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Metro

PLANNING AND PROGRAMMING COMMITTEE
February 14, 2007

SUBJECT: METRO COUNTYWIDE SIGNIFICANT ARTERIAL NETWORK

ACTION: RECEIVE AND FILE

RECOMMENDATION

Receive and file the Countywide Significant Arterial Network (CSAN). Attachment A contains the Final Report's Executive Summary. The Final Report is available upon request.

ISSUE

The arterial highway network is an integral and important component of the overall Countywide multi-modal transportation system in Los Angles County. Historically, the Metropolitan Transportation Authority (Metro) has had a great deal of data and planning information on the freeway and transit system, however, the arterial highways have not been as well documented. With the adoption of the 2003 Short Range Transportation Plan (SRTP), the Metro Board of Directors directed that, in cooperation with the cities, a regional arterial network and master plan for Los Angeles County be developed for planning purposes to assist in determining the performance of the county's arterial system and for development of multi-modal policies. This network and arterial master plan has been named the Countywide Significant Arterial Network (CSAN). It provides a needed planning tool that can be used in the development of future SRTPs and Long Range Transportation Plans (LRTPs), Call for Projects application evaluations, Goods Movement, validation of Metro's travel demand model and use in completing corridor studies. In December of 2006, the CSAN was completed. It is being brought forward for the Metro Board's consideration.

BACKGROUND

In November 2004, Metro awarded a task order to Meyer, Mohaddes Associates/Iteris, Inc. to develop the CSAN and performance monitoring system. The focus of the CSAN was to establish a regional network of arterials for planning and monitoring purposes that would assist in the development of multi-modal policies in the SRTP/LRTP; further refine the criteria for evaluating projects in the Regional Surface Transportation

Improvements (RSTI) and Signal Synchronization and Bus Speed Improvements (Signal Synch) Call for Projects modal categories; establish performance criteria to assist in determining how the regional arterial network is functioning; assist Metro in determining its regional priorities; and, establish a process for updating the regional network and performance monitoring data.

The CSAN has three major elements – developing and defining the regional arterial network, measuring and monitoring the network's performance and establishing a database of arterial projects that have been funded/programmed on the arterial network. All of which have been incorporated into a Geographic Information Systems (GIS) database that can be graphically displayed and mapped.

A Working Group was formed consisting of representatives from the City of Los Angeles, County of Los Angeles, Caltrans, SCAG, Arroyo Verdugo Council of Governments (COG), Gateway Cities COG, Las Virgenes Malibu COG, North County Transportation Coalition, San Gabriel Valley COG, and the South Bay Cities COG. The Working Group met ten times over the course of two years and was instrumental in developing the criteria to define the arterial network and developing the methodology for measuring and monitoring the network's performance.

To assist in finalizing the arterial network, sub-regional outreach meetings took place during the months of September and October 2005 where feedback was sought from local jurisdictions on the criteria to be used to define the network and requests for arterials or segments to be added or deleted to be consistent with their General Plans, or transportation policies. In December 2006, the Final Report was distributed for comment to the Working Group. The Working Group has endorsed the Final 2006 CSAN, the performance monitoring system and all recommendations made in the Final Report.

The Final 2006 CSAN is comprised of a total of 2,803 centerline miles of roadways which cover more than 4,700 square miles and over 80 local jurisdictions. The CSAN system is distributed among the various functional classifications, as defined by the Federal Highway Administration (FHWA) and Caltrans, as follows:

- Principal Arterials constitute 1,901 miles or 68 percent of the total network
- Minor Arterials make up 759 miles or 27 percent
- Key Collector roadways make up the remaining 143 miles or 5 percent

A key recommendation of the report was that the CSAN performance monitoring data should be collected and analyzed every two years. It is anticipated that this update will cost approximately $150,000 to $200,000. Metro's cost represents a substantially reduced amount due to the fact that some local jurisdictions and transit operators have similar data collection methodologies already in place and have agreed to share data. Therefore, this cost will be incorporated into future Metro operating budgets.

NEXT STEPS

The performance monitoring data collection program will be tested and technical refinements to the performance monitoring database will be made as necessary. The Working Group will remain in place and will meet as necessary to review network change requests. Funds will be budgeted in future years to update the network and performance monitoring program.

ATTACHMENT

A. CSAN Final Report Executive Summary

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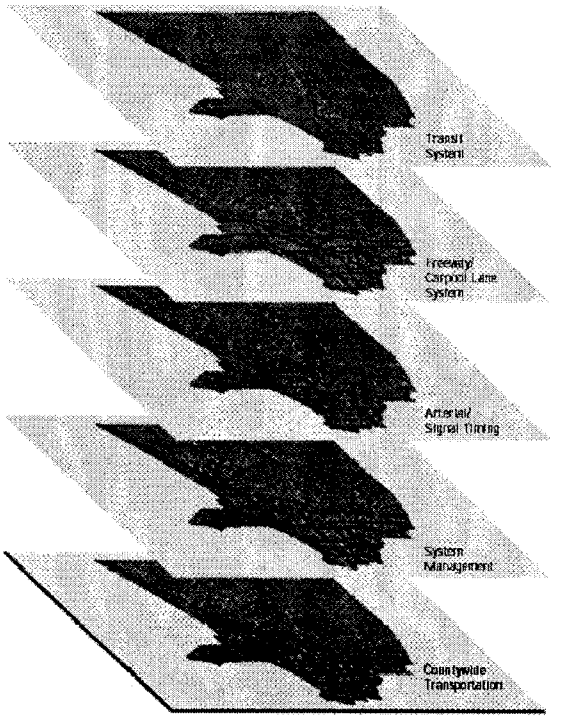
Attachment A

Metro

Los Angeles County
Metropolitan Transportation Authority

Countywide Significant Arterial Network (CSAN)

EXECUTIVE SUMMARY



Meyer, Mohaddes Associates
a business unit of Iteris, Inc.

December 2006

Introduction

The arterial highway network is an integral and important component of the overall Countywide multi-modal transportation system in Los Angeles County. Historically, the Los Angeles County Metropolitan Transportation Authority (Metro), which serves as the County's Regional Transportation Planning Agency, has had a great deal of data and planning information on the freeway system and the transit network in Los Angeles County, however the arterial highways have not been as well documented. The Metro Board of Directors, through the adoption of the Short Range Transportation Plan, directed that a network of regionally significant arterials be developed for planning purposes to assist in determining the performance of the county's arterial system and the development of multi-modal policies.

In November 2004, Metro initiated the Countywide Significant Arterial Network (CSAN) project, established an advisory Working Group and selected a consultant to develop a regional system of arterials. This would help generate more meaningful data to better understand the performance of the Countywide arterial system and help develop a foundation to monitor the system's performance over time. The project was completed in December 2006. This report summarizes the findings and recommendations of the CSAN project.

Purpose and Objectives

The purpose of the CSAN project was to establish a Countywide network of significant arterials that will assist Metro in determining how the County's arterial system is functioning for planning purposes. This network will ultimately help with the development of multi-modal policies for the Countywide arterial system through Metro's Long and Short Range Transportation Plans. It will also assist in further refinement of the criteria for evaluating projects in the Regional Surface Transportation Improvements (RSTI) and Signal Synchronization and Bus Speed Improvements (Signal Synch) modal categories of Metro's Call for Projects, and will be used as a basis for discussion for the Congestion Mitigation Fee Network (should the Metro Board decide to move forward with this).

The project was carried out in two major phases:

1. Established the criteria and determine the inclusion of the arterials in the CSAN. This phase of the project also established a database of capital improvements that have been completed or funded along the CSAN. Both the regional network and the capital improvement projects were entered into a GIS database.

2. Established a performance monitoring program on the CSAN including measures and criteria and recommended methodologies to update the CSAN, the monitoring system and the performance monitoring data.

Definition of the CSAN System and Selection Criteria

A series of Primary and Secondary criteria were considered in the development of the CSAN, as listed below. The corresponding specific selection thresholds for each primary criterion are also indicated. It should be noted that the thresholds and characteristics of the selected criteria were based on the most recent data that could be obtained from the source, and were not based on any future projections or conditions.

Primary Criteria

- **Functional Classification of the arterial**: all Principal Arterials per Federal Highway Administration (FHWA)/Caltrans System designation
- **Congestion Management Program (CMP) Roadways**: all non-freeway CMP routes
- **Regional Transit Routes**: all arterials with greater than 20,000 total daily transit riders
- **Traffic Volumes**: all arterials with greater than 25,000 average daily traffic (ADT)
- **Goods Movement Significance**: all arterials that carry greater than 1,000 daily trucks or carry truck volumes greater than 4 percent of the total ADT
- **Number of Traffic Lanes**: all arterials which have three or more traffic lanes in each direction

Secondary Criteria

The following Secondary Criteria were also considered to augment and refine the CSAN:

- Direct Access to Freeways
- Traffic Operations and Significance in Arterial ITS Architecture
- Multi-jurisdictional Connectivity and Continuity
- Use as a Freeway Alternate
- Multi-modal Corridors
- Major Activity Centers
- Network Spacing Needs
- Gap Closures
- Connectivity with Adjacent Counties

The initial draft CSAN was established using the above Primary Criteria as a minimum standard and was refined and adjusted using the Secondary Criteria and requests from local jurisdictions for additions or deletions based on the criteria or their General Plans. Metro staff and consultants held meetings with each of the Los Angeles County sub-regions, presenting the system and its purpose in order to solicit comments. The Final **2006 CSAN** was established by incorporating sub-regional and local jurisdiction comments and is shown in Figure ES1.

CSAN System Characteristics

The Final 2006 CSAN is comprised of a total of **2,803** centerline miles of roadways, which covers more than 4,700 square miles and over 80 local jurisdictions. The CSAN system is distributed among the various functional classifications, as defined by the Federal Highway Administration (FHWA) and Caltrans, as follows:

- Principal Arterials constitute **1,901** miles or 68 percent of the total network
- Minor Arterials make up **759** miles or 27 percent
- Key Collector roadways make up the remaining **143** miles or 5 percent

Performance Measurement and Monitoring System

Once the regionally significant arterial network was established, the other major component of the project was to establish a monitoring and performance measurement system that could build upon other data collection efforts currently in use throughout the county. The monitoring system that was developed is user-friendly and easily accessible to Metro staff and local jurisdictions. It is linked to the project's GIS database that also includes the majority of the local and Metro funded projects that comprise the capital improvements that have been planned or implemented.

The monitoring system is based on **45** screenlines (cut-lines) that are established across major strategic travel corridors and intersect the CSAN network, as shown in Figure ES2. The development of the screenline system was done by including all major established regional modeling screenlines in the County including those from the SCAG/Metro Regional Travel Demand Model, the City of Los Angeles model, the Santa Clarita Valley, Antelope Valley and screenlines that are part of other major cities' models. Subsequently, additional screenlines were identified to capture major traffic flows, strategic corridors, key traffic generators, and other factors.

The 45 Screenlines intersect the CSAN at a total of **589** locations. These 589 monitoring locations are distributed throughout the County's eight sub-regional areas covering more than 80 local jurisdictions with the following key statistics:

- At least one monitoring location in 52 different cities
- 245 locations in the City of Los Angeles
- 85 locations in unincorporated Los Angeles County

Most of the monitoring system data will be collected once every two years at a specific time of the year to be determined by Metro. Metro will obtain data from those jurisdictions that collect arterial data and will collect the data that is not currently collected by the local jurisdictions. Metro will also coordinate with the municipal transit operators to gather any and all available transit ridership data.

The following information and data will be identified and collected for each facility on the CSAN at the point of intersection with each screenline:

- Functional classification of the CSAN facility
- Number of lanes on the CSAN arterial (by each direction)
- 24-hour traffic volume (ADT), by 15-minute increment and by direction
- Vehicle classification (including trucks) on key goods movement corridors
- Transit ridership (boardings), where available, on all Metro bus and rail lines and the municipal and local bus lines crossing the screenline
- Generalized daily traffic capacity by arterial segment

Major benefits and advantages of this monitoring system include some of the following:

- Relatively simple system that is not very data-intensive
- Captures major travel patterns
- Captures traffic and land use growth trends
- Can be combined or disaggregated for more focused or more generalized analysis
- Coordination with regional and local traffic forecasting efforts

Performance Monitoring Program Recommended Applications

The following describe some key applications and analyses using the collected data as well as typical traffic monitoring and performance measurement methods that may be used for the CSAN.

- ADT volumes by direction—measures the magnitude of traffic crossing the screenline in 24-hours

- Peak period/hour by direction—shows the magnitude of traffic crossing the screenline in the peak period or hour

- Peaking factors by screenline (peak volume/ADT)—shows the sharpness of the peak hours/periods across corridors

- Generalized arterial link capacity (daily and peak) across screenlines—shows the available daily and peak capacity by corridor

- Generalized arterial volumes/capacity (V/C) ratio by direction for ADT or peak hour/periods—shows generalized capacity availability or deficiency

- Daily/hourly transit boardings by screenline—shows the magnitude of transit ridership and traffic volume in corridor

- Daily/peak mode split by screenline-- shows how each corridor is served by transit

- Vehicle classification data—shows truck volumes and truck percentages in each corridor

- Traffic growth trends and changes in travel patterns—by compiling and analyzing the data for several years, traffic growth trends, modal shift and goods movement trend changes and capacity utilization/performance of the system can be established Countywide, by corridor or by subregion

Recommendations for Updating the CSAN and the Monitoring Process

The CSAN and its monitoring process are intended to be a system that will change over the years based on the County's changing patterns and Metro's planning needs, requirements and regulations. It is recommended that the CSAN Working Group continue its function as an advisory body to Metro for this on-going process.

It is recommended that the CSAN be evaluated once every two years, and that both the Primary and Secondary selection criteria be used to modify (add to/delete from) the network. The two-year cycle would coincide with the data collection periods of other jurisdictions for the screenlines.

The process to determine potential changes to the CSAN will be initiated every two years via Metro staff sending a change request form to local jurisdictions. Upon receipt of the form, local jurisdictions will have an opportunity to recommend additions and/or deletions to the system based on documented and supporting data for the Primary as well as the Secondary criteria.

Upon receipt of the requested changes, Metro staff will compile the requests and make recommendations for new arterials (or segments) to be added, or existing ones to be deleted, to bring the system into compliance with the Primary criteria. The recommended changes will be presented to the Working Group for discussion and concurrence. Upon concurrence by the Working Group, Metro will distribute the changes to the sub-regions for comments and concurrence from them in writing.

Depending on the ultimate use of the CSAN and the Monitoring System, Metro may choose to modify the Primary and/or Secondary criteria and/or the established minimum thresholds at any time. Metro may hold meetings of the Working Group and/or sub-regional representatives, on an as-needed basis, to receive input and comments for modifying the criteria and the arterial network.

Legend

FREEWAYS

FINAL ARTERIAL NETWORK

CITY BOUNDARY

Metro

Figure ES1. 2006 Countywide Significant Arterial Network

LA County

Meyer, Mohaddes Associates

LEGEND

- SCREENLINES
- FREEWAYS
- FINAL ARTERIAL NETWORK
- CITY BOUNDARY

Figure ES2. 2006 Countywide Significant Arterial Network
With Monitoring Screenlines
LA County

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