

A Review of the Los Angeles Transportation System

By Mary C. Frederick

MTM 290: Capstone

June 6, 2003

Mineta Transportation Institute

210 North Fourth Street

Fourth Floor

San Jose State University

San Jose, CA 95192-0219

Table of Contents

Executive Summary	3
Introduction	5
The Current System Plan and Planning Focus	5
Financial Challenges and Possibilities.....	13
Marketing Transportation Services	16
Performance Measures	17
Concepts for System Improvements	19
Implementation Strategy	21
Conclusion	23
Endnotes	25
Bibliography	27
 About the Author	29

EXECUTIVE SUMMARY

This review of the Los Angeles transportation system is a management assessment of the current system and its plan, a look at some proposed improvements offered for review by the regional agency and Los Angeles Metropolitan Transportation Authority, an independent offering of plan improvements based on my experience, education, and ideology for transportation in this community. Management plan elements are inspected based on existing information readily available and personal experiences. These management plans are the financial plan elements, the marketing plan elements, performance measures, a strategy proposal for implementation for the transportation system and its operation within Los Angeles County.

Existing air quality standards and existing traffic conditions require that all transportation planning efforts and projects emphasize an improvement in air quality and a reduction of congestion in order to be deemed beneficial and worthy of execution, regardless of their objective benefit/cost rating. These facts will continue to drive transportation decisions in the next twenty years of planning and project implementation.

The regional planning agency, Southern California Association of Governments (SCAG), is the metropolitan planning organization for the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. This association develops solutions for the regional transportation, air quality, and growth issues within these counties. These critical issues cross county boundaries and SCAG works with cities, counties, and public agencies within the six county areas.

The 2003 Draft Short Range Transportation Plan specifically considers the types of improvements that can be planned, designed, and put in place through 2009. The goal of this focused short range plan is to move the most transportation demand at the least cost. This document was needed to address the funding changes that occurred with the 2002/2003 midyear State of California budget correction, the 2003/2004 State of California budget proposal that returned Transportation Congestion Relief funds to the General Fund. This is a dynamic area and is difficult to capture and fully analyze prior to a completed budget or Call for Projects processes and delayed Fund Estimate by the California Transportation Commission.

Every effort is needed to provide convenient, efficient, and relatively low cost transit alternatives in order to improve transportation within the Los Angeles area. Light rail improvements and the system links to Metrolink commuter rail are essential to move the transportation demand into the urban core of Los Angeles.

Improvements to the existing freeway system are needed to continue to improve the operation of traffic movement. Increasing storage on metered ramps, improving metering technology, and ensuring that freeway incident response is available in the congested corridors will do much to improve the level of service of many of the freeway routes. Continued enforcement by police, highway patrol and sheriffs will also assist in improved driver behavior, which should improve traffic flow.

The focus corridors in the current plan are I-5 Golden State/Santa Ana Freeway, I-10 Santa Monica Freeway, I-10/SR60 San Bernardino/Pomona Freeway, SR 14 Antelope Valley Freeway, I-405 San Diego Freeway, and I-710 Long Beach Freeway. It is proposed that congestion hot spots will be targeted in these corridors. The draft plan for action in this area was developed in conjunction with stakeholders along these routes.

As transportation planning moves forward, the methods for funding improvements remain relatively static. Federal transportation funds are augmented by state taxes collected specifically for transportation purposes. It is becoming increasingly important for projects to be prioritized and delivered at the planned cost or below the planned cost, and on the specified schedule to ensure implementation by the Commission. It is also important for available innovative financing tools to be reviewed, analyzed, and implemented as needed to move projects forward to construction to relieve congestion.

Marketing and information systems can be defined as specific Transportation Control Measures under the Clean Air Act, but few specific programs within Los Angeles County are currently being identified as such. The MTA has developed a transit information action plan to improve the public's awareness of the transit system's availability that should result in increased ridership of commuters. It has recognized that additional efforts in marketing can assist in improving transportation within Los Angeles County by improving user information and the knowledge of services available for commuters.

Performance measures develop indicators of the performance of California's multimodal transportation. Building performance measures around customer satisfaction surveys is not sufficient to ensure effective results. Agency leaders must temper customer surveys with actions that support their roles as stewards of the transportation infrastructure. Performance measures should be developed and used as process improvement indicators, not as report cards.

Progress in the field of performance measures is an important topic for transportation professionals. Improvements in the integrated reporting of performance measures are needed in the field of transportation.

A key to system optimization and improved operation of the system is the consistent planning of all transportation agencies and the desire to have complementary and integrated systems for commuters. The importance of incident management cannot be overlooked during the peak hour commutes on the freeways and arterials operating at capacity during the week. The continued support and expansion of freeway service patrols, California Highway Patrol enforcement, and local police or Sheriff presence during peak hours and within construction zones is critical in maintaining and improving traveling speeds for the commuter and traveler.

Planning efforts related to Los Angeles County freight movement are ongoing and MTA expects to complete its Freight Strategic Action Plan by 2007. This document will assess ground freight transportation and intermodal access needs. It is expected that a public and private financial plan would be a part of this Action Plan. Innovative funding programs managed by FHWA may be appropriate for assisting with the implementation of this type of program given the public and private benefits to be gained from goods movement improvements.

A keen approach and focus is needed to ensure that a plan is followed and implemented. Accommodating freight and goods movement is a critical portion of effective transportation management. Goods movement and the improvement of goods movement within Southern California is well documented in plans, strategic visions, and numerous studies. A well-coordinated, multimodal approach is essential for improvements in traffic flow, air quality, and goods movement. This is an area that must be focused on by a range of transportation planners and engineers, and community leaders in a coordinated way to ensure improvements.

INTRODUCTION

Los Angeles transportation infrastructure is a mature and comprehensive transportation system. The system is comprised of arterials and collector routes, freeways, transit and rail. Goods movement is an important facet of transportation in Los Angeles County. The integration of many transportation elements and the optimization of the system are critical for improved mobility and the economic health of Southern California. The methods and practices reviewed and proposed in this paper can be applied to most urban transportation systems that encompass a large land mass and have been created in a general grid format and serve a central business center.

A range of transportation plans have been developed in the past 10 years with the strategy of developing a subway system, commuter rail, freeways, high occupancy vehicle lanes, and designated freight corridors. This review is a look at the current plans in place and the proposed plans, and offers suggestions on improvements that are needed beyond that plan based on sound transportation planning and management theory and experience.

Problem Statement

Additional transportation capacity is needed within existing transportation rights of way to minimize impacts and maintain reasonable system costs. This additional capacity may be gained from new busways, more optimum transit services, or additional high occupancy vehicle lanes, other operational improvements, transportation control measures and other transportation management systems improvements. Innovative methods are required to meet the existing and expected transportation demand.

THE CURRENT SYSTEM PLAN AND PLANNING FOCUS

The regional planning agency, Southern California Association of Governments (SCAG), is the metropolitan planning organization for the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. This association develops solutions for the regional transportation, air quality, and growth issues within these counties. These critical issues cross county boundaries and SCAG works with cities, counties, and public agencies within the six county areas. The SCAG develops plans and strategies that will:

- Enable the efficient movement of people, goods, and information
- Enhance economic growth and international trade
- Improve the environment and quality of life for all residents

These guiding principles can be expanded to performance measures and other evaluation criteria for the various plans and strategies developed by SCAG¹. In developing a regional program in the 1990s the SCAG Board (76 elected officials) worked together and determined the following series of indicators for their system: Mobility, Accessibility, Environment, Reliability, Safety, Livable Communities, Equity, Cost Effectiveness, and Transportation Sustainability². These items can be viewed as an early form of performance measure for the transportation plans and programs this group is responsible for developing. These general themes remain a part of the transportation planning process in Southern California and may be rephrased or restated and prioritized as funding availability changes.

This paper will focus on the Los Angeles County portion of the SCAG program, Los Angeles County Metropolitan Transportation Authority's May 2003 Draft Short Range Transportation Plan and the Los Angeles County position in the Southern California transportation system. Existing air quality standards and existing conditions require that all transportation planning efforts and projects emphasize an improvement in air quality and a reduction of congestion in order to be deemed beneficial and worthy of execution. These facts will continue to drive transportation decisions in the next twenty years of planning and project implementation.

The regional transportation improvement program (RTIP) is prepared every two years for a six-year term and is a financially constrained plan based on expected federal and state formula revenues, and local measure and private revenues. The planned improvements must also meet the transportation conformity test when projected emissions are modeled in specified air quality models for the South Coast Air Basin. Due to current air quality conditions and federal requirements, the SCAG RTIP is required to demonstrate the timely implementation of transportation control measures in the applicable Statewide Implementation Plan (SIP) for the Southern Coast Air Basin. The Federal Clean Air Act, Section 108(f) (1), defines these transportation control measures to include:

- Programs for improved public transit
- Restriction of certain roads or lanes to, or construction of such roads or lane for use by, passenger buses or high occupancy vehicles (HOV)
- Employer-based transportation management plans, including incentives
- Trip reduction ordinances
- Traffic flow improvement programs that achieve emissions reductions
- Fringe and transportation corridor parking facilities serving multiple-occupancy vehicle programs or transit service
- Programs to limit or restrict vehicle use in downtown areas or other areas of emissions concentration, particularly during periods of peak use
- Programs for the provision of all forms of high occupancy, shared -ride services
- Programs to limit portions of road surfaces or certain sections of the metropolitan area to the use of non-motorized vehicles or pedestrian use, both as to time and place
- Programs to secure bicycle storage facilities and other facilities, including bicycle lanes, for the convenience and protection of bicyclists, in both public and private areas
- Programs to control extended idling of vehicles
- Employer-sponsored programs to permit flexible work schedules
- Programs and ordinances to facilitate non-automobile travel, provision and utilization of mass transit, and to generally reduce the need for single-occupant vehicle travel, as part of transportation planning and development efforts of a locality, including programs and ordinances applicable to new shopping centers, special events, and other centers of vehicle activity

- Programs for new construction and major reconstruction of paths, tracks, or areas solely for use by pedestrian or other non-motorized means of transportation when economically feasible and in the public interest. For purposes of this clause, the Administrator shall also consult with the Secretary of the Interior
- Programs to encourage removal of pre-1980 vehicles

Projects that are determined to fall within the above categories are to be given priority in the RTIP and must be maintained on schedules set within these plans. The most recent RTIP was prepared in 2002 with the assumption that Transportation Congestion Relief Funds would be available to assist in funding the projects identified. The current RTIP includes the following specific transportation control measures³ that are pending completion. The projects fall within the categories of high occupancy vehicle improvements, transit/system management, and information services.

- Park and Ride lot construction or improvements
- Planning, design and construction of bike path systems
- Plan, design and construct Railroad Grade Separations
- Transit way shuttle
- Intersection improvements
- Rideshare program activities
- Creation of bus/carpool lanes on local street system
- Creation of bus/carpool lanes on freeway routes
- Web access vanpool information systems
- Pedestrian overcrossings
- Expansion of bus fleets
- Transportation center improvements

The 2003 Draft Short Range Transportation Plan⁴ specifically considers the types of improvements that can be planned, designed, and put in place through 2009. This short range plan is a subset of the RTIP, reflects the regional transportation goals, and addresses the transportation demands and challenges specifically identified for Los Angeles County. This document was needed to address the funding changes that occurred with the 2002/2003 midyear State of California budget correction and the 2003/2004 State of California budget proposal that returned Transportation Congestion Relief funds to the General Fund. This is a dynamic area and is difficult to capture prior to a completed budget process.

The goal of this focused short range plan is to move the most transportation demand at the least cost. This regional plan focuses on specific recommendation areas:

- Working with municipal and local transit operators coordinate services to implement the approved 2002 Short Range Transportation Plan (interagency coordination)
- Continuing to implement 26 Metro Rapid corridors and working with municipal operators to implement services in these corridors beyond the plan's 2009 horizon

- Extending Metro Rail and Metro Rapid transitways and to continue to develop rail corridors identified in the Metrolink Regional Commuter Rail system
- Adding nearly 70 lane miles of carpool lanes to the HOV network and to improve arterial projects
- Implementing demand management, intelligent transportation system improvements, including support for transportation/land use coordination, ridesharing, pedestrian, and bicycle programs

To develop the short range transportation plan proposal, a review of the existing nine subregions in Los Angeles County was made and six of the most congested corridors were reviewed and studied. This plan offers a framework for system optimization within the core of the transportation network and within these subregion communities.

The subregions were analyzed as to their setting, trip production, land use, and demographics, mobility challenges for each subregion were delineated and the future plans based on expected revenues are presented in the plan. Each subregion was given an opportunity to comment and provide input to the plan with a stakeholder recommendation section. This element of community and stakeholder input and involvement is critical for regional cohesiveness and plan success.

The Subregions of Los Angeles County and their transportation challenges⁵:

- Arroyo Verdugo Cities (Glendale, Burbank and La Canada Flintridge)
 - Challenges: Drivers seeking short-cuts through residential neighborhoods
 - Surface street congestion
 - Metrolink does not extend to Burbank and Glendale employment hubs
- Gateway Cities (Artesia, Avalon, Bell, Bell Gardens, Bellflower, Cerritos, Commerce, 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, Vernon, and Whittier)
 - Challenges: This region holds the 10th largest container port in the world
 - Goods movement traffic is growing at a rapid rate: truck traffic is expected to reach 100,000 trucks per day by 2025
 - System integrity and safety are being compromised with the high truck volumes and substandard interchanges and weaving distances
 - Railroad and arterial grade crossings cause congestion and severe queuing
- Las Virgenes/Malibu (Agoura Hills, Calabasas, Hidden Hills, Malibu and Westlake Village)
 - Challenges: Inadequate capacity for the current and projected demand
 - Severe weekend and holiday traffic is experienced
 - Limited transit alternatives

- North Los Angeles County (Lancaster, Palmdale, Santa Clarita, and other unincorporated county areas)

Challenges: Commuter traffic is the primary challenge in this region

High truck volumes in the Newhall Pass region of Interstate 5 often cause stop-and-go conditions
- Central Los Angeles (Atwater Village, Baldwin Hills, Boyle Heights, Central City, Chinatown, Eagle Rock, Echo Park, Gassell Park, Hancock Park, Highland Park, Hollywood, Hollywood Hills, Korea Town, Liemert Park, Little Tokyo, Miracle Mile, Mt. Washington, Silver Lake, University Park, West Adams, Wilshire Center, portions of South Los Angeles, and unincorporated portions of East Los Angeles County)

Challenges: The central area's transportation and urban setting is completely built-out and capacity cannot be added to the freeway or arterial systems

Traveler behavior must be changed in this subregion to heavier utilization of transit or commuter rail
- San Fernando Valley (the San Fernando portion of the City of Los Angeles, City of San Fernando)

Challenges: Growth rates are high at the eastern and western fringes of this subregion

Route 405 serves as a major commuter route from the western areas and also serves the LAX region
- San Gabriel Valley (Alhambra, Glendora, Rosemead, Arcadia, Industry, San Dimas, Azusa, Irwindale, San Gabriel, Baldwin Park, La Puente, San Marino, Bradbury, La Verne, Sierra Madre, Claremont, Monrovia, South El Monte, Covina, Montebello, South Pasadena, Diamond Bar, Monterey Park, Temple City, Duarte, Pasadena, Walnut, El Monte, Pomona, West Covina)

Challenges: Mitigating rail and truck traffic in this area is a significant challenge

Interregional commuters also utilize the freeways and arterials in this area

This region contains some of the oldest freeways in the California transportation system and contains substandard interchanges and weaving sections for the type of traffic utilizing it, compromising safety.
- South Bay Cities (Carson, Palos Verdes Estates, El Segundo, Rancho Palos Verdes, Gardena, Redondo Beach, Hawthorne, Rolling Hills, Hermosa Beach, Rolling Hills Estates, Inglewood, Torrance, Lawndale, City of Los Angeles – San Pedro/Wilmington Harbor Corridor, Lomita, Manhattan Beach, and unincorporated Los Angeles County)

Challenges: The Ports of Los Angeles and Long Beach are within this subregion – cargo and truck demands

Los Angeles International Airport – cargo and truck demands
- Westside Cities (Beverly Hills, Culver City, Santa Monica, West Hollywood, Pacific Palisades, Brentwood, Century City, Westwood, Westchester/LAX, Baldwin Hills, Ladera Heights, Marina Del Rey and Venice)

Challenges: Arterials and transit systems are nearing capacity in this region
Access into and around this area is seen as limited

The transportation challenges identified within the subregion communities can be addressed in the short range and long range transportation improvement efforts developed by MTA and SCAG. The continued implementation of Metro Rapid bus lines and added car pool lanes to complete the planned system are essential in addressing these needs. Every effort is needed to provide convenient, efficient, and relatively low cost transit alternatives in order to improve transportation within the Los Angeles area. Light rail improvements and the system links to Metrolink commuter rail are essential to move the transportation demand into the urban core of Los Angeles.

An important component of this plan is the improvement proposed to arterials and the local transportation networks that feed or parallel the freeway system in Los Angeles County. The improvement of an alternative local system to the freeway system is needed to move travelers within the region and to allow the travelers on the freeway system a less congested interregional trip. The operation of this arterial system is as important as the traffic flow on the freeway system during the peak hours. Every effort to eliminate incident congestion and improve traveling speeds must be made to move the demand at the peak hour.

Improvements to the existing freeway system are needed to continue to improve the operation of traffic movement. Increasing storage on metered ramps, improving metering technology, and ensuring that freeway incident response is available in the congested corridors will do much to improve the level of service of many of the freeway routes. Continued enforcement by police, highway patrol and sheriffs will also assist in improved driver behavior, which should improve traffic flow.

A study for a tunnel alternative and exclusive on-off ramps for trucks are suggested for the Route 710 in Long Beach in the draft short-range plan. This suggestion highlights the importance of this corridor within the Los Angeles area to commerce and economic health. Real time commercial truck routing information and other goods movement system operational tools would enhance the operating level of service within this corridor. The traffic operations study would define these alternatives and operation enhancements and determine if a tunnel alternative is a viable engineering option and to develop the costs and additional risks for this magnitude of project. If a tunnel is determined feasible and exhibits a significant benefit to the congestion and traffic flow in this corridor, every effort to develop a series of projects to construct a tunnel would be required.

Commuter rail improvements offered within the short range plan focus on procuring additional rolling stock for Metrolink, improvements on the Antelope Valley Line, and Gold Line rail service. These improvements are deemed essential to improving the commuter experience from the Antelope Valley and East Los Angeles. A light rail line is proposed to serve Little Tokyo/Arts District, Boyle Heights and East Los Angeles. Approximately 20% of the working in this area of Los Angeles utilizes transit to commute. The construction of a light rail line could better serve this commuter population and allow for additional riders on the bus system.

A system approach to Los Angeles transportation planning is supported by the principles brought forward in Intermodal Surface Transportation Efficiency Act (ISTEA), Transportation Efficiency Act for the 21st Century (TEA-21), and the proposed Safe, Accountable, Flexible, Efficient

Transportation Equity Act (SAFETEA)⁶ delivered by the current administration for consideration and hearings in the Senate and House Transportation Committees on May 15, 2003.

The SAFETEA proposal builds upon TEA-21 and offers additional proposals related to maintaining existing infrastructure and eliminating existing chokepoints. The Infrastructure Performance and Maintenance Program would support projects that result in immediate benefits for highway system condition and performance while avoiding long-term commitments of funds. This program would allocate \$1 billion to States for each fiscal year between 2004 and 2009.

The Freight Gateways Program is proposed to enable systematic, intermodal improvements for freight movement into and through major trade transport gateways and hubs, and improvements to the transportation infrastructure that connects these gateways to the Nation's mainline transportation networks⁶. Los Angeles could be a major benefactor of this program.

These elements of the proposed Act will support the planning and project implementation efforts that have been proposed in the RTIP and recently released Draft Short Range Transportation plan prepared by MTA. Some elements of the proposed Act will assist in addressing the backlog of maintenance and rehabilitation needs in states throughout the nation.

The Interregional Transportation Strategic Plan, developed in June 1998, is the California Department of Transportation's framework for the programming and financing decisions on the interregional routes designated within the state. A technical appendix accompanies the plan and it is intended to be used as a guide in joint and continuous planning and programming processes with our transportation partners. The plan is considered applicable and remains a viable transportation planning document. Approximately 25% of the funds available for interregional improvements are controlled by the California Department of Transportation. Interregional Improvement Program funds are allocated based on the project's viability and alignment with this plan⁷.

Six key objectives of the Interregional Transportation Strategic Plan are:

- 1) Complete a trunk system of higher standard state highways,
- 2) Connect all urbanized areas to the freeway and expressway system,
- 3) Ensure a dependable level of service for movement into and through major gateways of statewide significance and ensure connectivity to key Intermodal transfer facilities, seaports, air cargo terminals, and freight distribution facilities.
- 4) Connect urbanized centers and high growth areas to the trunk systems,
- 5) Link rural and smaller urban centers to the trunk system, and
- 6) Implement an intercity passenger rail program that complies with federal and state laws, improves service reliability, decreases running times, and reduces the per-passenger operating subsidy.

In a discussion with Doug Failing, California Department of Transportation District 7 Director, Mr. Failing noted that currently transit received 60% of funding and currently carries an average of 7% of the transportation demand. There is recognition that this funding distribution requires review, from an interregional perspective. Ridership must be increased to carry more of the transportation demand in order for the level of service of the system to improve.

Objective 3 (Ensuring dependable level of service) and Objective 6 (Implementing intercity passenger rail) are particularly relevant to the Los Angeles area. These are two key areas in which the California Department of Transportation and the MTA and SCAG can work together to improve the current transportation system.

The focus corridors in the current plan are:

- I-5 Golden State/Santa Ana Freeway
- I-10 Santa Monica Freeway
- I-10/SR60 San Bernardino/Pomona Freeway
- SR 14 Antelope Valley Freeway
- I-405 San Diego Freeway
- I-710 Long Beach Freeway

It is proposed that congestion hot spots will be targeted in these corridors. The draft plan for action in this area was developed in conjunction with stakeholders along these routes. This element of the plan will be expanded to include additional congested corridors in the 2004 update. The additional routes for the analysis and study in the 2004 update will include SR-91, I-105, US 101, SR 134/I-210, and I-605.

The continued improvements to intercity rail can assist in reducing the congestion of Los Angeles freeways and some arterials. Commuters from the outlying areas should find the intercity rail system attractive, convenient, and reliable. Light rail and bus links to these commuter rail lines can be optimized and cars or busses added or deleted from trains or on routes as demand warrants. Transit operators will benefit from system studies, surveillance, and trip analysis to ensure they are serving the demand as efficiently as possible.

The MTA Draft Short Range Plan does focus on projects that will meet the objective of ensuring dependable level of service and implementing intercity passenger rail. It appears that additional discussion and negotiations related to the overall funding plans for the projects proposed within these plans may result in multiple funding sources for some projects. The Interregional Transportation Strategic Plan also notes the importance of the Intermodal Corridors of Economic Significance. The Los Angeles area has benefited from the development of interregional corridors and the continued work by the Alameda Corridor Transportation Authority in its design and construction of new freight rail lines within the urban area. These efforts in addition to traditional transportation improvements will improve mobility within the Los Angeles basin.

Use of benefit cost ratios, cost benefit analysis, and other transportation planning tools such as the Intermodal Transportation Management System (ITMS) can assist in providing objective analysis and information to decision-makers regarding transportation improvements. Quantified project benefit statements are essential to communicate with stakeholders, opponents, and advocates. Significant information and tools are available for Regional Transportation Agencies to utilize in the evaluation of proposed projects and funding strategies. Alaska Department of Transportation has utilized the Benefit Cost Analysis to evaluate the use of GARVEE financing vs a traditional STIP pay-as-you-go approach⁸

Global Gateways Development Program⁹ is a report that reflects the stakeholder perspectives on the urgency and options to improve goods movement in California. This document, written in

2002, reviews the existing goods movement corridors, defines deficiencies, and offers improvement corridor descriptions for improvements to address the deficiencies. The importance of a strong partnership and coalition of transportation leaders is stressed in the program document. The importance of improved communications within the freight and goods movement industry is an essential point that is made. Every effort to implement Intelligent Transportation Systems, construct a system of weigh-in-motion scales, provide internet-based appointment systems, changeable message signs, electronic manifests and cargo interchange, and more advanced traveler information management systems are needed to advance goods movement in the Los Angeles area. Within this plan the importance of prioritization and incremental improvements is stressed. The importance of project selection based on the greatest transportation, economic, and community benefit is also noted. Tools to objectively rank and prioritize projects based on these elements are essential in the implementation of this plan.

FINANCIAL CHALLENGES AND POSSIBILITIES

As transportation planning moves forward, the methods for funding improvements remain relatively static. Federal transportation funds are augmented by state taxes collected specifically for transportation purposes. The California Transportation Commission monitors and manages the specific funding of projects completed as authorized under transportation plans. Transportation project needs exceed projected transportation funding. It is becoming increasingly important for projects to be prioritized and delivered at the planned cost or below the planned cost, and on the specified schedule to ensure implementation by the Commission.

Many communities passed transportation sales tax measures in the 1980s to assist in funding the necessary transportation improvements for their growing communities. These tax revenues have been utilized to partially fund capacity increasing projects, improve and maintain local transportation networks and in some cases complete unfunded freeway systems and core transportation networks. Many of these Sales Tax Measures will sunset at the end of their 20 year planned life. Closeout efforts are underway in many of these organizations to determine if any additional funds might be available or if their local voters would reauthorize the extension of the tax measure. These funds have been a useful match to special federal program funds and other grants. The loss of these funds could be significant in some communities, causing higher user fees and the creation of special assessment districts to assist in financing any loss in sales taxes.

Many projects to modify freeway access or improve intersections within the local systems are funded by developers. Developer projects are dependant on the health of the economy and many transportation improvements in this category are created to serve increasing access needs of new residential communities and the work commute created by these communities.

GARVEE BONDS

The State of Alaska, Department of Transportation, in March 2001 prepared a comprehensive analysis of GARVEE vs "Pay-as-you-go" STIP funding¹⁰. This analysis determined that the State of Alaska would benefit from the use of GARVEE bonds to finance it's transportation projects and provide a general fund savings of approximately \$63 million over the course of bond issue, provide \$39 million in construction cost savings due to the avoidance of cost inflation, and provide far quicker completion. The State of Alaska program can be compared

and some parallels drawn to smaller regional transportation agency programs in the State of California. Traffic composition and system configurations are significantly different than those of the regional agencies in most of California. The benefits noted by FHWA for financing via GARVEE bonding are an acceleration of the project benefits and a moderate savings to the sponsor in the form of lower credit costs. New Mexico and Colorado have also benefited from utilizing GARVEE bonding in lieu of a pay-as-you-go strategy on several of their corridor projects. A main advantage of the use of GARVEE bonds is the ability to retire the debt incurred with future Federal-aid apportionments.

INNOVATIVE FUNDING

Federal credit initiatives lower funding barriers to revenue-backed debt by securing a new source of secondary and subordinate capital. These programs, initiated in 1994, can reduce the senior investor's risk exposure. The programs designed under Transportation Infrastructure Finance and Innovation Act (TIFIA) were established to provide credit enhancement to the point of allowing financially marginal projects access to capital markets for the remainder of the borrowing needs. A specific goal of the TIFIA program is to induce private investment in transportation infrastructure. Specific project examples of these types of projects are State Route 125 South, Farley Penn Station, and Reno Transportation Rail Access Corridor¹¹.

Potential benefits of TIFIA assistance are:

- Revenue leverage. A project is able to access a new or untested revenue stream that was otherwise unmarketable
- Senior debt enhancement. TIFIA can be structured as junior-lien financing in order to enhance the creditworthiness of senior-lien capital markets financing through greater debt service coverage
- Coverage benefit. Leveraging potential can be increased and financing efficiency improved by accepting lower ratios of projected revenues to total debt service.
- TIFIA can attract or accompany public co-investment in the form of governmental grants or loans, or private co-investment in the form of debt or equity financing.
- Flexibility of the payment features. Payments can be structured according to project cash flows. Repayment at any time without penalty is allowed, and interest deferral can be through construction and ramp-up of operations.

This financial tool could continue to be useful to finance and advance goods movement projects and some transit projects needed in the Los Angeles County area. The Alameda Corridor projects have benefited from TIFIA financing and will be working through the repayment process in the years to come.

TOLLS

More transportation corridors are being considered for toll road designation, and route segments that were designated as toll facilities are continuing to be developed. The recent financing of State Route 125 South in southern San Diego County provides an example of the continued push for transportation facility development within the international border zone. The funding of the construction will be financed through TIFIA financial agreements and other private financing. The change in ownership to the Macquarie Infrastructure Group in 2002, and the resolution of

the environmental clearance allowed for the completion of the financing of this route segment. The facility will be a toll route and construction is scheduled for completion in a 41-month period. The project will be executed as a design-build project with California Department of Transportation quality assurance¹².

Senate Bill No. 138, introduced by Senator Knight on February 6, 2003, offers a proposed toll road designation¹³. This proposal would modify the Streets and Highway Code related to transportation to allow State Route 138 corridor between Palmdale and Victorville in Los Angeles and San Bernardino Counties to operate as a toll facility. The current roadway is a two-lane conventional highway and does operate with a large percentage of trucks in its traffic mix. The proposal is currently in the Assembly Transportation Committee after passing within the State Senate. The last date of action on this bill was May 15, 2003. This indicates that some efforts to expand toll facilities within California are active and interested in specific routes and expanding the consideration of toll facilities for specific routes.

Alternatives for development of new funding for transportation improvements have included the concept of tolling the existing interstate routes. Modern electronic collection devices could be utilized to collect truck and passenger vehicle tolls on existing routes. The system proposal is technically sound and would work in conjunction with on-board computerized systems and toll information could be collected via transactions to debit/credit card clearing house agencies. A similar system is being put in place on the Germany Autobahn system and is being implemented by the German Transport Ministry under contract with Daimler Chrysler and Deutsche Telekom. The German system is being bank-financed based on the vendor's guaranteed collection of rate of 99.5%¹⁴. Others criticize this tolling concept in the transportation community. Robert Poole, Jr. of the Reason Foundation sites the strong trucking lobby as a key opponent to any system proposal of this kind. He challenges the federal government to allow the states to pursue more innovative methods to completing development and construction. The implementation of more design-build, public private partnerships, and improvements to long-term pavement warranties and value pricing are offered¹⁵. An opportunity to build politically viable coalitions in support of tolling specific segments of interstate is proposed as an alternative proposal. The congested urban freeways and long-haul truck routes are noted examples where additional toll collection may be appropriate. Specific groups and public/private partnerships may be formed to develop and complete these types of projects.

CURRENT LEGISLATIVE ACTION

Senate Bill 314 was introduced to the Senate on February 19, 2003. Under this proposal the Los Angeles County Metropolitan Transportation Authority would be authorized to impose, upon voter approval, a transactions and use tax rate at the rate of 0.5% for 5 years or less, for the specified transportation-related projects. The proposed funding would be expended upon the Exposition Boulevard Light Rail Transit Project, the construction of sound walls included in the authorities' list of Soundwall projects for Los Angeles County, expansion of the capacity of the Interstate 405 freeway, and the Crenshaw transit line. It is further stipulated in the current Bill that no bonding will be used to finance the listed projects.

Senate Bill 321 was introduced to the Senate February 19, 2003 by Senator Torlakson and coauthored by Assembly Member Kehoe. This proposal would create the California Infrastructure and Economic Development Bank, and with voter approval enact the California Infrastructure Bond Act to authorize the issuance of \$15,000,000,000 in general obligation bonds

and to designate specific state agencies to administer bond funds to support local infrastructure investment. The types of public investment proposed under this legislation are noted as public infrastructure and affordable public housing. Within the proposal \$8,000,000,000 would be programmed and allocated by the California Transportation Commission. Up to \$4,000,000,000 would be available for transfer to the Traffic Congestion Relief Fund for funding of projects identified in earlier legislation. The proposed date for the vote of the people of the State of California is November 2, 2004. This proposal is continuing its move through the Senate and has not moved to the Assembly for consideration.

FINANCING PROPOSAL FOR THE DRAFT MTA DRAFT SHORT RANGE PLAN

MTA is proposing to aggressively reduce operating expenses and pursue new revenue sources. The potential new sources of revenue include County Sales Tax, Freight Container Fee, State GARVEE Bonds, State and Federal Gas Tax increase, Oil Barrel Fee, Motor Vehicle Fee, and a Countywide Traffic Impact Fee. The plan notes that some of these sources of funding would require voter approval and consensus and support of the community leadership and stakeholders. This information is consistent with the proposed legislation.

MARKETING TRANSPORTATION SERVICES

Marketing and information systems can be defined as specific Transportation Control Measures under the Clean Air Act, but few specific programs within Los Angeles County are currently being identified as such. Many forms of information systems are available online and are utilized, but few of these programs are noted in any specific manner in transportation plans and programs widely available to the public. The local organizations make public information a focus of their operations. Managers are assigned to inform the public and media of planned, ongoing, and completed transportation operations and improvements.

- City of Los Angeles – Employs a Department of Transportation, Information Officer
- MTA – Utilizes a Chief Communications Officer
- SCAG – Employs a Director, Information Services
- California Department of Transportation – Utilizes a District 7, Public Information Officer

The designation of managers to direct and organize information and media inquiries indicated the importance of managing this aspect of the organization. These individuals and their support staff must ensure that project coordination and information sharing is ongoing.

The MTA has developed a transit information action plan to improve the public's awareness of the transit system's availability that should result in increased ridership of commuters. It has recognized that additional efforts in marketing can assist in improving transportation within Los Angeles County by improving user information and the knowledge of services available for commuters. Public information brochures will be redesigned to provide concise, coordinated, and streamlined information for distribution. A more proactive approach will be developed for promoting transportation services including targeted campaigns, route marketing and advertising¹⁶. In the month of May and June more radio public service announcements for the

use of Freeway Service Patrol have been airing. This indicates that the action plan has been implemented and additional public information related to freeway operations is underway.

Improvements are planned and programmed to implement a universal fare card within the MTA system. Busses, light rail and commuter rail users will be able to utilize a single card to access services and travel within the metropolitan area. These fare card improvements are scheduled for funding within the current fiscal year and the next fiscal year. Implementation of these systems should be complete by the end of the 2005 fiscal year. This effort should assist in attracting and retaining commuter riders to the improving transit system operated by MTA.

Urban transportation systems must be marketed and managed as services. Transportation Demand Management (TDM) marketers must ensure that the benefits for desirable modes of travel are apparent, significant, and continuing. In the Los Angeles Metropolitan area, the message that utilizing transit and public transportation, as a commute mechanism is a socially responsible choice is a viable marketing message that can be utilized¹⁷. Workers traveling to the Downtown Los Angeles area should be a target to any media and promotional efforts of transportation and transit organizations. The retention of ridership is essential and obtaining other regular riders is also essential for the continued reduction of trips on the Los Angeles freeway system and the maintenance of a reasonable fare structure.

Providing an efficient commute trip for the majority of travelers is a goal that is obtainable for Los Angeles transportation agencies. Coordinated systems do exist and an ongoing effort to improve the service and riding experience on these systems is an obtainable goal within the short range-planning horizon. Educating the daily commuter on options and getting them to try the existing systems is a first step in getting a reduction in the single occupant vehicles on the freeways and arterials during commuting hours. Additional efforts should be focused on telecommuter options for employers, improved media information related to freeways, transit, and rail lines. Communication of the important role that transit and rail commuters play in the improvement of air quality is essential to market in the near-term and during the short-range planning horizon. This aspect and the limitations in new capacity are essential to convey to the public, potential riders, and transit or rail commuters. The improvement of air quality should be an element of any transportation marketing strategy.

PERFORMANCE MEASURES

The U.S. Department of Transportation defines Performance Measures as “a measurable indicator of progress toward a performance goal, with annual targets”¹⁸. Performance measures develop indicators or measures to assess the performance of California’s multimodal transportation system to support informed transportation decisions.

Factors that have been found to influence the use of performance measures include:

- The desire to increase accountability
- Communication of results to customers and to gain support for investments by focusing on results in the face of reduced resources
- Responsiveness to federal and state statutes

- Importance of organizational approaches that connect measures with decision-making, for example funding decisions, project decisions, and performance measures
- Alignment of performance measures with goals and objectives

In the 1998 Interregional Transportation Strategic Plan, the outcome focus for the Department was accessibility, mobility, reliability, and cost effectiveness. These outcomes remain a high priority for the Department in its planning and programming efforts of transportation improvements.

Building performance measures around customer satisfaction surveys is not sufficient to ensure effective results. Customers tend to focus on improvements to the current system. Agency leaders must temper customer surveys with actions that support their roles as stewards of the transportation infrastructure¹⁹. Performance measures should be developed and used as process improvement indicators, not as report cards.

The Interregional Transportation Strategic Plan notes performance measures as a growing and critical effort that will assist in the planning, programming, management, operation, and maintenance of the transportation system for the users of the system. Little detail is found in this area in the 1998 plan.

SCAG reviews performance of the region's transportation systems in terms of the number of vehicle miles traveled. These are long standing and important measures of progress for the respective systems in operation. This measure is indicative of the region congestion, energy consumption, and demand for infrastructure improvements²⁰. From 1980 to 1990 Vehicle Miles Traveled increased 71%, and from 1990 to 2000 increased 13%, consistent with the increase in population for the region. The Los Angeles metropolitan region in 1990 and 2000 was the most congested transportation system in the nation by the Roadway Congestion Index²¹. Transit usage increased in the 1990s and with system improvements additional increases are expected through the next century.

Modal choice performance measures were not noted in any plans reviewed. Numerous statistics related to transit ridership are kept, but no specific mode performance measures have been noted. This is an area that could be studied further to determine the rationale of mode selection by commuters and to utilize this information in the marketing efforts being developed for Los Angeles.

In the 2003 Draft Short Range Transportation Plan measuring the benefits of implementing the plan is stressed. Measurements for the benefits are speeds along specific corridors during the AM and PM Peak hours, during the existing condition (2001), No Build (2009), and with the Plan being implemented (2009). Measurements and projected emissions are also reviewed for the plan in the AM and PM Peak Periods. A projected increase in economy by \$10 billion with the implementation of the plan by 2009 is cited in this document.

The SAFETEA proposal for a Surface Transportation System Performance Pilot Program²² provides an opportunity for Southern California to demonstrate the benefits of performance based management and to determine how this approach can best be incorporated into an effective federally-assisted, State administered Federal-aid highway program. Additional clarification and guidance for this pilot project would be required in a timely manner to assist the region in developing projects that would fall under this pilot program.

In 2000 a conference on Performance Measures was held in Irvine California. Transportation professionals with an interest in this topic came together to discuss the subject participate in panel discussion, and present information related to the topic. One significant outcome of the Conference was a call for additional research on the topic of performance measures to assist in the continued development in this management area²³.

Progress in the field of performance measures is an important topic for transportation professionals. Improvements in the integrated reporting of performance measures are needed in the field of transportation. Common information systems must be developed throughout the industry so there is common understanding among jurisdictions regarding performance. In this coordinated environment information would be shared quickly and effectively.

CONCEPTS FOR SYSTEM IMPROVEMENTS

Improvements to core capacity is the review, analysis, and implementation of projects specifically focused at the core of the transit and commuter rail interface points to ensure that the system will operate efficiently with the opening of new service lines and extensions of existing lines. In Los Angeles, Union Station serves as the hub and core for commuter rail/subway/and transit. Track improvements and station upgrades have been ongoing and are underway to ensure the peak hour commuter continues to experience minimal delays and continues to utilize the services available.

A key to system optimization is the consistent planning of all transportation agencies and the desire to have complementary and integrated systems for commuters. Citizens will use transit if they are able to access the service in convenient locations, travel at reasonable speeds, and transfer within the system or to other components of the transportation network safely and without delay at a reasonable cost. The belief that individuals must have their personal transportation vehicle to maintain their freedom is waning. A percentage of the commuting population will be comfortable utilizing transit exclusively for commuting or utilizing park and ride facilities that interface with transit.

This core capacity improvement plan is not a suggestion of physical improvements, rather a review of the system, optimization suggestions by users and system experts, and the implementation of incremental improvements. A universal fare card system is being procured and installed by the end of the 2004 fiscal year. This card system will assist in implementing seamless transportation networks for stressed and harried commuters. Positive personal experiences will assist in attracting new transit riders and reducing the peak congestion that currently exists on the freeway network.

The importance of incident management cannot be overlooked during the peak hour commutes on the freeways and arterials operating at capacity during the week. The continued support and expansion of freeway service patrols, California Highway Patrol enforcement, and local police or Sheriff presence during peak hours and within construction zones is critical in maintaining and improving traveling speeds for the commuter and traveler. The impact of an accident or stalled or disabled vehicle to capacity is significant during the peak hours. Traffic flows are adversely affected by these incidents and surveillance and deployment of the service patrols to assist in removing the disabled vehicle from the corridor will minimize the delay many commuters will experience. The presence of enforcement officers often improves driver behavior and reduces

erratic lane changes and controls speeds to near speed limit flow, as congestion warrants. These types of efforts can assist in reducing accidents.

A large number of Metrolink construction projects continue within Los Angeles to complete the extensive commuter rail and light rail system envisioned to assist in serving transportation demand and improves system operations. The Gold Metro Line is under construction and will link to the Eastside Light Rail Goldline upon its completion in 2008. This line will serve the East Los Angeles commute traffic. The first of the Eastside rail projects is scheduled for construction in October 2003. The Redline, Blueline and Green line are constructed and are in service at this time. Metro usage continues to increase and commuters continue to utilize these metro lines and commuter rail lines to travel within the metropolitan areas.

Another key element of the public transportation system in Los Angeles is Bus Rapid Transit. Express busses do move commuters along the designated high occupancy vehicle lanes on the freeway network. These busses operate at the peak hour and assist in moving commuters to and from the downtown areas. There are several freeway routes that have separated busways or high occupancy vehicle lanes. These were constructed on alignments away from single occupancy vehicle flow where freeway widening was not feasible. Continued development of the high occupancy vehicle system that has been identified in the draft short range plan is essential. As projects to improve the high occupancy vehicle lanes on Route 405 and Route 101 move forward, congestion in these corridors should become reduced.

The California Global Gateways Development Program²⁴ recommends:

- Increased highway capacity and operational improvements to accommodate cargo demand
- Build dedicated truck lanes, truck bypass routes, and climbing lanes on key goods movement corridors
- Extend hours of operation at ports and warehouse/distribution centers
- Improve freight rail systems
- Grade-separate rail lines from highways to minimize environmental and community impacts
- Implement Intelligent Transportation Systems (ITS)
- Expanded communication and new institutional arrangements among labor, carriers, shippers, and seaport/airport management.

Efforts in Los Angeles County are consistent with the Global Gateways recommendations. A key area that may be focused on is the implementation of Intelligent Transportation Systems (ITS). There are many programmed projects being funded in the current and next fiscal year for improvements in this area. Bus tracking and management systems are being procured and implemented with new modern buses within the MTA system. This will allow MTA to monitor it's fleet and continue to work toward system optimization and increased core capacity. Intersection monitoring efforts are being implemented in addition to freeway monitoring systems. This is a particular focus in the current draft short-range plan due to the relative projected benefit for the investment. Increase in traveling speeds should be experienced during

the current peak hours with a focus to implement ITS improvements. A key to measuring the success will be the specific speed increases experienced.

Planning efforts related to Los Angeles County freight movement are ongoing and MTA expects to complete its Freight Strategic Action Plan by 2007. This document will assess ground freight transportation and intermodal access needs²⁵. Other freight planning efforts are underway by SCAG and in 2002 developed a Draft White Paper on Goods Movement. The information presented was an assessment of existing goods movement and will be complemented by the focused MTA Freight Strategic Action Plan. These documents will provide the needed detail to assist in comprehensive planning of infrastructure improvements that will support and improve goods movement. It is expected that a public and private financial plan would be a part of this Action Plan. Innovative funding programs managed by FHWA may be appropriate for assisting with the implementation of this type of program given the public and private benefits to be gained from goods movement improvements.

The California High Speed Rail²⁶ system currently being developed and studied will have its draft environmental document ready for public review in the summer of 2003. In anticipation of this release for comment, the High Speed Rail Commission will hold several town hall meetings to provide information and solicit input from a range of stakeholders and transportation experts in July 2003. This public input process has been an ongoing effort for the Commission and it's consultants for the duration of the study phases. Much public information and comment was sought in the development, analysis, and elimination of alternatives for study. This rail element of a future transportation system could assist in relieving demand from the urban Los Angeles transportation systems by routing travelers outside of the urban core and keeping them separate from the commute demand. Detailed analysis of the changes to traffic circulation and system integration will be a part of the technical studies for this environmental document. Expected environmental impacts of the system will be disclosed and analyzed in this document. The continued development and implementation of this plan, once through the environmental phase, will be contingent on continued budgetary authority and a realistic long-term financial plan for the construction and operation of the system.

This progressive range of improvements can improve the transportation flow and air quality of the Los Angeles area. Focused efforts and consistent implementation of the plan are essential for transportation system improvements.

IMPLEMENTATION STRATEGY

A keen approach and focus is needed to ensure that a plan is followed and implemented. A comprehensive team composed of SCAG, MTA, California Department of Transportation, City of Los Angeles, County of Los Angeles, and other Cities within the Los Angeles Basin will be responsible for implementing the adopted short-range plan for transportation improvements. The Coalition of Mobility-21 is a group to utilize as a starting point. The coalition must reiterate the following points and provide a complete framework for transportation professionals to follow in the implementation of this type of system improvement effort. This Coalition can utilize the existing professional networks to communicate the planned improvements and focus and educate non-transportation professions on this issue. This framework²⁷ and process will allow the transportation community to work together to spread the message of the need for the plan's implementation.

- Determine who can oppose or facilitate change – within the stakeholder groups, who are the leading individuals and what are their issues and concerns? Can these issues be clearly communicated and neutralized or mitigated? Are there leaders that can offer support and assist in facilitating the discussions to move the plan forward?

In the regional planning process, many key individuals are identified and are active participants and critics of the current plans and projects proposed for development and construction. These parties may be individuals, homeowner associations, business coalitions, environmental activists or special interest clubs. Most of these groups, whether opponents or proponents, do not hide their agenda, issues or concerns. They are interested in debating the issues, reviewing technical information and ensuring that their issues, concerns, and reservations are addressed. Often when an opposition group has an opportunity to fully participate in the planning process, they are able to present their point of view, opinions, and are listened to and their concerns are addressed. The leaders of these opposition groups are often critical in communicating mitigation strategies and other vital project specific information to their groups.

- Build a coalition to support the change – Who are the key individuals and groups that can assist in moving the change forward? Develop a relationship with these individuals and work together to address issues and concerns of the opponents and move the project forward.

A coalition supporting transportation has already formed in Southern California. The utilization of key transportation leaders is essential to elevate and debate the issues that are raised during the information sharing and planning process. Every effort must be made to utilize the existing community leaders and to ensure that the transportation issue is high on all agendas for the foreseeable future.

- Fill key positions with competent change agents – enlist the support of creative, dynamic, and innovative individuals who can lead groups, individuals, and assist in communicating the plan and information needed to move the plan forward.

Find individual leaders within the community who can assist in making changes visible in their neighborhoods, work environments, or civic organizations. The importance of speaking on current transportation issues, implementation of new technologies such as electric vehicles, and alternative commuter strategies to common business and civic organizations should not be discounted. These efforts are key building blocks to enlist the support of citizens and non-transportation civic leaders to contribute to transportation issues and congestion relief.

- Use task forces to guide implementation – Organize the key elements of plan implementation into a number of task forces. This will assist in broadening the efforts and increase the buy-in for the plan and it's implementation.

This utilization of task forces is a common strategy implemented to assist in developing support for the plan throughout the community. The assistance of appointed and elected officials is essential in moving the plan toward wider implementation.

- Make dramatic and symbolic changes that affect the work/issue.

Transportation leaders should be noted utilizing electric vehicles, transit, and carpools as much as possible to experience the systems that are in place. These actions can develop first hand experiences that can be useful in spurring improvements in scheduling, rider comfort and safety.

- Monitor the progress of change – This step in the process is essential to gauge progress and success for the revised plan. As information is gathered, additional modifications to the planned implementation may be necessary to be responsive to key stakeholders and issues and concerns that may surface during the change implementation.

The use of performance measures and stakeholder feedback on a regular basis is essential in gauging the effectiveness and extent of changes in the system. These measurement tools will ensure that key strategies and themes continue to be appropriate and are assisting in plan implementation.

In order to ensure success, the transportation community must look to its management and assist in making the points noted above a reality. Responsible agencies and elected officials passionate about improving the quality of life in Southern California must²⁹:

- Create a sense of urgency about the need for change
- Prepare people to adjust to change
- Help people deal with the pain of change
- Provide opportunities for early success
- Keep people informed about the progress of change
- Demonstrate continued commitment to the change
- Empower people to implement the change

Measuring projects with an objective Cost Benefit Analysis tool is essential during the programming phase of implementing a regional plan and any subset of that plan.

Additional research and study of the Los Angeles can be expected during the planning horizon. A range of University Transportation Centers and other private organizations and learning institutions will support these works. A continuation of this type of academic review is essential to move the transportation field forward in its utilization of improvement techniques and implementation of new technologies.

CONCLUSION

There are additional efforts that can be implemented to improve the transportation system in Los Angeles County. Many of these efforts rely on the passion and commitment of the elected officials, and community and business leaders in Southern California. Progressive planning efforts are underway in response to the current air quality condition that exists in Los Angeles County. Projects are moving forward and are given priority that will move additional transportation demand at a reduced cost.

Transit and high occupancy vehicle systems are key to transportation system optimization. These elements are being developed as the backbone of the transportation network in Southern California. All relevant plans consider transit and high occupancy vehicle systems as an integral and core element of the transportation network that continues to develop and mature.

Accommodating freight and goods movement is a critical portion of effective transportation management. Goods movement and the improvement of goods movement within Southern California is well documented in plans, strategic visions, and numerous studies. A well-

coordinated, multi-modal approach is essential for improvements in traffic flow, air quality, and goods movement. This is an area that must be focused on by a range of transportation planners and engineers, and community leaders in a coordinated way to ensure improvements.

Performance methods are a method for measuring improvements. We are continuing to expand our knowledge and use of performance measures as a management tool, to ensure improvement in our processes, movement toward our goals, and to assist in communicating our progress within the transportation community.

ENDNOTES

-
- ¹ *Final 2002 Regional Transportation Improvement Program*, Southern California Association of Governments, August 2002, p4.
- ² Ping Chang, *State of the Region 2002 Measuring Progress in the 21st Century*, Southern California Association of Governments, p24-43.
- ³ *Final 2002 Regional Transportation Improvement Program*, Technical Appendix – Timely Implementation of TCMs, Southern California Association of Governments, August 2002, p3-9.
- ⁴ Los Angeles County Metropolitan Transportation Authority, *Draft Short Range Transportation Plan for Los Angeles California*, Draft Technical Document, May 2003, p3-4.
- ⁵ Los Angeles County Metropolitan Transportation Authority, *Draft Short Range Transportation Plan for Los Angeles California*, Draft Technical Document, May 2003, subregion pages
- ⁶ “Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003” U.S. Department of Transportation, May 2003.
- ⁶ “Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 Analysis” U.S. Department of Transportation, May 2003.
- ⁷ California Transportation Commission, May 2003 Agenda Item 4.5, “Progress Report on Implementing the Interregional Strategic Transportation Plan.” Joan C. Sollenberger.
- ⁸ Cost Benefit Analysis of Construction Projects, Alaska Department of Transportation, by Information Insights, Inc. March 2001. Pgs 14-33
- ⁹ State of California, Global Gateways Development Program, January 2002. Resolution Chapter 158, Statutes of 2000, Senate Concurrent Resolution 96, KARNETTE.
- ¹⁰ Cost Benefit Analysis of Construction Projects, Alaska Department of Transportation, by Information Insights, Inc. March 2001.
- ¹¹ U.S. Department of Transportation, “Transportation Infrastructure Finance and Innovation Act Report to Congress”, 2002.
- ¹² Interview with Joe Cazares, VP of Construction, California Transportation Ventures, May 22, 2003.
- ¹³ Senate Bill 138, (Knight) introduced Feb 6, 2003
- ¹⁴ Public Works Financing, November & December 2002, Volumes 167 and 168, “A way to survive the perfect storm: Toll the Interstates”, William G. Reinhardt
- ¹⁵ Public Works Financing, November & December 2002, Volumes 167 and 168 “Reader Response: Don’t Toll the Interstates”, Robert Poole, Jr.
- ¹⁶ Los Angeles County Metropolitan Transportation Authority, *Draft Short Range Transportation Plan for Los Angeles California*, Draft Technical Document, May 2003, p29.
- ¹⁷ Peter B. Everett and Lucie K. Ozanne “Marketing Theory and Urban Transportation Policy”, Transportation Research Record, 1993
- ¹⁸ US Department of Transportation Performance Plan FY 2004, 3 February 2003

¹⁹ “Performance Measures to Improve Transportation Systems and Agency Operations”, Committee for the Conference on Performance Measures to Improve Transportation Systems and Agency Operations, Transportation Research Board, November 2000, pg 14.

²⁰ Ping Chang, *State of the Region 2002 Measuring Progress in the 21st Century*, Southern California Association of Governments, p45

²¹ Roadway Congestion Index

²² “Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 Analysis” U.S. Department of Transportation, Section 1801, May 2003.

²³ “Performance Measures to Improve Transportation Systems and Agency Operations”, Committee for the Conference on Performance Measures to Improve Transportation Systems and Agency Operations, Transportation Research Board, November 2000, pg 155-160.

²⁴ Global Gateways Development Program, State of California, January 2002.

²⁵ Los Angeles County Metropolitan Transportation Authority, *Draft Short Range Transportation Plan for Los Angeles California*, Draft Technical Document, May 2003, p33.

²⁶ California Highspeed Rail Authority Website, <http://www.cahighspeedrail.ca.gov>

²⁷ Leadership in Organizations, 5th Edition. Gary Yukl, Prentice Hall, Upper Saddle River, NJ. 2002.pp288-292.

²⁹ Leadership in Organizations, 5th Edition. Gary Yukl, Prentice Hall, Upper Saddle River, NJ. 2002.pp292 – 294.

BIBLIOGRAPHY

Anne Hird Rabin, James Taylor, and Terrence L. Workman. "TIFIA Roundtable: Debating the Policy Issues, Private Panel." Transportation Finance Workshop, Transportation Research Board Annual Meeting, January 12, 2003. Washington D.C.

California Department of Transportation. "Intermodal Transportation Management System (ITMS)". <http://www.dot.ca.gov/hq/tpp/offices/oasp/itms.htm> (24 May 2003)

Committee for an International Comparison of National Policies and Expectations Affecting Public Transit. "Making Transit Work: Insight from Western Europe, Canada and the United States, Special Report 257." Transportation Research Board, National Research Council, Washington, D.C. 2001.

Committee for Study of Policy Options to Address Intermodal Freight Transportation. "Policy Option for Intermodal Freight Transportation." Transportation Research Board, National Research Council, Washington, DC 1998.

Committee for the Study of Freight Capacity for the Next Century. "Freight Capacity for the 21st Century, Special Report 271." Transportation Research Board, Washington, DC. 2003.

Daniel K. Boyle, Peter J. Foote, Karla H. Karash. "Public Transportation Marketing and Fare Policy." Committee on Public Transportation Marketing and Fare Policy, Transportation Research Board Annual Meeting. 2003.

Final 2002 Regional Transportation Improvement Program, Southern California Association of Governments, August 2002.

Gary Yukl. Leadership in Organizations, 5th Edition. Prentice Hall, Upper Saddle River, NJ. 2002.

Global Gateways Development Program. "Stakeholder Perspectives on Options to Facilitate the Movement of Goods in California." January 2002, as requested by Resolution Chapter 158, Statutes of 2000 (SCR 96, Karnette).

Information Insights, Inc. "Cost Benefit Analysis of Construction Projects", Alaska Department of Transportation, March 2001.

Interregional Transportation Strategic Plan, "A Plan to Guide Development of the Interregional Transportation System", CA Department of Transportation. 1998.

Los Angeles County Metropolitan Transportation Authority, Draft Short Range Transportation Plan for Los Angeles California, Draft Technical Document, May 2003.

Nadeem Tahir, P.E. "Meeting Market Demand." Core Capacity Study, Washington Metropolitan Area Transit Authority. Presented at the Transportation Research Board 2003 Annual Meeting, Session 506. January 14, 2003.

P.B. Everett & L.K. Ozanne. "Marketing Theory and Urban Transportation Theory." Transportation Research Board. Transportation Research Record No. 1402. 1993.

Ping Chang, State of the Region 2002 Measuring Progress in the 21st Century, Southern California Association of Governments.

Regis McKenna. "Marketing is Everything." Harvard Business School Publishing. Harvard Business Review. Jan/Feb 1991.

Robert C. Brown, Cheryl E. Jones, Suzanne H. Sales, Mark Sullivan. "TIFIA Roundtable: Debating the Policy Issues, TIFIA Panel." Transportation Finance Workshop, Transportation Research Board Annual Meeting, Washington D.C. January 12, 2003.

Senator Knight, Senate Bill 138, "An act to amend Section 143 of the Streets and Highways Code, related to transportation." February 6, 2003, last amended March 25, 2003.

Senator Torlakson and Assembly Member Kehoe, Senate Bill 321, "An act to add Division 3 (commencing with Section 64500) to Title 6.7 of the Government Code, relating to infrastructure investment." February 19, 2003, last amended May 13, 2003.

U.S. Department of Transportation. "DOT Performance Plan – FY 2004". February 2003. <http://www.dot.ca.gov/bib2004/performance.html> (10 April 2003).

U.S. Department of Transportation. "Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003." May 2003.

U.S. Department of Transportation. "Transportation Infrastructure Finance and Innovation Act Report to Congress." 2002.

William G. Reinhardt. "A Way to Survive the Perfect Storm: Toll the Interstates." Public Works Financing, November 2002, Volume 167.

ABOUT THE AUTHOR

Mary Frederick is a June 2003 graduate of the Mineta Transportation Institute, with a Master of Science in Transportation Management, conveyed by San Jose State University, School of Business. Mary was selected as the MTI Student of the Year for the 2002 year.

Ms. Frederick was promoted to a District Coordinator in the Division of Project Management in December of 2000. This management assignment requires flexibility, an overall knowledge of the Department's delivery processes and a mindset toward project acceleration and streamlining efforts. Prior to this assignment Mary worked within the Fresno office of the Department of Transportation as a Project Manager.

Ms. Frederick is working to assist and support District project managers in Los Angeles, Orange County, San Luis Obispo, and Stockton, California in the delivery of transportation projects and in the improvement of business processes within the project delivery organization. A key role of this assignment is to raise executive management awareness of successes and challenges facing the project managers and Districts and to work with them for resolution and improvement.

Ms. Frederick was recently selected for the Executive Development Program at the California Department of Transportation. The Executive Development Program (EDP) is the Department of Transportation's proactive approach to develop managers who demonstrate potential to perform at Senior Management level. This program is a 24 month training and development assignment and includes a range of assignments working with an executive mentor within the organization. The first assignment is expected to begin in August 2003.

Mary has been actively involved with the Society of Women Engineers, serving as the San Joaquin Valley section representative, and Region A Treasurer, within the American Society of Civil Engineers in the Fresno Branch as a Director and is a member of the Women's Transportation Seminar – Sacramento Section. Mary also served on the Board of Directors for the California State Employee's Credit Union in Fresno California.

Mary Frederick was born and raised in Rutland, Vermont and obtained a Bachelor of Science in Civil Engineering from the University of Vermont in 1983. Upon graduation, Mary relocated to Fresno California to pursue her career as a transportation engineer within the California Department of Transportation.