominently in trade through California. Japanese trade is expected to stagnate, reflecting a shrinking population and lower overall GDP growth. Chinese trade is expected to make great strides as a result of both rapid GDP growth and trade liberalization. Finally, California's share of other (land-based) trade is projected to increase as trade with Mexico rises.

The forecast change in the commodity mix of U.S. imports implies a rise in the absolute value of, but a fall in the *share* of, trade moving through California's air and ocean gateways. The change in air imports reflects a reduced role of computer, office, and other electronic equipment in overall U.S. air imports. The fall in ocean imports reflects a declining presence of toys and computer equipment in U.S. imports.

Another observation from Table 7.1 is that trade flows (imports plus exports) through California will grow more quickly than aggregate U.S.

trade. This is largely the result of the important role that Asia plays in expanding U.S. trade. From Figure 7.2, it is immediately apparent that Asia is the largest driver of U.S. trade growth for the next 20 years. This is a result of generally faster growth predicted for these countries than for much of the rest of the world. As Asia-oriented trade plays such a large role in shipments through California, it is inevitable that California will be affected to a larger extent than will other gateway states.

In the coming years, Asian countries are likely to experience significant growth and to be sources of significant trade liberalization. Accordingly, they are predicted to play an important role in the pattern of growth of U.S. trade, as shown in Figure 7.2. Growth in trade with Asia is only a moderate force in overall U.S. trade growth. However, the growth in trade with Asia, and China in particular, drives most of the rise in shipments through California. This is consistent with the findings of Haveman (2003a), who describes the effect of foreign trade liberalization on exports by California firms. In particular, Haveman predicts that the elimination of all tariffs in the world would lead to a 24 percent increase in California's exports, 72 percent of which would be accounted for by an increase in exports to countries in Asia and the South Pacific. These results appear to apply equally well to the flow of trade through California's gateways.

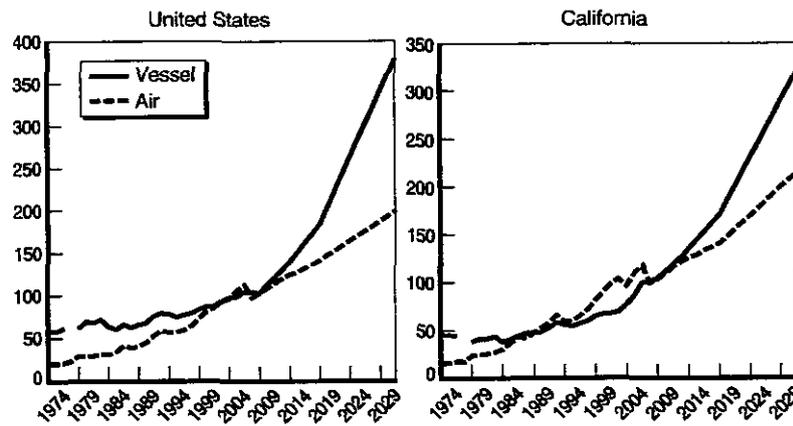


SOURCES: Authors' estimates from GTAP projections and U.S. Census Bureau, *U.S. Exports/ Imports of Merchandise* (2002).

Figure 7.2—Regional Contributions to U.S. and California Trade Growth

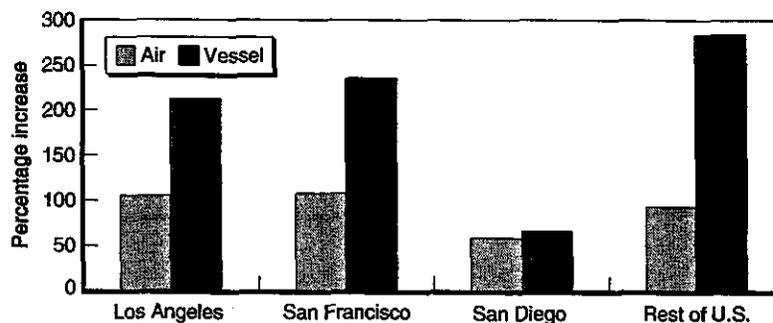
Hidden in the message of Tables 7.1 and 7.2 is the fact that ocean trade through California is expected to grow more quickly than air trade. The gap between the increased value of goods flowing by ocean through California relative to that by air nearly doubles by 2020. The same comparison by weight is not relevant as the weight of trade by ocean overwhelms the weight of air-based trade in any case. However, by scaling the weight of both air and ocean trade in 2002 to be equal to 1, we can compare their trajectories, as is done in Figure 7.3. Although both increase significantly, the increase in the weight of ocean flows is quite dramatic.

Our projections also permit a breakout of trade increases by California customs district (Figure 7.4). The volume of ocean-going trade through California's gateways is projected to increase significantly faster than is the volume of air trade in all three customs districts, although the gap is much smaller for San Diego. This breakdown by customs district helps to put in perspective the dramatic increases that are coming to California gateways. It is difficult to fathom a tripling of shipments through the San Pedro ports, and a volume through San



SOURCE: 1974–2002 data are from U.S. Census Bureau, *U.S. Exports/Imports of Merchandise*.  
NOTE: Actual trade for 1974–2002 and projected figures for 2005, 2010, and 2020.

Figure 7.3—Growth in U.S. and California Trade Volume, by Mode (2002 = 100)



SOURCE: Authors' estimates.

Figure 7.4—Growth in California Trade Volume, by Customs District

Francisco that is three and a half times the current level. Congestion in the vicinity of these ports is already burdensome. In the absence of either dramatic changes in the orientation of trade flows or investments in infrastructure at these ports, conditions may well not be conducive to the handling of this increase in trade flows.

By 2020, the value of trade flows through California is expected to triple. This increase will also have significant consequences for the volume of trade the state will be expected to handle. There is a bias toward increased ocean traffic, so the weight California's ports will be expected to handle is almost four times what it was in 2002. The implications for California's ports are therefore enormous. In particular, the Los Angeles–Long Beach region is already straining to move goods from its port facilities to the interior. Clearly, there is much to be done in preparation for the coming flow of goods. To some extent, however, infrastructure constraints may prevent the realization of these forecasts. Current patterns of flow are not written into stone, and goods will flow through the path of least resistance, which may not ultimately be through California, but possibly Mexico, Canada, or even an upgraded Panama Canal.

## 8. Some Remaining Policy Issues

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The analysis and discussion in previous chapters suggest a great many specific policy questions, but most can be subsumed under one large and overarching question. *Does California want to see more international cargo moving through it, or not?* The volume of cargo moved through California has nearly tripled over the past three decades. The state's existing seaports and airports are already approaching capacity constraints and generating significant traffic congestion and pollution. Yet forecasts of future trade growth—predicated largely on the continued expansion of China as a world trade power and its natural geographic tendency to ship to the United States through California—indicate that the demand for California's cargo services could triple again in the next 20 years. Should California invest in the infrastructure necessary to handle this surging demand? Or should it be content to let ports in less congested areas meet that increased demand?

The argument for investing in infrastructure is that California's status as an entrepôt and international transport hub generates significant benefits, which come in three forms. First, ports and transportation services directly employ many workers, and expansion presumably means more jobs.<sup>1</sup> Second, manufacturing firms whose products are especially difficult to move because of weight or bulk benefit from proximity to efficient seaports. Similarly, manufacturers whose products are especially time-sensitive benefit from proximity to efficient airports. Continuous improvement in port infrastructure therefore aids in the maintenance of the manufacturing base. Third, the combination of port services and the manufacturing activity they attract generates ancillary industries that support each.

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<sup>1</sup>This connection has been made and assessed in a number of publications. Recently, OnTrac (2002, 2003) and Los Angeles County Economic Development Corporation (2003) have been actively involved in evaluating the benefits of trade through Los Angeles for the surrounding areas and the rest of the country.

The best example of these benefits can be seen in the Asian city-states of Hong Kong and Singapore. Together, these entrepôts have the population of Los Angeles but have become economic dynamos and giants in international trade by leveraging the geographic advantage of sitting astride important trade routes. Trade and logistics services employ many citizens of Hong Kong and Singapore, as does manufacturing that takes advantage of their hub status. Most intriguing, though, is how ancillary services such as international finance, insurance, and consulting sprang up in the shadow of their ports. Ultimately, these countries did not become rich because a few hundred thousand workers were employed in their ports, but because the existence of the ports and the trade that flows through them enabled the creation of millions of high-value-added jobs in manufacturing industries.

Still, it is not entirely clear that the examples of Hong Kong and Singapore apply directly to California. The transportation and logistics industry employs 11.2 percent of the overall U.S. workforce, and 22 states have a higher proportion of their workforce in this sector than does California. Furthermore, Los Angeles and Alameda Counties, home to California's major ports, have a smaller percentage of workers in this sector than do many other U.S. counties housing large cities. Inland locations such as Atlanta, Salt Lake City, Denver, and Lincoln, Nebraska, have a higher proportion of employment in transport and logistics than do Los Angeles and Alameda. It is therefore unclear that employment in these sectors receives a tremendous boost because of the ports.

Regarding the dependence of manufacturing on proximate ports, this is an interesting hypothesis, but we are unaware of any direct evidence to support it. Indeed, evidence linking any infrastructure investment to the creation of competitive advantage in manufacturing is scarce. California has a disproportionate share of employment in manufacturing, but without a careful investigation into why this is true, the link to *infrastructure remains speculative*.

In any case, much of California's natural advantage stems from its access to coastal waters and proximity to Asia. But as we have shown in Chapter 5, these advantages can be overcome by air transport. Alaska, not California, sits astride the shortest-distance air route between Asia and most of the United States. As products become lighter, it becomes

easier to rely on air-shipping directly to inland locations and avoid coastal bottlenecks. Airports can operate on a small scale and, indeed, some manufacturers in the Southern states have built essentially private airstrips for moving air cargo in and out of their production facilities. All of these developments combine to create a steady erosion of California's geographic advantage for some goods. Light, high-value goods fly inland and heavy, low-value goods continue to use California's ports.

This compositional shift is a matter of significant concern. The spillover benefits of ports to manufacturing and ancillary services depend on the value moved through them, whereas only the direct benefits of port employment depend on quantities moved. That is to say, a container-load of microchips weighs about the same as a container-load of scrap metal and requires about the same amount of dock labor to move. However, the revenues to ports and local ancillary industries from handling scrap metal are likely to be less than revenues to ports for handling exclusively high-value goods such as microchips.

Further, the costs of hosting gateway ports are also rising in the quantities moved. Chapter 2 emphasized the growing congestion problems near these ports. The Los Angeles area is already severely burdened by the flow of traded goods through the area. On some major routes, SCAG has found that the shipments of goods reduce average highway speeds in excess of 65 percent. To facilitate the increased quantities that our forecast suggests are coming would require dramatic investments in infrastructure—SCAG is currently proposing a 120-mile truck route to be constructed on top of existing highways. Failing this, a significant diversion of traffic away from the Los Angeles region would take place. But other California port facilities and, indeed, each of the other major U.S. ports on the West Coast suffers from significant congestion issues.

The congestion costs are not limited to traffic slowdowns around ports.<sup>2</sup> Trucks moving containers in and out of ports produce significant air pollution, as do the passenger cars idled in the traffic delays caused by

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<sup>2</sup>Don Breazeale and Associates, Inc. (2003) has recently concluded a study that details the costs as well as the benefits of freight movement activity in California. Although thorough, the study does not include a formal accounting. We are unaware of a formal accounting of the benefits and costs of entrepôt status for California.

these trucks. Oceanfront property is also expensive, and reserving a large and growing share of it for shipping crowds out other productive uses of this land. And if transport-intensive manufacturing is attracted to ports, manufacturing that does not require port access is repelled by them. Why would an electronics manufacturer that can easily airlift its product out of any small airport in America fight the higher land prices, labor costs, and highway crowding that ports generate?

Part of the dilemma inherent in our fundamental question is that the relevant economic and political issues cross over obvious jurisdictional boundaries. Put another way, should we think about the expansion of the Port of Los Angeles and associated transport nodes as an issue to be resolved by the port itself, the city and county of Los Angeles, the state of California, or indeed, the United States as a whole? Clearly, the port would like to expand to meet the coming demand, but should Los Angeles assist in this effort given the attendant congestion issues? As congestion is highly localized in the areas around the ports, is congestion an appropriate concern of the state of California? If high traffic through the Port of Los Angeles aids manufacturers throughout California, policymakers at the state level might prefer policies that generate greater congestion for Los Angeles. Similarly, the state could play an active role in expanding facilities at the port, but if this merely diverts port traffic from the Bay Area, is this a good use of resources?

Finally, if the U.S. government finds it worthwhile to facilitate trade, should other states be involved in subsidizing investment in bottleneck areas in California? This last question is noteworthy for two reasons. First, California is a major provider of transport services to other states, and not all the costs of this provision are fully shared. Second, the next round of world trade negotiations are likely to focus on trade facilitation as a key issue. The argument is that, with explicit barriers to trade such as tariffs fading away, further liberalization turns on the ability to remove implicit barriers to trade such as those caused by inefficient transport networks. The U.S. government has been a leader in demanding improved trade facilitation from its trading partners. Can it continue to do so if the major entry points into the United States become bottlenecks?

We raise these questions, rather than answer them, because they are extraordinarily complex. But some effort must be made to determine at what level these infrastructure questions are decided and what mixture of local, state, and federal cooperation is appropriate. State policymakers, both in Sacramento and in Washington, D.C., have recognized the need for such an effort and have begun initiatives designed to improve the transportation infrastructure situation in the state. This effort requires both the identification of infrastructure trouble spots and the generation of resources with which to make the necessary improvements. It also requires the assumption that facilitating an expansion of trade flows through the state is important. As we have suggested above, this assumption is not necessarily correct, although it is an appropriate position to take in the absence of evidence to the contrary.

At the heart of this effort is a program to identify important areas for infrastructure improvement. In 2000, State Senator Betty Karnette began this effort with Senate Concurrent Resolution 96, which initiated California's Global Gateways Development Program and resulted in a report that outlined infrastructure trouble spots and steps needed to improve them.<sup>3</sup> The report recommended specific implementation steps, including the initiation of a Goods Movement Investment Program, the active involvement by the state in improving the operating efficiency of the state's major gateways, greater flexibility in the use of state funds, and the development of coalitions of goods movement advocates to develop greater federal support for the goods movement efforts on the West Coast.

With the exception of a greater funding burden placed on state coffers, which the current budget situation renders all but impossible, much of this call to action is feasible and crucial to improving the flow of goods through the state. There is significant scope for improving the efficiency of the state's major gateways, and coalitions have proven successful at drawing the attention of those in control of significant purse strings. In particular, the I-95 Corridor Coalition, representing the 12

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<sup>3</sup>State of California (2002). An additional publication by the California Marine and Intermodal Transportation System Advisory Council (2003) details specific needs for California's Marine Transportation System.

states from Virginia to Maine and the I-69 Mid-Continent Highway Coalition, a seven-state contingent including Michigan, Texas, and the states in between, have been active for years and have drawn the attention of lawmakers to important infrastructure issues in their regions.

After State Senator Karnette's call to action, several coalitional initiatives have developed that could increase the attention given to California's gateways and the important role that they play in the U.S. economy. In particular, Congresswoman Millender-McDonald has both formed the House Goods Movement Caucus and introduced "Goods Movement" legislation that would allocate additional federal funds for transportation infrastructure projects around the country. This legislation is in addition to efforts by the caucus to increase the attention given to goods movement in the federal transportation infrastructure legislation, currently TEA-21. This legislation has expired and congressional action on reauthorization is scheduled for sometime in 2004.

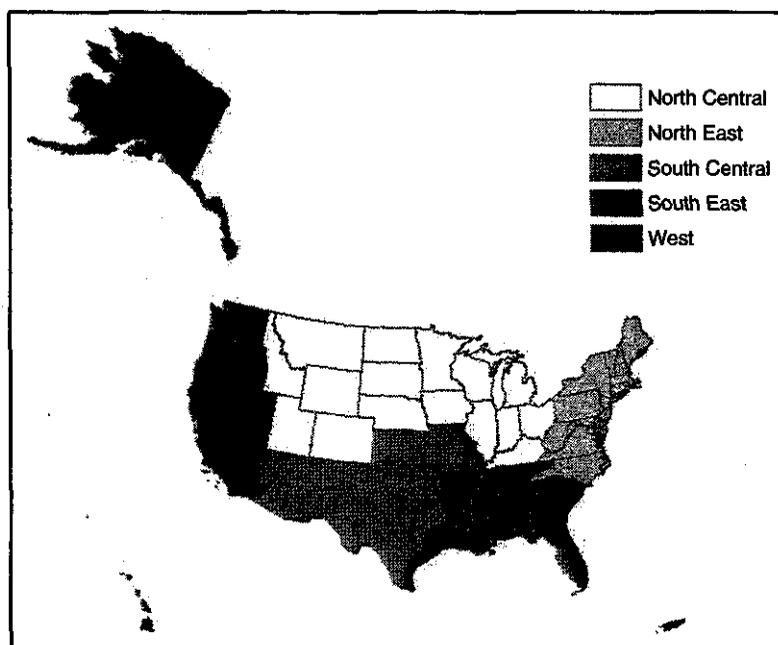
In addition to the federal caucus, Washington, Oregon, and California have joined forces to form the West Coast Corridor Coalition (WCCC). This coalition has goods movement generally rather than international trade as its focus. This effort, although probably too late to influence the TEA-21 reauthorization in any significant way, may help draw national attention to the needs of important goods movement corridors on the West Coast, including California's global gateways.

This report has surveyed California's global gateways, showing where trade has been and where it is likely to go. Although California's initiatives designed to accommodate this trade are appropriate, it remains an open question as to whether this accommodation is truly in the state's best interests. Whatever uncertainties remain, one thing is clear: The demands of international commerce on California's ports and its people will only grow.

## Appendix A

### U.S. Customs Districts, by Region

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NOTES: Boise, Idaho, is part of the West and the remainder of the state is North Central. Port Arthur and Houston, Texas, are part of the South East and the remainder of the state is South Central.

Figure A.1—U.S. Customs Districts, by Region

**Table A.1**  
**U.S. Customs Districts**

| No. | Name                       | Region        |
|-----|----------------------------|---------------|
| 01  | Portland, Maine            | North East    |
| 02  | St. Albans, Vermont        | North East    |
| 04  | Boston, Massachusetts      | North East    |
| 05  | Providence, Rhode Island   | North East    |
| 07  | Ogdensburg, New York       | North East    |
| 09  | Buffalo, New York          | North East    |
| 10  | New York City, New York    | North East    |
| 11  | Philadelphia, Pennsylvania | North East    |
| 13  | Baltimore, Maryland        | North East    |
| 14  | Norfolk, Virginia          | North East    |
| 15  | Wilmington, North Carolina | North East    |
| 16  | Charleston, South Carolina | South East    |
| 17  | Savannah, Georgia          | South East    |
| 18  | Tampa, Florida             | South East    |
| 19  | Mobile, Alabama            | South East    |
| 20  | New Orleans, Louisiana     | South East    |
| 21  | Port Arthur, Texas         | South East    |
| 23  | Laredo, Texas              | South Central |
| 24  | El Paso, Texas             | South Central |
| 25  | San Diego, California      | West          |
| 26  | Nogales, Arizona           | South Central |
| 27  | Los Angeles, California    | West          |
| 28  | San Francisco, California  | West          |
| 29  | Columbia-Snake, Oregon     | West          |
| 30  | Seattle, Washington        | West          |
| 31  | Anchorage, Alaska          | West          |
| 32  | Honolulu, Hawaii           | West          |
| 33  | Great Falls, Montana       | North Central |
| 34  | Pembina, North Dakota      | North Central |
| 35  | Minneapolis, Minnesota     | North Central |
| 36  | Duluth, Minnesota          | North Central |
| 37  | Milwaukee, Wisconsin       | North Central |
| 38  | Detroit, Michigan          | North Central |
| 39  | Chicago, Illinois          | North Central |
| 41  | Cleveland, Ohio            | North Central |
| 45  | St. Louis, Missouri        | South Central |
| 49  | San Juan, Puerto Rico      | South East    |
| 51  | Virgin Islands             | South East    |
| 52  | Miami, Florida             | South East    |
| 53  | Houston, Texas             | South East    |
| 54  | Washington, D.C.           | North East    |
| 55  | Dallas/Fort Worth, Texas   | South Central |

## Appendix B

### World Countries, by Region

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#### Africa

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|                                      |                                      |                       |
|--------------------------------------|--------------------------------------|-----------------------|
| Algeria                              | Eritrea                              | Namibia               |
| Angola                               | Ethiopia                             | Niger                 |
| Benin                                | Gabon                                | Nigeria               |
| Botswana                             | Gambia, The                          | Reunion               |
| Burkina Faso                         | Ghana                                | Rwanda                |
| Burundi                              | Guinea                               | Sao Tome and Principe |
| Cameroon                             | Guinea-Bissau                        | Senegal               |
| Cape Verde                           | Heard Island and<br>McDonald Islands | Seychelles            |
| Central African<br>Republic          | Kenya                                | Sierra Leone          |
| Chad                                 | Lesotho                              | Somalia               |
| Comoros                              | Liberia                              | South Africa          |
| Congo, Democratic<br>Republic of the | Libya                                | Sudan                 |
| Congo, Republic of the               | Madagascar                           | Swaziland             |
| Cote d'Ivoire                        | Malawi                               | Tanzania              |
| Djibouti                             | Mali                                 | Togo                  |
| Egypt                                | Mauritania                           | Tunisia               |
| Equatorial Guinea                    | Mauritius                            | Uganda                |
|                                      | Morocco                              | Western Sahara        |
|                                      | Mozambique                           | Zambia                |
|                                      |                                      | Zimbabwe              |

#### Asia

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|                                   |             |                  |
|-----------------------------------|-------------|------------------|
| Afghanistan                       | Georgia     | Nepal            |
| Armenia                           | Hong Kong   | Pakistan         |
| Azerbaijan                        | India       | Papua New Guinea |
| Bangladesh                        | Indonesia   | Philippines      |
| Bhutan                            | Japan       | Russia           |
| British Indian Ocean<br>Territory | Kazakhstan  | Singapore        |
| Brunei                            | Korea North | Sri Lanka        |
|                                   | Korea South | Taiwan           |

|                         |                         |                                  |
|-------------------------|-------------------------|----------------------------------|
| Burma                   | Kyrgyzstan              | Tajikistan                       |
| Cambodia                | Laos                    | Thailand                         |
| China                   | Macau                   | Turkmenistan                     |
| Christmas Island        | Malaysia                | Uzbekistan                       |
| Cocos (Keeling) Islands | Maldives                | Vietnam                          |
| East Timor              | Mongolia                |                                  |
| <b>Europe</b>           |                         |                                  |
| Albania                 | Greece                  | Norway                           |
| Andorra                 | Holy See (Vatican City) | Poland                           |
| Austria                 | Hungary                 | Portugal                         |
| Belarus                 | Iceland                 | Romania                          |
| Belgium                 | Ireland                 | San Marino                       |
| Bosnia and Herzegovina  | Italy                   | Slovakia                         |
| Bulgaria                | Latvia                  | Slovenia                         |
| Croatia                 | Liechtenstein           | Spain                            |
| Czech Republic          | Lithuania               | Svalbard                         |
| Denmark                 | Luxembourg              | Sweden                           |
| Estonia                 | Macedonia               | Switzerland                      |
| Faroe Islands           | Malta                   | Turkey                           |
| Finland                 | Moldova                 | Ukraine                          |
| France                  | Monaco                  | United Kingdom                   |
| Germany                 | Netherlands             | Yugoslavia                       |
| Gibraltar               |                         |                                  |
| <b>Latin America</b>    |                         |                                  |
| Anguilla                | Dominican Republic      | Netherlands Antilles             |
| Antigua and Barbuda     | El Salvador             | Nicaragua                        |
| Aruba                   | Grenada                 | Panama                           |
| Bahamas, The            | Guadeloupe              | Saint Kitts and Nevis            |
| Barbados                | Guatemala               | Saint Lucia                      |
| Belize                  | Haiti                   | Saint Vincent and the Grenadines |
| British Virgin Islands  | Honduras                | Trinidad and Tobago              |
| Cayman Islands          | Jamaica                 | Turks and Caicos Islands         |
| Costa Rica              | Martinique              |                                  |
| Cuba                    | Montserrat              |                                  |
| Dominica                |                         |                                  |

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**Middle East**

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|            |         |                      |
|------------|---------|----------------------|
| Bahrain    | Jordan  | Saudi Arabia         |
| Cyprus     | Kuwait  | Syria                |
| Gaza Strip | Lebanon | United Arab Emirates |
| Iran       | Oman    | West Bank            |
| Iraq       | Qatar   | Yemen                |
| Israel     |         |                      |

**North America**

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|         |           |                              |
|---------|-----------|------------------------------|
| Bermuda | Greenland | Saint Pierre and<br>Miquelon |
| Canada  | Mexico    |                              |

**Oceania**

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|  |                     |                   |
|--|---------------------|-------------------|
| Australia                              | Micronesia,         | Pitcairn Islands  |
| Cook Islands                           | Federated States of | Solomon Islands   |
| Fiji                                   | Nauru               | Tokelau           |
| French Polynesia                       | New Caledonia       | Tonga             |
| French Southern and<br>Antarctic Lands | New Zealand         | Tuvalu            |
| Kiribati                               | Niue                | Vanuatu           |
| Marshall Islands                       | Norfolk Island      | Wallis and Futuna |
|  | Palau               | Western Samoa     |

**Other**

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Canada for Unknown

Final Destination

**South America**

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|           |                  |              |
|-----------|------------------|--------------|
| Argentina | Ecuador          | Peru         |
| Bolivia   | Falkland Islands | Saint Helena |
| Brazil    | (Islas Malvinas) | Suriname     |
| Chile     | French Guiana    | Uruguay      |
| Colombia  | Guyana           | Venezuela    |
|           | Paraguay         |              |

## Appendix C

### Understanding Shift-Share Analysis

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In Chapter 5, we used a shift-share analysis to distinguish between likely causes of changes in California's share of U.S. trade. In this appendix, we provide some background on the calculations underlying the analysis.

Shift-share analysis begins with the observation that California's share of U.S. trade flows into a particular customs district, by a particular mode of transportation, of a particular commodity, from a particular country, can be computationally calculated as follows:

$$T_{ijk}^l = S_{ijk}^l \times W_{ijk} \times K_{jk} \times C_k$$

where  $l$  indexes U.S. customs districts,  $i$  indexes mode,  $j$  indexes commodities, and  $k$  indexes countries. If  $V$  indicates either the value or the weight of trade flows, the terms on the right-hand side of the equation are then defined as:

$$S_{ijk}^l = \frac{V_{ijk}^l}{V_{ijk}}$$

and is district  $l$ 's share of U.S. imports or exports of goods shipped by mode  $i$ , commodity  $j$ , from or to country  $k$ ,

$$W_{ijk} = \frac{V_{ijk}}{V_{jk}}$$

and is mode  $i$ 's share of U.S. imports or exports of commodity  $j$ , from or to country  $k$ ,

$$K_{jk} = \frac{V_{jk}}{V_k}$$

and is commodity  $j$ 's share of U.S. imports or exports from or to country  $k$ ,

$$C_k = \frac{V_k}{V}$$

and is country  $k$ 's share of all U.S. imports or exports.

Any change in one of California's trade shares,  $T_{ijk}^l$  can then be broken down into the portion attributable to changes in flows into California's customs districts, changes in the modal choice of shippers, changes in the commodity composition of U.S. trade flows, or changes in the country composition of those trading with the United States. Although changes in flows through California's customs districts may result from changes in modal choice, or country or commodity composition of U.S. trade, this analysis removes these factors before ascribing any change in share to elements fundamental to the demand for port services; these changes may result from technological change (bigger ships need deeper ports, or airplanes are able to fly greater distances), relocation of internal markets, or some other change in the demand for port services in California, for instance, relative user fees or costs associated with congestion.

The decomposition is with respect to changes in trade flows between two time periods and is calculated as follows:

$$\begin{aligned} \Delta T_{ijk}^l &= \Delta S_{ijk}^l \times (\bar{W}_{ijk} \bar{K}_{jk} \bar{C}_k) + \Delta W_{ijk} \times (\bar{S}_{ijk}^l \bar{K}_{jk} \bar{C}_k) \\ &+ \Delta K_{ij} \times (\bar{S}_{ijk}^l \bar{W}_{ijk} \bar{C}_k) + \Delta C_k (\bar{S}_{ijk}^l \bar{W}_{ijk} \bar{K}_{jk}) \end{aligned}$$

where  $\Delta$  indicates the change in the share over time and  $\bar{X}$  indicates the average of the share in the two time periods. As a shorthand, we can write:

$$\Delta T_{ijk}^l = S_{ijk} + W_{ijk} + K_{jk} + C_k$$

By adding up these changes in different ways, we are able to discern the proximate sources of the total changes in California's share,  $T$ . For instance,

$$\sum_{ijk} S_{ijk}$$

indicates the contribution of changes in the pattern of port demand to changes in customs district  $l$ 's share of U.S. trade. This can be more or less than the district's actual change in share depending on the influence of changes in modal choice or the commodity and country composition of trade.

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