Intelligent Movement of Goods – *Will Trucks/Trains be able to Operate More Efficiently?*

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Key Problems

Congestion…

1. **At Ports**
2. **On Roadways**
3. **On Rail Lines**

Presentation Roadmap

A. Congestion
   1. Why Do We Have Congestion in Calif.?
   2. How Big is Our Congestion Problem?
   3. How Do We Use Technology to Manage It?

B. “Intelligent Technology” Solutions
   1. Roadway Related
   2. Supply-Chain Related
   3. Integrated Approaches

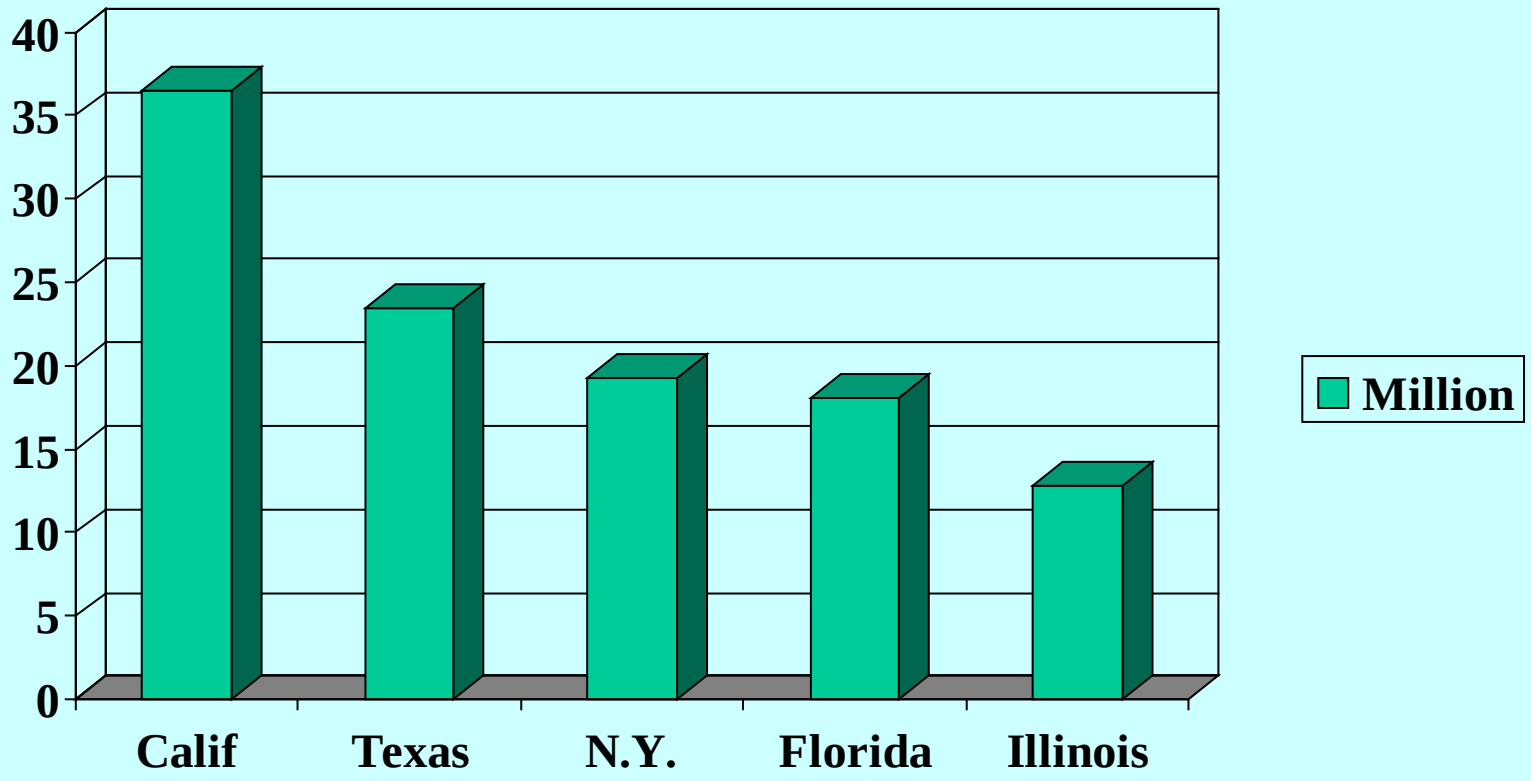
C. Challenges Ahead

D. Policy Questions

A-1. Why Do We Have Congestion in California?

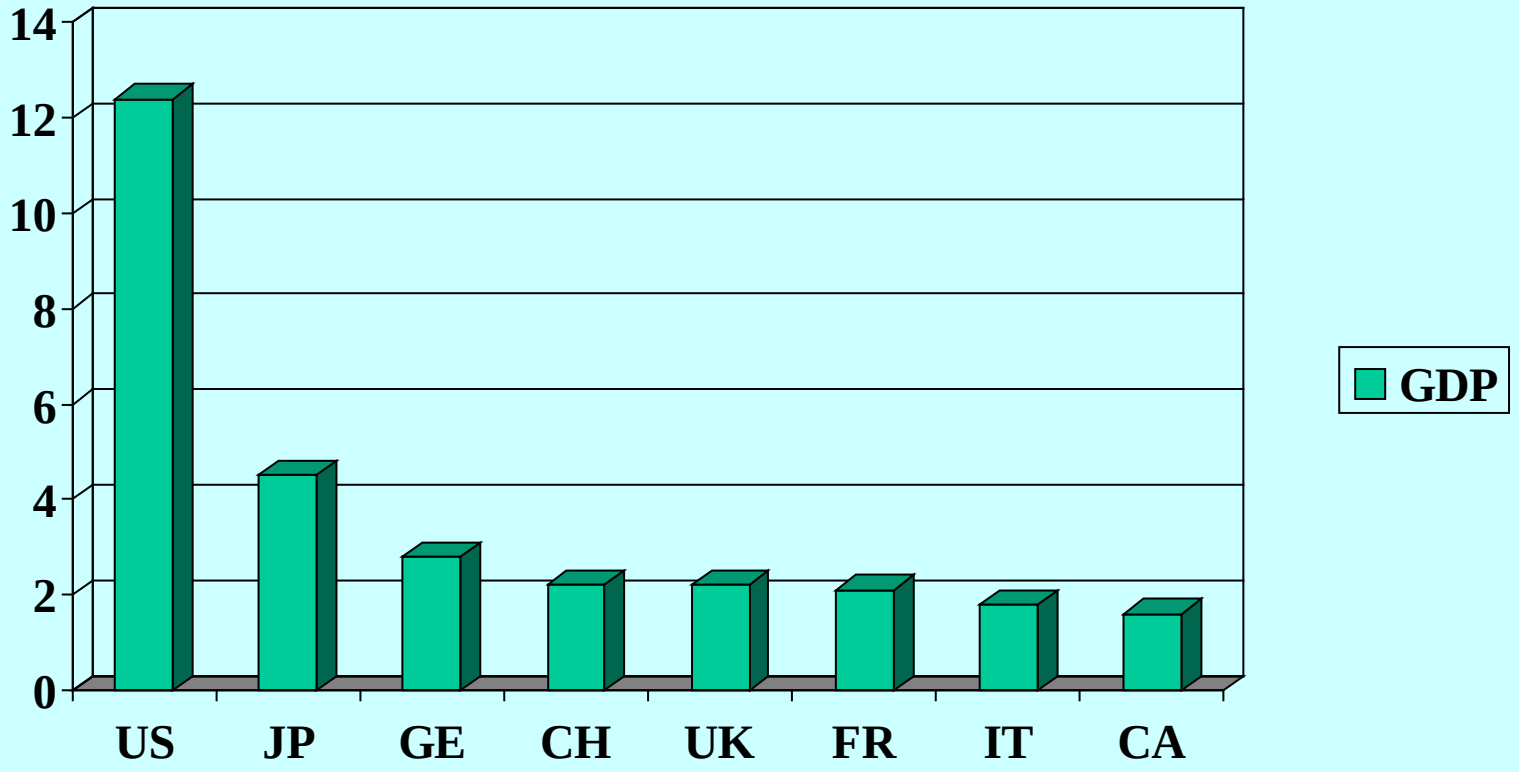
Calif. Has Largest Population

(37 Million = *12%* of U.S.)



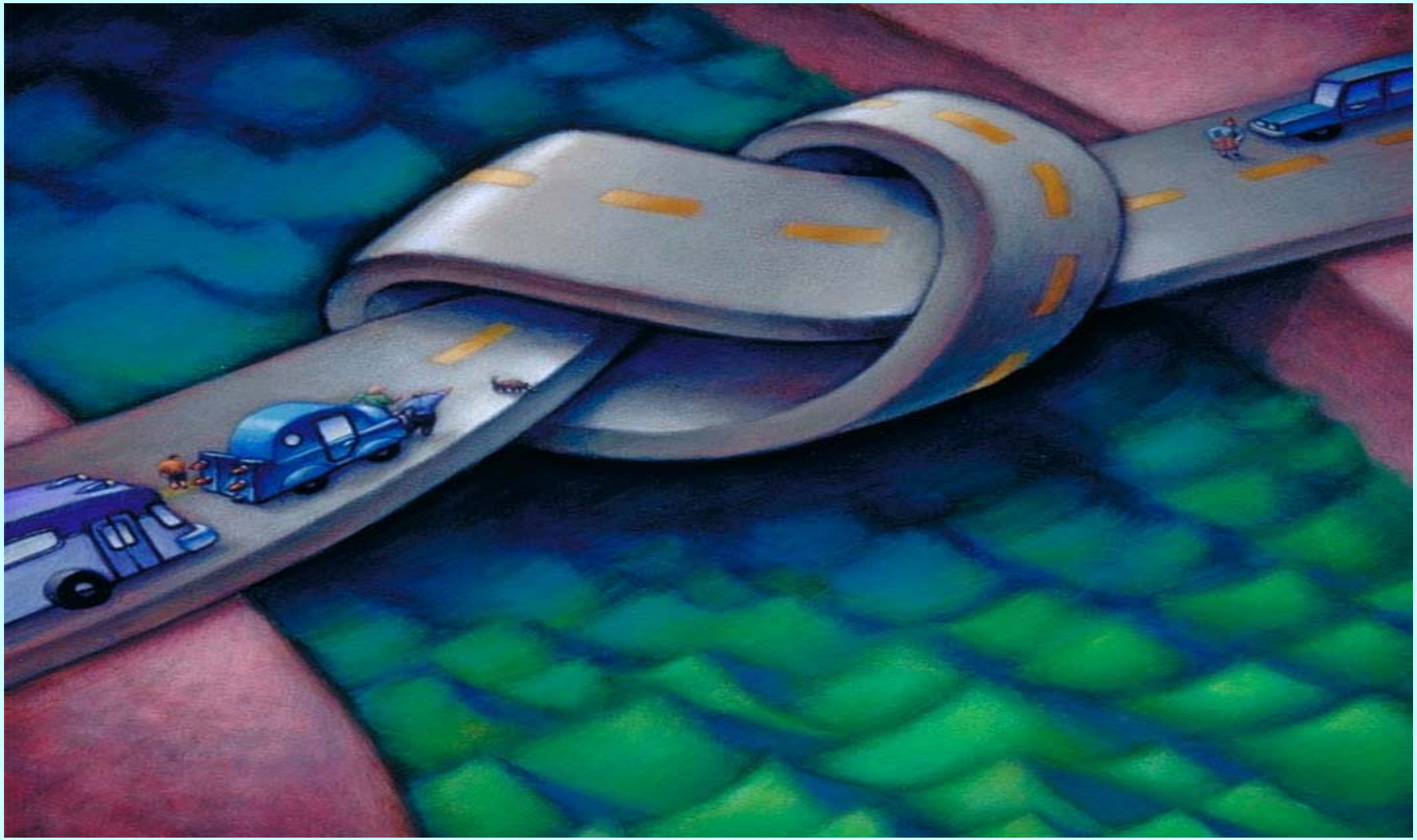
Growth rate is twice national average.

Calif. Economy is 8th Largest in *World*



Source: U.S. Dept. of Commerce

A-2. How Big is our Congestion Problem?



Calif. is #1 in Congestion!

Total Delay (M-hrs.)

Los Angeles/OC	491
New York	384
Chicago	203
Dallas-Ft. Worth	152
Miami	150
Atlanta	132
San Francisco	130
… etc.	

Delay per Traveler

Los Angeles/OC	72
San Francisco	60
Wash. DC	60
Atlanta	60
Dallas-Ft. Worth	58
San Diego	57
Houston	56
Detroit	54
Orlando	54
San Jose	54
Denver	50
Miami	50
Riv./San Ber.	49

Source: TTI-2007

Calif. is #1 in Freight Traffic

Ports of Long Beach & Los Angeles

Located in middle of L.A. urban area

Busiest two ports in USA

Handle 43% of inbound container freight

Projections:

- ✓ ***Doubling*** **in 10 years**
- ✓ **Tripling in 20 years**

… is that possible?

Calif. is #1 in Air Pollution

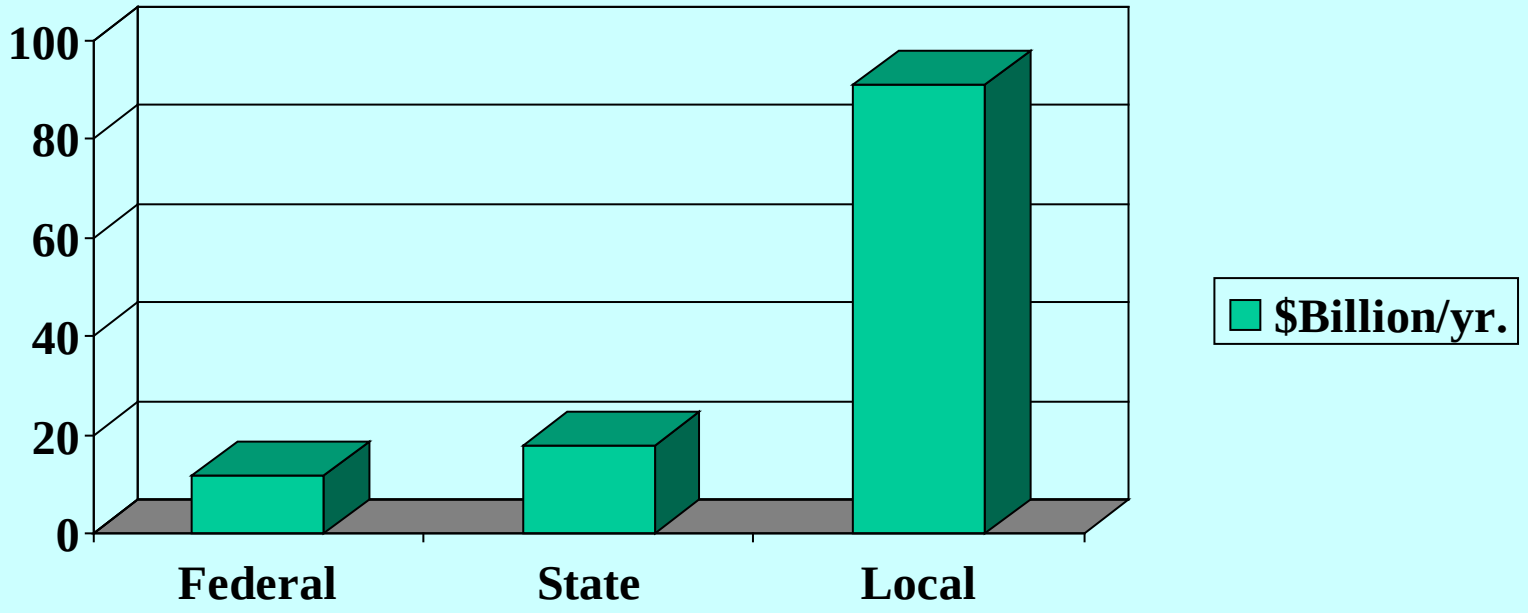
Institutional Landscape: Decentralized

(Example: SoCal)

Cnty.	L.A.	Ven.	Ora.	Riv.	S.B.	Imp.	S.D.
MPO	SCAG						SAN-DAG
RTPA	MTA	VCTC	OCTA	RCTC	San BAG	IVAG	SAN-DAG
Cal-trans	District 7		Dist. 12	District 8		District 11	

Decentralized Funding Sources … and Decision-Making

(e.g.: SCAG region – all transportation $)



Source: SCAG 2004 RTP, 2002-2030 (Pre-Prop. B)

Congestion Conclusions…

1. Most severe congestion in nation
2. Enormous potential growth in travel demand (people & freight)
3. Severe constraints on new capacity

➔ Greatest challenges in USA!

A-3. How Do We Use Technology to Manage Congestion?

Answer:

- ✓ ***Monitor*** **the transportation system**
- ✓ ***Operate*** **the transportation system**
- ✓ ***Manage demand*** **on the system**

Let's look at 3 examples…

a) Freeway Traffic Management

b) Arterial Traffic Management

c) Traveler Information

a.) Freeway Traffic Management

Traffic Cameras (CCTV)

Message Signs (DMS)

Ramp Meters

Traffic Management Centers (TMC)

CA Freeway-Management Portfolio

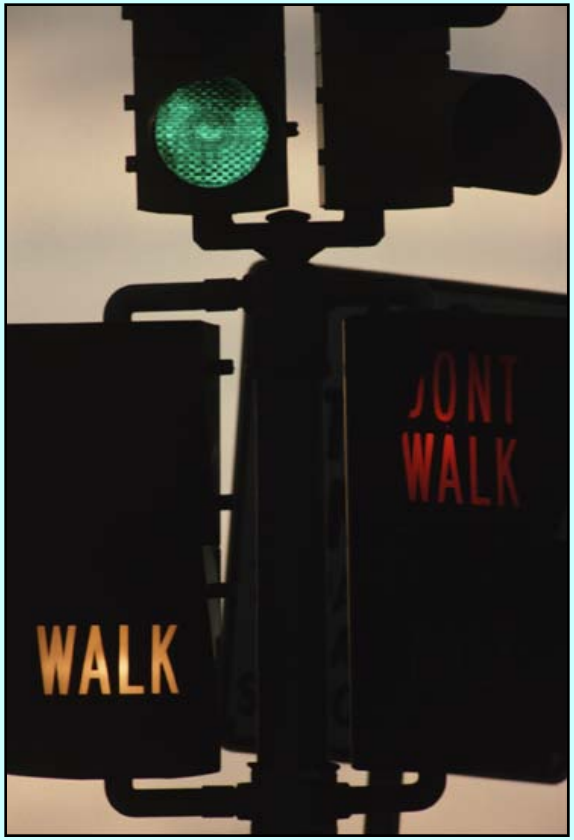
ITS Elements	Rank in USA	#	% of USA
• M/L Detectors (mi.).	# 1	1005	27%
• Ramp meters	# 1	2943	70%
• Freeway CCTV	# 1	1223	24%
• Freeway DMS	# 2	403	13%
• HOV lane miles.	# 1	1268	~40%
• Freeway TMC's.		7	

Source: USDOT ITS Deployment Statistics (2004/2005)

CA Freeway-Management Directions

1. **ATMS Real-Time Performance Measures**
2. **Integrated Corridor Management**
3. **HOV/HOT lanes; managed lanes; toll roads**
4. **Freight/trucking demo projects**
5. **Border & security solutions in SoCal**
6. **Vehicle Infrastructure Integration (VII)**
7. **ITS R&D at UC Berkeley/Davis/Irvine**
8. **and more…**

b. *Arterial* Traffic Management



Calif. Arterial Mgmt. Portfolio

ITS Elements	Rank in USA	#	% of USA
• Arterial TMCs	# 1	34	41%
• Arterial ASC	# 1	742	13%
• Arterial TSP.	# 1	935	32%

Source: USDOT ITS Deployment Statistics (2004)

Future View:

Arterial Management Directions

1. **More adaptive signal control**
2. **Multi-city signal coordination**
3. **Multi-modal coordination & signal priority**
4. **Integrated corridor management**
5. **Extensive data sharing; some shared control**
6. **Vehicle Infrastructure Integration (VII)**
7. **Intersection collision avoidance - CICAS**
8. **More…**

c.) Traveler Information

Traveler Information – Some Examples

L.A. County MTA "RIITS" (L.A. County)

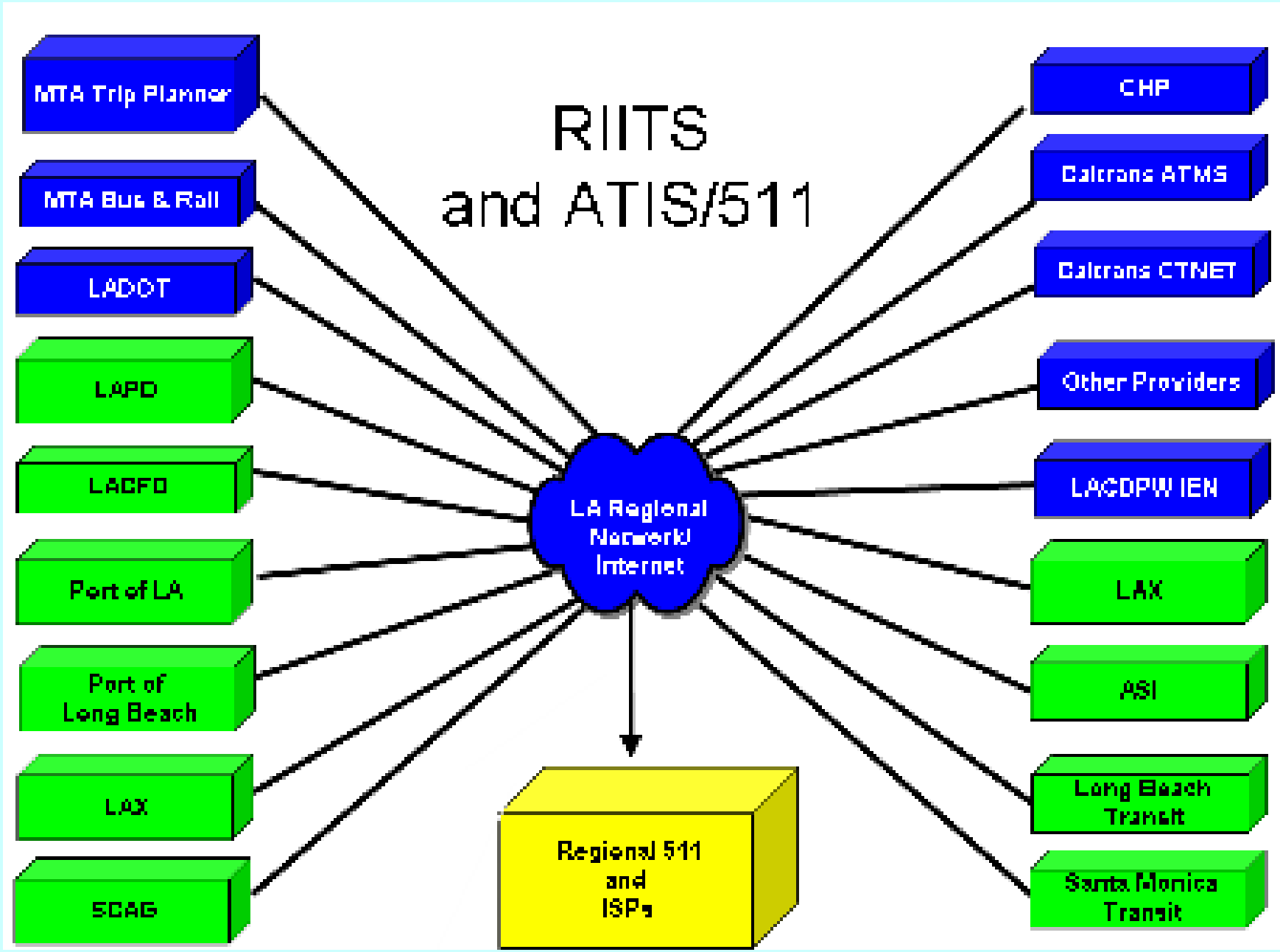
- **Web maps – freeway & arterial congestion; incidents, CCTV, DMS, bus & rail tracking.**
- **Event data base for local agencies**

San Francisco & San Diego *"511"*

- **Phone (IVR) – speeds, travel time, transit, etc.**
- **Web maps – freeway speeds, incidents, etc.**

Private Information Service Providers (ISP's)

- **Internet, Phone; Cable TV, PDAs, more…**


RIITS
and ATIS/511
MTA Trip Planner
MTA Bus & Rail
LADOT
LAPD
LACFD
Port of LA
Port of Long Beach
LAX
SCAG
LA Regional Network/ Internet
Regional 511 and ISPs
CHP
Caltrans ATMS
Caltrans CTNET
Other Providers
LACDPW IEN
LAX
PSI
Long Beach Transit
Santa Monica Transit

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Other Current Delivery Channels

Information Services	Public	Private
1. Internet Traffic Maps	X	X
2. Mobile Devices	X	X
3. In-Car Nav. Systems		X
4. Freeway/Arterial DMS	X	
5. Train/Bus DMS	X	
6. Broadcast TV & Radio	X	X
7. Cable TV Channels	X	

B. “Intelligent Technology” Solutions to Move Freight Better

Intelligent Technology Solutions

General Objectives:

- **Reduce Vehicle Trips**
- **Reduce Vehicle Miles Travelled**
- **Reduce Travel Delays**
- **Reduce Idling Delays**

Source: Gateway Cities ITS/Freight Integration Plan

B-1. Roadway-Based Solutions

Traveler Information **for Trucks**

- **Freeway & Arterial Surveillance (for trucks)**
- **Port Queue Surveillance & Turn Times**
- **Truck Parking Coordination**
- **Port "Reverse 911" Notification System**

Regulatory **Approaches**

- **Vehicle Enforcement (safety, weight, etc.)**
- **Congestion Pricing**
- **Truck tracking/monitoring**

Source: Gateway Cities ITS/Freight Integration Plan

B-2. Supply-Chain Solutions

But what does "Supply Chain" mean?

Here are *major* links in one example (of many):

- **Factory in China**
- **Truck/train to port (Shanghai)**
- **Container ship to USA (POLA/LB)**
- **Truck to local warehouse (Fontana)**
- **Truck/train to Distribution Center (Chicago)**
- **Truck to Retail Store (Peoria)**

Freight logistics is enormously complex!

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B-2. Supply-Chain Solutions

Information **to Shippers & Trucking Companies**

- **Freeway & Arterial Traffic & Incidents**
- **Truck Fleet Monitoring & Communications**
- **Container Tracking System**
- **Port Terminal Scheduling System**

Source: Gateway Cities ITS/Freight Integration Plan

B-3. "Integrated" Solutions

Multi-modal and Multi-Organization **Approaches:**

- **Electronic Freight Manifest System**
- **Virtual Container/Chassis Yards**
- **Goods-Movement Transportation Management System**
- **Other information- and resource-sharing ideas**

BUT…

… these require collaboration with no precedent.

Sources: USDOT; Gateway ITS/Freight Integration Plan

C. What Challenges Ahead?

Challenges Ahead…

1. ***Technology Changes*** **– Blessing & Curse**
2. ***Professional Capacity*** **– Maintaining Skills**
3. ***Public/Private Cooperation*** **– Build "Bridges" to Private Sector**
4. **Interagency Cooperation – Public/Public**
5. **And probably others…**

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Policy Questions Regarding Intelligent Freight Technology…

1. ***Potential to Improve Safety & Efficiency?***
2. ***More cost-effective than construction?***
3. ***Implications for land-use, mobility, energy and environment?***
4. ***Best roles for public and private sector?***
5. ***Policy changes needed to make it happen?***

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