Metro

North County Combined Highway Corridors Study

Final Report

June 24, 2004

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NORTH COUNTY
COMBINED HIGHWAY CORRIDORS STUDY
SR-14, SR-138, AND I-5

Final Report

Project Sponsors:

Los Angeles County Metropolitan Transportation Authority
California Department of Transportation
County of Los Angeles
Cities of Lancaster, Los Angeles, Palmdale, and Santa Clarita
Southern California Association of Governments
Federal Highway Administration
Federal Transit Administration

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TABLE OF CONTENTS

Metro

TABLE OF CONTENTS (CONTD)

LIST OF EXHIBITS

LIST OF TABLES

EXECUTIVE SUMMARY

Overview

In August 2001, the North County Combined Highway Corridors Study was initiated to develop a multi-modal transportation plan for the northern portion of Los Angeles County, addressing both short-term (2010) and long-term (2025) requirements to accommodate a variety of trip purposes, including personal travel (highways and transit) and goods movement (trucks) within and through the Study Area (Exhibit ES.1).

The North County Combined Highway Corridors Study was conducted by the Los Angeles County Metropolitan Transportation Authority (MTA) in cooperation with the cities of Lancaster, Los Angeles, Palmdale, and Santa Clarita and the County of Los Angeles. For approximately two and a half years, a Technical Advisory Committee, or TAC, composed of representatives of the sponsoring agencies, Caltrans, the Southern California Association of Governments, and the Federal Highway and Transit Administrations, met monthly to review progress of the Study. The North County Transportation Coalition, composed of elected officials from Los Angeles County, North County cities, and the California State Legislature, provided policy oversight for the study.

The North County Combined Highway Corridors Study was conducted in two phases. Part I, completed in January 2003, focused on the I-5 and SR-14 Corridors, targeting north-south circulation from the center of the Los Angeles region through the Study Area communities, northward up to the Kern County Line. Part II of the study began in April 2002 and was completed in December 2003, and focused on east-west circulation along the SR-138 Corridor. In this document, the North County Combined Highway Corridors Study, findings from Parts I and II are integrated into a single North County Corridors Plan.

Purpose and Need

The themes shown in Table ES.1, not necessarily in order of priority, emerged from *scoping* as critical to defining *purpose* and *need* for North Los Angeles County. Since transportation funding is limited, transportation strategies reflecting these themes have been structured to enhance funding prospects.

Exhibit ES.1: North County Combined Highway Corridors Study Project Area Map

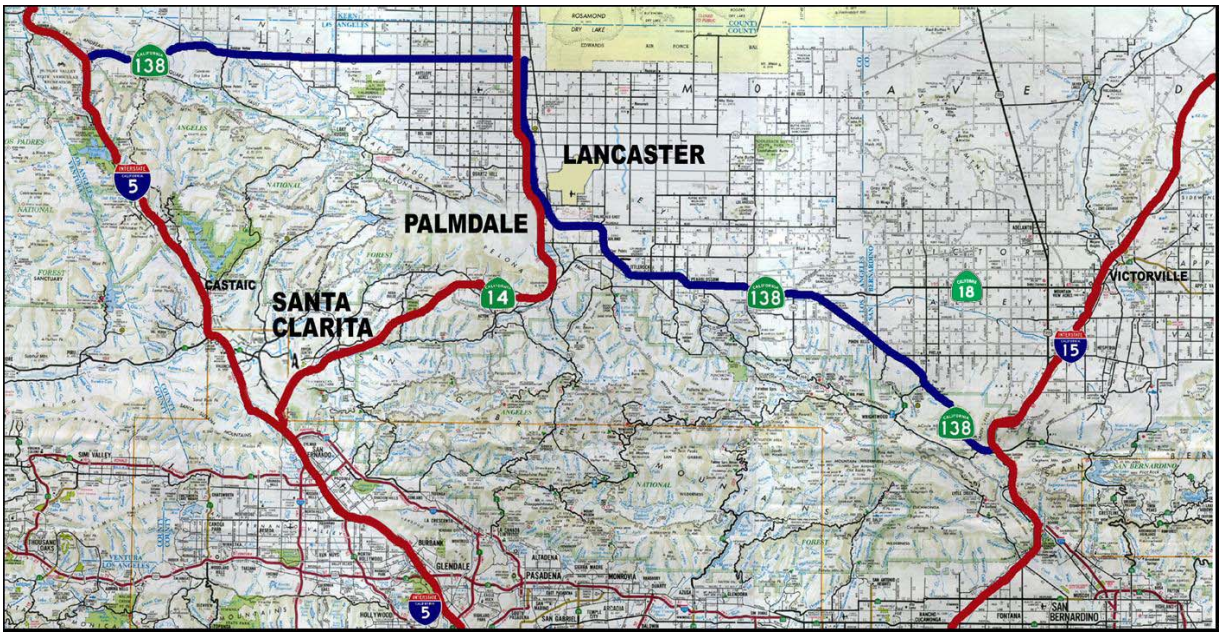


Table ES.1: North County Purpose and Need Themes

• Substantially increased vehicle capacity is needed in each of the major highway corridors. Sufficient highway right-of-way should be reserved along I-5, SR-14, and SR-138 to develop new HOV lanes and truck lanes in response to emerging demand. Available roadway capacity is quickly being outstripped and programmed capacity improvements will be overwhelmed well before horizon year 2025. Delay on the I-5 and SR-14 is substantial today and will worsen in the coming years.
• A package of early action transportation improvements (highway and transit) is needed within the context of long-range planning objectives.
• Safety enhancements to existing roadways are needed and new, safer facilities must be built to reduce accident rates and fatalities. Widening, realignment, and traffic control along SR-138 appears particularly needed.
• Upgraded regional multi-modal access to Palmdale and Southern California Logistics Airports is needed in anticipation of their emergence as Southern California commercial and cargo aviation hubs.
• A semi-exclusive truck network is needed to avoid the capacity constraints and safety hazards inherent in a combined truck/auto highway system.
• A semi-exclusive high occupancy vehicle (HOV)/bus network is needed to avoid the capacity constraints and safety hazards inherent in combining HOV/bus operations with mixed flow traffic.
• New high capacity east-west connector routes linking I-5, SR-14 and I-15 are needed to meet future demand, provide a metropolitan bypass, and provide for movement between primary north-south corridors.
• Alternatives are needed to the I-5 and SR-14 facilities to cope with emergencies. Among other things, new north-south route options should be studied for possible feasibility. The I-5 and SR-14 highways are lifelines of statewide and regional importance.

North County Corridors Plan

During Parts I and II of the North County Combined Highway Corridors Study, individual plans, or Locally Preferred Strategies (LPS), for the three North County corridors were developed. The plans were initially a segregated based on their ability to serve their respective travel markets. Each corridor is unique in function, capacity, operational and safety issues. Broadly speaking, the I-5 is a *goods movement* corridor linking the Central Valley with the Ports of Los Angeles/Long Beach. In contrast, SR-14 may be generally described as a *commute* corridor with an anticipated tripling of the commute population. A key feature of the geography of the SR-138 makes it a *bypass* corridor which could help avoid congestion in the central region by routing traffic around congested Los Angeles freeways.

In the end, the three North County Corridors must function together to serve the collective transportation needs in northern Los Angeles County. Thus, the next logical step in the study was a systems analysis to examine the combined impacts of the three corridors and modify the three individual plans based on their collective synergies. The result is a fully integrated major highway and transit investment along I-5, SR-14, and SR-138—approximately 250 miles of the most significant transportation facilities in northern Los Angeles County.

This integration of the three transportation corridor plans undertaken at the end of the North County Combined Highway Corridors Study—which included an analysis of future regional travel patterns along the integrated network—identified locations where the three individual LPSs work together to improve the anticipated level of service or reduce costs. In addition, it included a so-called “sensitivity analysis,” that is, several targeted investigations of the transportation impacts of newly emerging land use developments not included in adopted regional forecasts and opportunities for operational applications such as reversible carpool/HOV lanes in locations where traffic has pronounced directional imbalances.

Finally, the sensitivity analysis examined the need for continuity in the system south of the I-5/SR-14 Interchange, through the I-5 “throat” where nearly all North County traffic must travel to reach the Los Angeles Basin. This section of the I-5 is particularly troublesome because of the

massive weaving movements that different streams of traffic must make to get from SR-14 and I-5 north to the I-210, the I-405, and the I-5 south. Lack of system redundancy is also a major issue in this section, which was severely damaged in both the 1971 Sylmar and 1994 Northridge earthquakes.

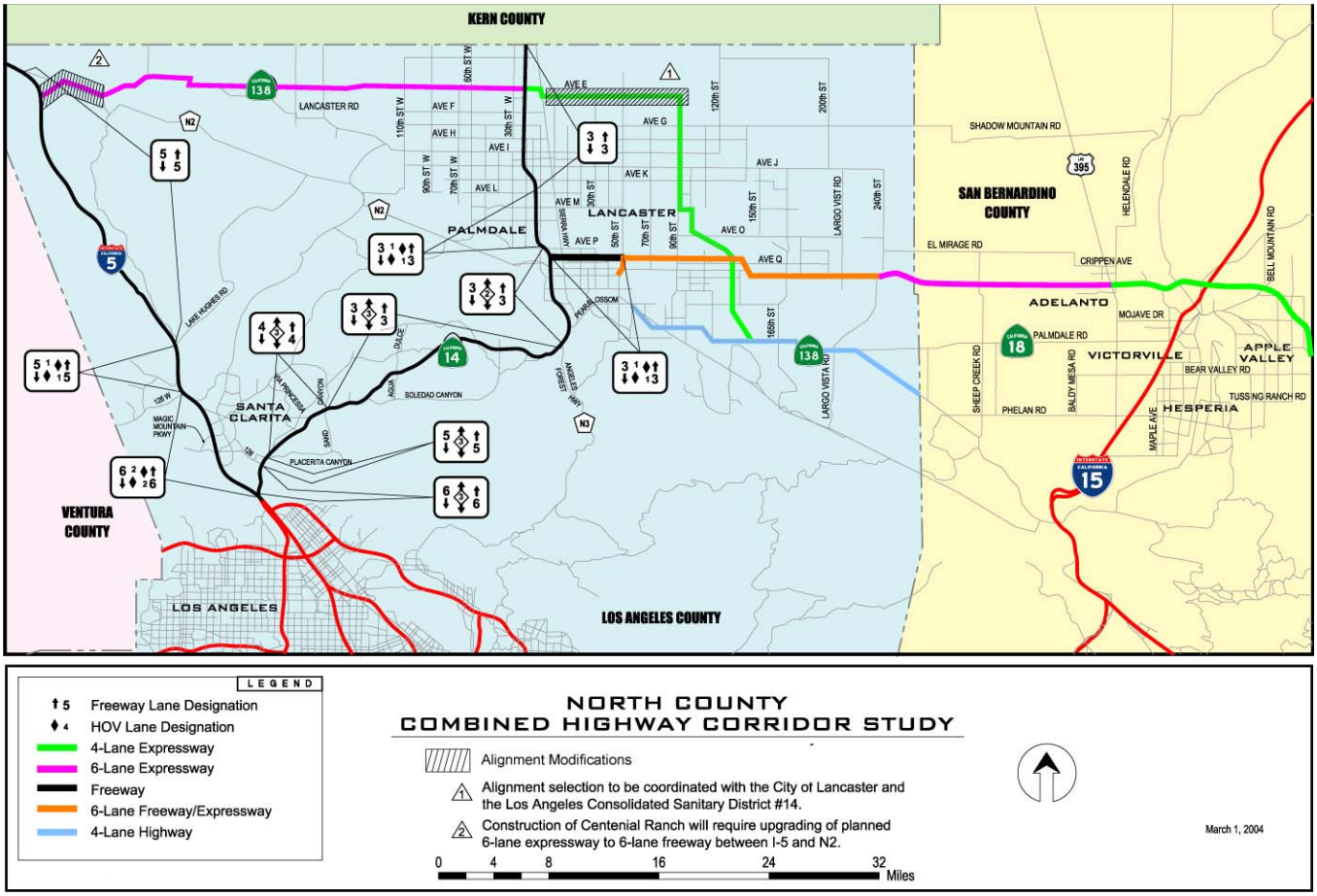
As a result of the integrated analysis and detailed sensitivity testing, an integrated multi-modal long-range corridors plan has now been developed to serve the long-range demands of the North County. Exhibit ES.2 shows the integrated long-range roadway plan for the three North County Corridors. The combined recommendations will allow the three North County Corridors to function together in a seamless system to serve the diverse transportation needs in northern Los Angeles County. It includes the following items:

Long-Range Improvements

The SR-138 Plan, as modified for corridor integration includes:

- Widening existing SR-138 to four lanes from Pearblossom east to the SB County line.

Exhibit ES.2: North County Corridors Plan



- Construction of a limited access High Desert Corridor (HDC), a brand new freeway/expressway between I-5 and I-15. The east-west segment between SR-14 and I-15 would be an 8-lane freeway (including an HOV lane in each direction) from SR-14 past the Palmdale Airport to 50th Street East along an alignment paralleling P-8 in Palmdale; a 6-lane freeway/expressway from 50th Street East to 240th Street East; and a 4/6-lane expressway from 240th Street East past the planned Southern California Logistics Airport to I-15 and beyond. This new east-west route is the backbone of the proposed HDC, and will accommodate an expected three- to six-fold increase in traffic between the Antelope and Victor valleys. It will provide a new level of intra-valley accessibility and carry truck and other through traffic safely around existing communities.
- Between I-5 and SR-14, the HDC would be a 6-lane freeway or expressway along the current SR-138 alignment. This route would accommodate at least a doubling of traffic demand anticipated by 2025.
- A north-south HDC expressway would begin at SR-14 and Avenue D, jog south to Avenue E at the Old Sierra Highway, head south along 90th Street East, jog southeast to intersect with the east-west HDC at 126th Street East, and continue south to the existing SR-138 near 150th Street East. This north-south HDC expressway would complement SR-14 in carrying through traffic around the Palmdale and Lancaster communities.
- Transit service in the SR-138 study area would be expanded by 75 percent over the No Build (currently programmed) conditions. Three new express bus routes would be added between Palmdale/Lancaster and Victorville, and seven park-and-ride lots would be constructed.

The I-5 Plan, as modified for corridor integration includes:

- Doubling the current four lanes to a total of eight lanes in each direction between SR-14 and SR-126 West. Two of these lanes would be for HOVs, two lanes for trucks, and four lanes for general use. The increase in the number of lanes would accommodate the forecast for a doubling of I-5 travel demand by 2025.
- North of SR-126 West, extend one new HOV lane to Lake Hughes and add a new truck lane to the existing four lanes in each direction.
- North of Lake Hughes to the Kern County Line, add a new truck lane in each direction to the existing four lanes.
- Transit service in the I-5 Corridor would be tripled with twice the number of train departures and three times the number of rail cars. Express bus departures in the peak would increase four-fold over programmed service.

The SR-14 Plan, as modified for corridor integration includes:

- Create three reversible HOV lanes (achieved by converting 2 existing HOV lanes and adding one new HOV lane) plus the existing 4/6 lanes in each direction between I-5 and Pearblossom. The three reversible lanes, designated for peak direction carpool and transit use, would effectively increase the capacity of the roadway by 50-75 percent while holding construction costs to minimum.
- Create two reversible HOV lanes (achieved by converting programmed HOV lanes) plus the existing/committed 3/4 lanes between Pearblossom and Avenue P. The reversible lanes would almost double roadway capacity in this section.
- Add a general-purpose lane between San Fernando Road and Sand Canyon.
- Add a truck lane from I-5 to Placerita Canyon.
- North of Avenue P, add one new lane to the two to three current lanes. The new lane would be designated for HOV use north to Avenue L and for general-purpose use from Avenue L to the Kern County line.
- Metrolink capacity would triple, with more departures and more cars in the peak hour. The plan includes a five-fold increase over

the number of express buses that operate today.

Short-Range Improvements

Short-range improvements (see Exhibit ES.3), emphasize right-of-way protection and implementation of key high priority early actions that address the most critical near-term bottlenecks as well as safety, operational, and connectivity needs.

SR-138

- Complete the work currently under way to improve SR-138 from one lane in each direction to two lanes in each direction from Avenue T to the San Bernardino County Line.
- Complete right-of-way acquisition along Avenue P-8 from SR-14 to 50th Street.
- Preserve the right-of-way needed to ultimately implement the proposed improvements identified for the long-range plan. This would include purchasing and preserving new right-of-way along:
  - Avenue E from I-5 to SR-14,
  - Avenue D from SR-14 to 90th Street East,
  - 90th Street East from Avenue D to Avenue M,
  - Avenue M from 90th Street East to 105th Street East,
  - 105th Street East from Avenue M to Avenue O,
  - A diagonal extending eastward from Avenue O to the new HDC,
  - Primarily 128th Street East from the new HDC to SR-138,
  - the new HDC alignment from SR-14 to US 395.
- Complete the work currently under way to construct the 4-lane expressway along the HDC from US 395 to the existing SR-18.

Interstate 5

- Add an HOV lane and a truck lane in each direction from the I-5/SR-14 interchange to Calgrove Boulevard.
- Add an HOV lane in each direction from Calgrove Boulevard to the I-5/126 separation.

SR-14

- Create three HOV reversible lanes (achieved by converting 2 existing HOV lanes and adding one new HOV lane) from the I-5/SR-14 interchange to Pearblossom Highway.
- Create two HOV reversible lanes (achieved by converting programmed HOV lanes) from Pearblossom Highway to Avenue P.
- Create three continuous mix flow lanes (2-3 existing plus 0-1 new lane) in each direction from Sand Canyon Road to Avenue P.

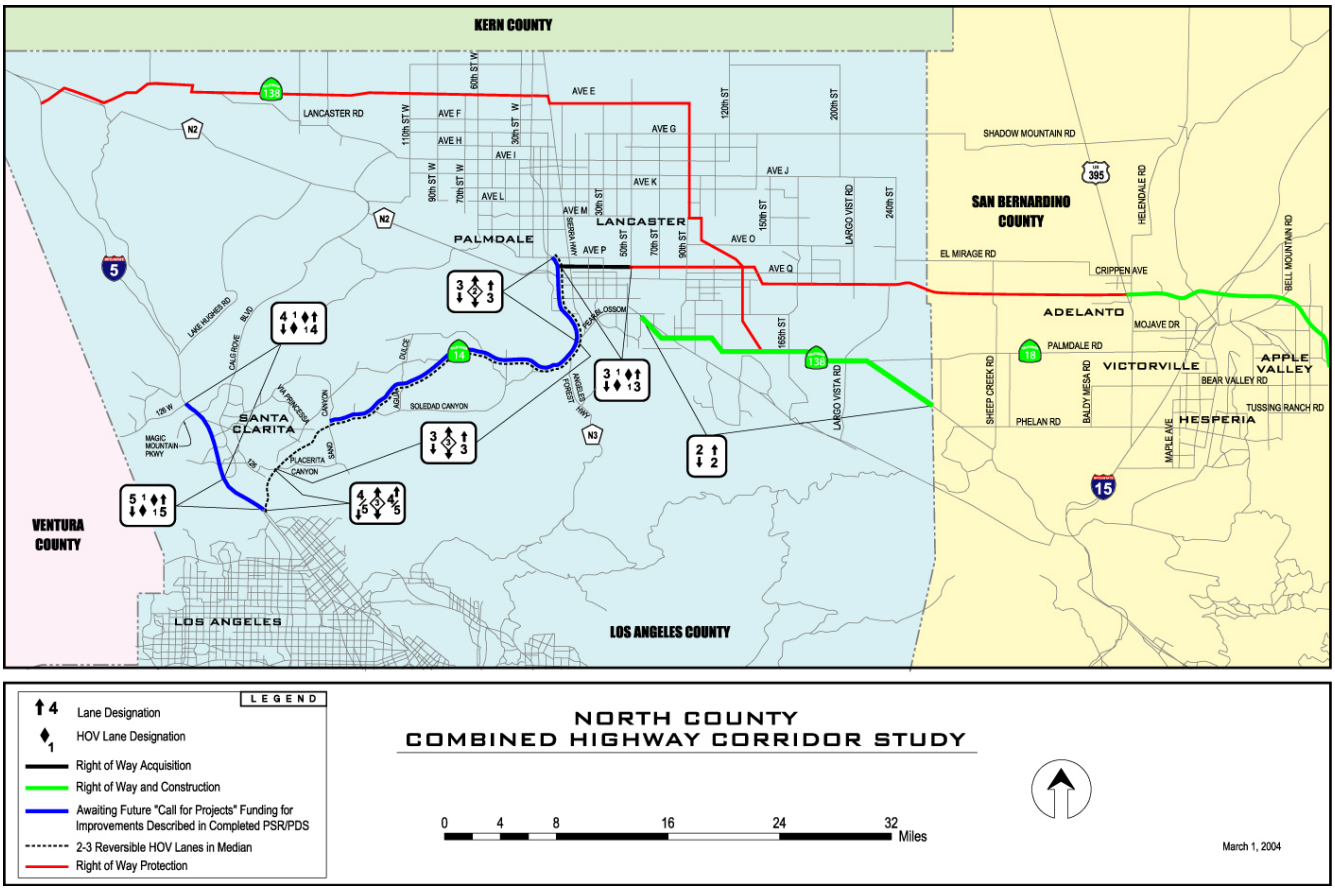
For the 2003 "MTA Call for Projects" the PSR/PDS approved for environmental review and preliminary design provided for 3 continuous mix flow lanes and one HOV lane and did not include the 2-3 reversible lanes between the I-5/SR-14 Interchange and Avenue P. The evaluation of the reversible lanes is proposed for inclusion as part of the subsequent PAED effort. A PSR/PDS update and a PEAR budget increase may be needed to address the modifications.

Future Corridor Analysis: I-5 South of SR-14

Extending I-5 Corridor improvements to the south through the I-5/SR-14 interchange and continuing down to the I-5/I-405 split is important to ensure the effectiveness of the I-5 Corridor investment. Sensitivity analyses for the I-5/SR-14 to I-5/I-405 segment, performed at a conceptual level, indicate substantial potential benefits to be derived from extending North County Corridors Plan improvements south along I-5 through the I-5/I-210 and the I-5/I-405 interchanges. Several promising proposals were identified for transportation service improvement along this segment of I-5, including:

- Added Truck Lanes – 1 new truck lane plus 2 existing truck lanes between SR-14 and I-210 and two new truck lanes from I-210 to I-405.
- Added HOV Lanes – 3 new HOV lanes plus one programmed HOV lane between SR-14 and I-405; to be operated as a reversible 4-lane HOV facility.

Exhibit ES.3: Short-Range Improvements, North County Corridors Plan



- Added Mixed Flow Lanes – 3 new mixed flow lanes plus 6 existing mixed flow lanes from SR-14 to I-210; 3 new mixed flow lanes plus 4 mixed flow lanes from I-210 to I-405; 3 of the mixed flow lanes could be operated as a reversible connector between SR-14 and I-405.
- Added Arterial Lanes Paralleling I-5 – 1 new reversible lane on Old Road/San Fernando Road/Sepulveda plus two existing lanes; 2 new lanes along Sepulveda and an extension paralleling I-5.
- Further detailed studies are needed to identify the feasibility of multi-modal improvements at this major regional choke point in the transportation system.

Future Corridor Analysis: New Land Development

Several major new developments were not included in the SCAG forecast data used for the corridor transportation alternatives analysis.

A sensitivity analysis quantified the impact of six development projects not in the SCAG database:

- Centennial Ranch – 23,000 homes and 30,000 jobs
- Newhall Ranch – 20,885 homes and 18,800 jobs
- Tejon Industrial Complex – 140 hourly truck trips
- Southern California Logistics Airport – 17,400 daily truck trips
- Palmdale Airport – 2,000 daily truck trips
- Sunshine Landfill – 60 hourly truck trips

The impacts of these six projects were identified and proposed mitigation measures were incorporated into the corridor plan recommendations.

Additional improvements must be considered as any additional new land developments or plan changes are proposed (e.g., mitigation for development). The North County multi-modal travel forecast model developed for the North County Combined Highway Corridors Study provides a useful tool for quantifying traffic impacts.

Cost and Finance

The North County Corridors Plan includes $5.4 billion in major highway and transit investment along I-5, SR-14, and SR-138—approximately 250 miles of the most significant transportation facilities in northern Los Angeles County. Given the magnitude of the Corridors Plan, the financial strategy focuses on phased improvement, in which essential short-term transportation improvements are prioritized for expedited implementation, with longer term improvements implemented over an extended period, based on relative priority and funding availability.

The total cost of the projects in the North County Corridors Plan is approximately $5.4 billion, of which $4.8 billion is for highway-related improvements and $0.6 billion is for transit. Of the $4.8 billion in highway improvements, $0.8 billion is for improvements in the I-5 Corridor, $1.0 billion is for improvements in the SR-14 Corridor, and nearly $3.0 billion is for improvements in the SR-138 Corridor. Estimated roadway costs are shown in five-year phases for all three corridors in Tables ES.2, ES.3, and ES.4.

Financial Strategy

The goals and objectives of the North County Corridors Plan played a critical role in the development of the short- and long-term transportation improvements. The financial strategy attempts to balance funding each corridor's need for immediate short-term improvements while planning for future congestion and related capacity and safety issues required as the North County region grows.

Given California's continuing budget shortfalls, the magnitude of capital costs, and the complexity of the projects, it will be a challenge to secure funding for the prioritized short-term projects ready for construction and for advancing additional studies still required for the long-term improvements. The ability to secure funding will depend on strong local support, effective advocacy at the state and federal levels, and creatively combining traditional and innovative funding sources and financing approaches.

I-5 Corridor

- To finance short-range improvements, North County cities and Caltrans are seeking MTA "Call for Projects" funding for short-range improvements for: (1) Extension of truck lanes north from the I-5/SR-14 interchange to Calgrove Avenue for increased safety and improved operations; (2) Extension of HOV lanes north from the I-5/SR-14 interchange to SR-126 West to encourage the use of transit and carpools in this increasingly congested area.
- As a contingency for funding short-range improvements, the Gateway Coalition and the city of Santa Clarita have asked the U.S. Congress for specific inclusion of I-5 as a recipient of "Corridors and Borders" funding under the pending federal reauthorization bill of the Transportation Equity Act for the 21st Century (TEA-21).
- The cities of Santa Clarita and Los Angeles and the County may obtain interchange impact fee contributions from developers through the subdivision process. The fees would be in proportion to the access benefits derived from the I-5 Corridor interchange improvements.

SR-14 Corridor

- To finance short-range improvements, North County cities and Caltrans are seeking MTA "Call for Projects" funding for: (1) Continuous three mixed-flow lanes from Sand Canyon to Avenue P to improve safety and operations (eliminating drop lanes); and (2) Conversion of the existing single HOV lane in each direction to 2/3 reversible HOV/transit lanes in the median.

Table ES.2: North County Corridor Plan, I-5 Corridor

Route	Roadway Type	Length (miles)	Number of Lanes Per Direction			Estimated Cost (2002, $ Millions)		
			Existing/ Funded	Short Range Plan	Long Range Plan (LPS)	Short Range	Long Range	Corridor Total
SR-14 to Calgrove Ave.	Freeway	3.5	4	4+1 Truck + 1 HOV	4 + 2 Truck + 2 HOV	$95*	$67	**$162**
Calgrove Ave. to SR-126 West	Freeway	6.5	4	4 + 1 HOV	4 + 2 Truck + 2 HOV	$89*	$148	**$237**
SR-126 West to Lake Hughes Road	Freeway	4	4	4	4+1 Truck climb + 1 HOV	$4	$106	**$110**
Lake Hughes Road to Kern County Line	Freeway	29	4	4	4+1 Truck climb	$30	$276	**$306**
Total						**$218**	**$597**	**$815**

*Project Approval and Environmental Document for completed PSR/PDS was submitted for funding within the 2003 "Call for Projects." Although the 2003 Call was cancelled, the application can be used for future Calls.

Table ES.3: North County Corridors Plan, SR-14 Corridor

Route	Roadway Type	Length (miles)	Number of Lanes Per Direction			Estimated Cost (2002, $ Millions)		
			Existing/ Funded	Short Range Plan	Long Range Plan (LPS)	Short Range	Long Range	Corridor Total
I-5 to San Fernando Rd	Freeway	2	5+1 HOV	5+3 HOV*	5+3HOV* +1 Truck	$23**	$29	**$52**
San Fernando Rd to Placerita Cyn	Freeway	1	3+1HOV	3+3 HOV*	4+3 HOV*+1 Truck	$10**	$7	**$17**
Placerita Cyn to Sand Cyn	Freeway	5.3	3+1 HOV	3+3 HOV*	4+3 HOV*	$56**	$37	**$93**
Sand Cyn to Pearblossom	Freeway	21	2/3+1 HOV	3+3 HOV*	3+3 HOV*	$559**		**$559**
Pearblossom to Avenue P	Freeway	7	2	3+2 HOV*	3+2 HOV*	$175**		**$175**
Avenue P to Avenue L	Freeway	4	3	3	3+1 HOV	$5	$32	**$37**
Avenue L to Kern Co. Line	Freeway	11	2	2	3	$8	$84	**$92**
Total						**$836**	**$189**	**$1025**

* Reversible HOV lanes.
** Project Approval and Environmental Document for completed PSR/PDS was submitted for funding in the 2003 "Call for Projects." Although the 2003 Call was cancelled, the application can be used for future Calls. The completed PSR/PDS did not include 2-3 reversible HOV lanes conversion of 2 existing/programmed HOV lanes plus one new HOV lane) between I-5 and Avenue P. Evaluation of the reversible lanes is proposed for inclusion as part of the subsequent PAED effort. A PSR/PDS update and PEAR budget increase may be needed to address the modifications.

Table ES.4: North County Corridors Plan, SR-138 Corridor

Route	Roadway Type	Length (miles)	Number of Lanes Per Direction			Estimated Cost (2002, $ Millions)		
			Existing/ Funded	Short Range Plan	Long Range Plan (LPS)	Short Range	Long Range	Corridor Total
SR-138								
Avenue T (Pearblossom Hwy) to I-15	Highway	36	2	2	2	$253*		**$253**
I-5 to SR-14**	Expressway	43	1	1	3	$52	$627	**$679**
HDC E-W (Avenue P-8)								
SR-14 to 50th Street E	Freeway	5	---	3+1 HOV	3+1 HOV	$238		**$238**
50th Street E to US 395	Freeway/ Expressway	36	---	---	3	$38	$911	**$949**
US 395 to I-15	Expressway	8	---	2	2	$80		**$80**
I-15 to SR-18	Expressway	14	---	2	2	$142		**$142**
HDC N-S								
SR-14 to HDC SR-138	Expressway	24.5	---	---	2	$50	$593	**$643**
Total						**$853**	**$2,131**	**$2,984**

* Includes approximately $112 million currently programmed for SR-138 widening by Caltrans. The approximately $101 million remaining was submitted for the 2003 "Call for Projects." Although the 2003 Call for Projects has been cancelled, the application can be used for future Calls.
**Construction of Centennial Ranch would require upgrade of SR-138 to 6-lane freeway between I-5 and N2 (5 miles), not included in the Corridors Plan.

- Simultaneously, North County cities are asking the U.S. Congress to include SR-14 as a recipient of transportation demonstration funding under the reauthorization of TEA-21. The reversible HOV/transit lane element appears particularly promising for demonstrating methods of increasing corridor transport through a coordinated program of bus rapid transit, managed lanes (tolling of surplus lane capacity), carpooling, and park-and-ride facilities.
- North County cities and the County may obtain interchange impact fee contributions from developers through the subdivision process. The fees would be in proportion to the access benefits to be derived from the SR-14 Corridor interchange improvements.
- To obtain right-of-way, the North County cities are expected to obtain developer right-of-way dedication during approval of planned unit development (PUD) projects.
- Los Angeles County will protect right-of-way through the subdivision process to the extent legally appropriate.

SR-138 Corridor

- To finance short-range improvements, Caltrans and the North County cities are seeking MTA "Call for Projects" funding for widening SR-138 from two to four lanes from Avenue T/Pearblossom Highway to the San Bernardino County line.
- As a contingency for funding the SR-138 widening from Pearblossom to the San Bernardino County line, North County cities are expected to ask the U.S. Congress to include SR-138 widening as a recipient of funding under the reauthorization of TEA-21.
- Current constraints on existing tax revenue sources make conventional financing of a new High Desert Corridor (HDC) highway in Los Angeles County very challenging in this corridor. Existing funding sources are being focused on maintenance/operation of the existing highway and transit infrastructure.
- Alternatives to conventional MTA/Caltrans funding are envisioned for the HDC: (1) Local initiative, particularly for right-of-way protection and acquisition; (2) Toll revenue finance through the SB 138 bill; and (3) Federal grants, particularly for cross-valley truck access.
- North County cities are expected to seek California Legislature approval of SB 138 to designate the future HDC as a possible toll road to be financed either publicly or privately.

Project Coordination

Recent progress by local jurisdictions includes:

I-5 Corridor

- North County cities have agreed to collaborate with the North County Transportation Coalition (NCTC), the Golden Gateway Coalition, or a Joint Powers Agency to pursue funding, project development, and design and construction to implement the I-5 Corridor Improvements.
- Working with Caltrans, the County, and North County cities, MTA prepared a Project Study Report/Project Development Support (PSR/PDS) document defining the initial implementation target for the corridor: HOV lanes north to SR-126 West and truck lane extension north to Calgrove Avenue (March 2003). This document supports requests through MTA and Caltrans for funding the next step in project development: project approval and environmental documentation.
- Local leaders are working with their U.S. Congressional Representative to include a $200-million demonstration grant under the TEA-21 reauthorization for short-range HOV and truck lanes.
- The Santa Clarita General Plan is being amended to incorporate corridor improvements as part of its Official Map, require developers to dedicate right-of-way along the alignment—particularly at interchanges—and limit cross-street access to facilitate future freeway widening and separation of truck lanes from the freeway mainline.

SR-14 Corridor

- North County cities have agreed to collaborate with the North County Transportation Coalition (NCTC), the Golden Gateway Coalition, or a Joint Powers Agency to pursue funding for project development, design and construction to implement the SR-14 Corridor Improvements.
- Working jointly with Caltrans, the County, and North County cities, MTA prepared a PSR/PDS document defining the initial implementation target for the corridor: eliminating lane drops in the 2/3 lanes of mixed flow in each direction from Sand Canyon to Avenue P (March 2003). This document supports requests through MTA and Caltrans for funding the next step in project development: project approval and environmental documentation.
- MTA, with Caltrans, North County cities, and the County, is prepared to supplement the corridor lane drop PSR/PDS to include 2/3 reversible HOV/transit lanes from I-5 to Avenue P.
- Local leaders are working with their U.S. Congressional Representative to include an $800-million demonstration grant under the TEA-21 reauthorization for the reversible HOV/transitway project.
- North County cities General Plans are being amended to incorporate corridor improvements as part of their Official Map, require developers to dedicate right-of-way along the alignment, and limit cross-street access to facilitate future freeway widening.

SR-138 Corridor

- Palmdale and Caltrans are working with the Los Angeles World Airport (LAWA), the owner of Palmdale Airport, and other property owners in acquiring right-of-way along the HDC alignment between SR-14 and 50th Street East.
- The Palmdale and Lancaster General Plans incorporate the HDC alignment as part of their Official Map, requiring developers to dedicate roadway right-of-way along the alignment in proposed urban development areas.
- Los Angeles County will show the HDC alignment for information purposes on its Highway Plan.
- Planned unit developments within the North County cities and the County will be required to be compatible with the future HDC alignment and access control.
- State legislation to authorize development of the HDC as a toll road (SB 138) was introduced during the 2003 legislative session. The legislation is expected to be resubmitted during the next legislative session. Public or privatized toll revenue financing has proven successful in California and elsewhere to fund, in whole or in part, new roadway construction;
- Local leaders are working with their U.S. Congressional Representative to include a $1-billion demonstration grant under the TEA-21 reauthorization for the HDC.

Regional Planning

The North County Combined Highway Corridors Study, although facilitated by MTA, is driven by local initiative and consensus. SCAG and the MTA may not fully concur with all study recommendations. SCAG recently included updates to its Long-Range Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) that do not reflect study recommendations. Similarly, MTA identified both Long-Range and Short-Range Transportation Plans for Los Angeles County which include seven priority projects identified by Mobility 21, a forum sponsored by MTA for the past two years. Including high-priority North County projects is envisioned in future SCAG and MTA regional plan updates to complement regional priorities already adopted.

CHAPTER 1: CORRIDOR PLANNING PROCESS

Overview

In August 2001, the North County Combined Highway Corridors Study was initiated to develop a multi-modal transportation plan for the northern portion of Los Angeles County, addressing both short-term (2010) and long-term (2025) requirements to accommodate a variety of trip purposes, including personal travel (highways and transit) and goods movement (trucks) within and through the study area.

The North County Combined Highway Corridors Study was conducted by the Los Angeles County Metropolitan Transportation Authority (MTA) in cooperation with the cities of Lancaster, Los Angeles, Palmdale, and Santa Clarita and the County of Los Angeles. For approximately two and a half years, a Technical Advisory Committee (TAC), composed of representatives of the sponsoring agencies, Caltrans, the Southern California Association of Governments (SCAG), and the Federal Highway and Transit Administrations, met monthly to review progress of the Study. The North County Transportation Coalition, composed of elected officials from the County, North County cities, and the California State Legislature, provided policy oversight for the study.

Reflecting its geographic focus and the character of trips made through, from, and to the Study Area, the North County Combined Highway Corridors Study was conducted in two phases. The first phase (Part I), completed in January 2003, focused on the I-5 and SR-14 Corridors. Part I examined transportation issues on the I-5 and SR-14 Corridors and examined the need for north-south circulation through the Study Area, connecting corridor communities southward to the San Fernando Valley and Los Angeles Basin, and northward to the Kern County Line. Part II of the study began in April 2002 and was completed in December 2003. It focused on east-west circulation along the SR-138 Corridor (and possible alternatives thereto) that connect the Antelope Valley and Victor Valley and can provide alternatives to congested travel through the Los Angeles Basin for interregional goods movement.

North Los Angeles County Study Area

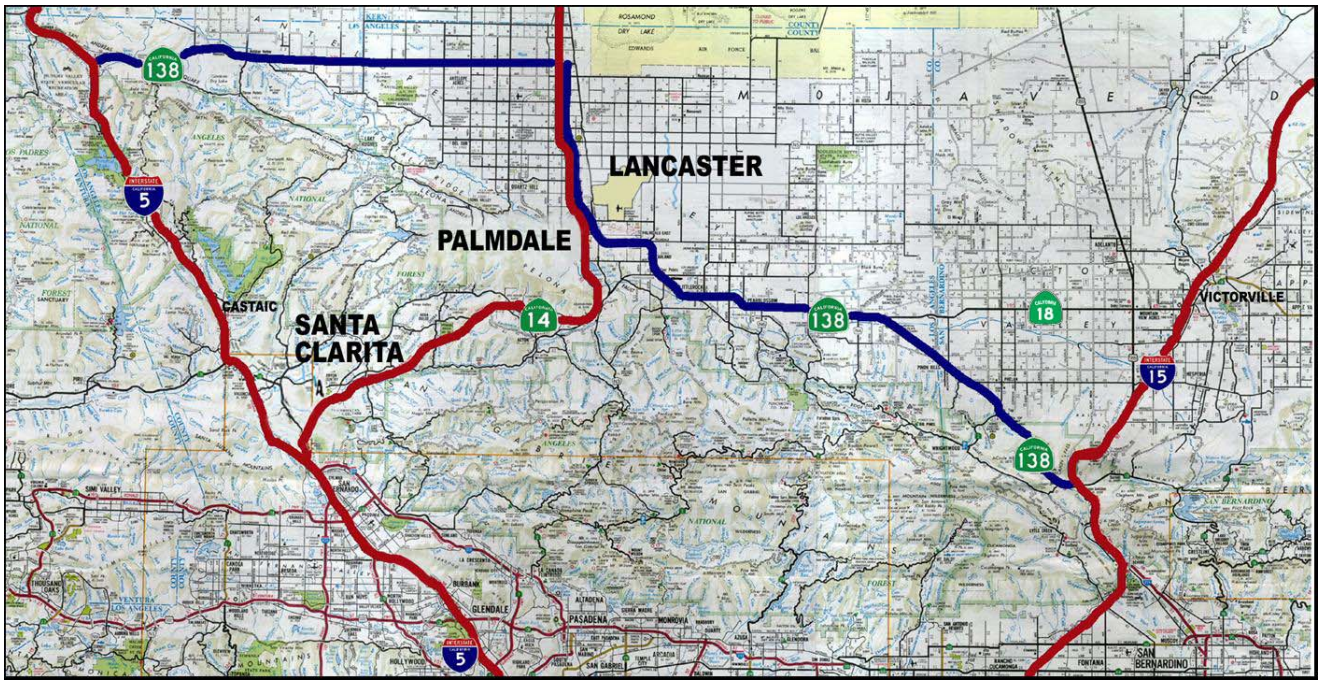
The North Los Angeles County Corridors Study Area (see Exhibit 1.1) includes the high-growth Santa Clarita Valley and Antelope Valley communities (Santa Clarita, Palmdale, and Lancaster) that provide affordable housing for commuters traveling south on congested routes into the relatively job-rich San Fernando Valley and the Los Angeles Basin.

The study area also encompasses a large area of unincorporated Los Angeles County that contains much rural area and many small towns such as Pearblossom, Littlerock, Lake Los Angeles, and Llano. The two primary north-south corridors (I-5 and SR-14) are physically constrained by terrain and, in some cases, by development along freeway segments. An underdeveloped roadway network within the study area also serves east-west travel, primarily via SR-138.

RSTIS Long-Range Planning Process

The North County Combined Highway Corridors Study process followed a long-range planning process that conforms to the traditional Major Investment Study (MIS) flow of tasks, although the MIS process has been replaced in the SCAG region by the Regionally Significant Transportation Investment Study (RSTIS) process (see box on page 2). Like the MIS, the RSTIS focuses on building consensus and proactively involving the public from the early stages of project initiation through the final selection of locally preferred alternatives. RSTIS introduces the project to environmental review agencies as well as the public, and initiates coordination and public involvement activities that continue throughout the project development and evaluation. It is a collaboration between all stakeholders, designed to produce a range of alternatives in response to mobility needs and problems, and in this study included additions

Exhibit 1.1: North County Study Area Map



EVOLUTION OF A PROCESS:

The Major Investment Study (MIS) Becomes the SCAG Regionally Significant Transportation Investment Study (RSTIS)

As a precondition for federal funding of transportation infrastructure within urban areas, the Federal Highway Administration/Federal Transit Administration (FHWA/FTA) require participatory, long-range, multi-modal planning of major transportation corridors designed to ensure that all feasible, cost-effective mobility options are considered by the public and technical experts before investing significant funds on large-scale and usually costly projects. In turn, the SCAG, the federally designated Metropolitan Planning Organization (MPO), has mandated an RSTIS in the North County Combined Highway Corridor, including the I-5, SR-14, and SR-138 highways.

Previously, under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), high-capacity, federally funded highway and transit projects were required to undergo a Major Investment Study (MIS). However, pursuant to 1996 transportation omnibus bill TEA-21, this requirement for a stand-alone MIS document was eliminated. Currently pending USDOT planning rules that are proposed to replace the MIS process will require that the content of the former MIS process be reflected in the new planning and project development (NEPA linkage) process. In the interim period prior to adoption and implementation of the new federal rules, the SCAG has developed an alternative process to accomplish the necessary interagency coordination and public involvement activities previously subsumed under the MIS process. SCAG now views the RSTIS as the process to be used to refine or update the Regional Transportation Plan for specific projects. SCAG has developed general guidelines to provide an overall framework describing how to conduct a RSTIS. Federal guidance and the RSTIS process stress flexibility in developing an RSTIS review. Specific project circumstances dictate the scoping elements to be included to ensure that planning and interagency coordination are achieved.

to general-purpose freeway lanes, high-occupancy vehicle (HOV) lanes, express bus and rail transit, and truck and climbing lanes. Both existing and new alignments were explored in various configurations in an effort to meet projected travel demand and to sustain and support economic vitality in northern Los Angeles County. The process provides for the

documentation of successive phases of technical and political evaluation, screening of possible transportation scenarios, and final selection of locally preferred alternatives.

Corridor Planning Process

The North County Combined Highway Corridors Study was initiated in August 2001 to prepare a multi-modal transportation plan for the northern portion of Los Angeles County; it addresses both short-term (2010) and long-term (2025) travel requirements on I-5, SR-14, and SR-138. Major emphasis was on preparing documentation that will facilitate implementation of an early action plan to provide an additional freeway capacity (general-purpose and carpool lanes) along segments of I-5 and SR-14, completing safety and capacity improvements on SR-138, and meeting federal and state requirements for funding of the longer term transportation projects identified as locally preferred strategies.

The planning process for both parts of the North County Combined Highway Corridors Study was organized into the four steps shown in Exhibit 1.2: (1) scoping; (2) initial concept development; (3) alternatives evaluation; and (4) corridor plan preparation. At the end of each step and before beginning the next, study findings were presented to the public for review and comment. Public and stakeholder comments received during these strategically timed review periods guided technical and policy representatives and the consultant in each subsequent work effort.

Step one (scoping) provided for technical and community definition of existing and future mobility problems, issues, and deficiencies, as well as performance criteria to be used later in evaluating possible transportation improvement scenarios. Step two established preliminary strategies that represented the broadest possible range of solutions for highway, transit, and goods movement problems identified in Step one. Parts I and II of the study then entered Step three, which ultimately yielded smaller sets of system transportation scenarios that were evaluated in more detail using a variety of available analytical tools and models. Based on these analyses, the final set of system alternatives for each study phase was formally screened and the study TAC established a preferred system alternative (called the locally preferred strategy, or LPS) for both parts of the study. The LPSs for Parts I and II represent a consensus on what constitutes the greatest benefits and the most cost-effective set of elements for the North County region. Step four included formal public input on the integrated final set of alternatives for Parts I and II at workshops held in March 2004 and concludes with the preparation of this document.

The corridor planning process was fully coordinated with MTA and SCAG regional short- and long-range planning. Regional plan elements provided the baseline for alternatives evaluation. Throughout the Corridors Study, recommendations were reviewed for compatibility with MTA and SCAG planning objectives. When the corridor planning process is completed, the North County Corridor Plan is expected to become part of MTA and SCAG plans for the larger region.

Milestone Reports

Although a similar process was followed for both Part I and Part II of the study, the report titles and packaging of some of the study components differ slightly. The differences are illustrated in Table 1.1, which summarizes the study's major reports.

Exhibit 1.2: North County Combined Highway Corridors Study Planning Process

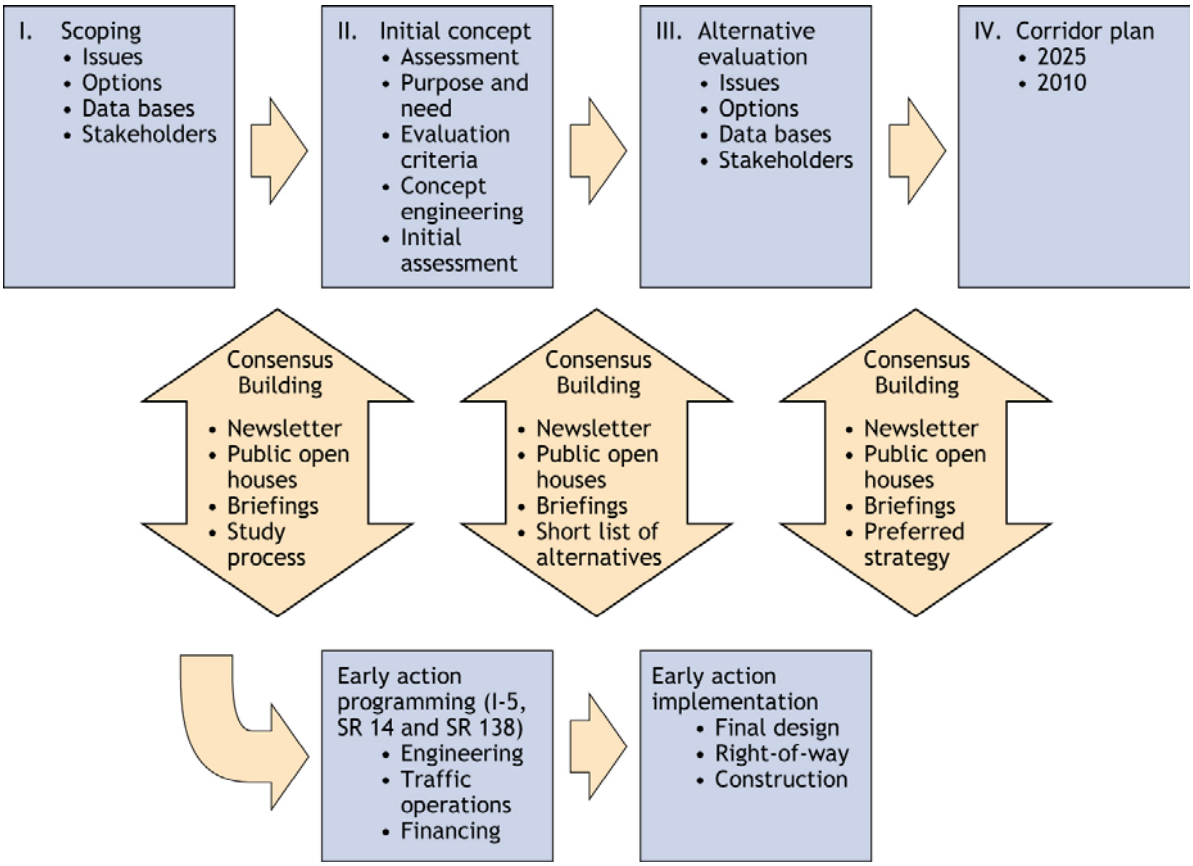


Table 1.1: Major Milestone Reports

Part I Documents (I-5/SR-14)	Part II Documents (SR-138)
Scoping Plan and Community Outreach and Public Participation Plan (October 2001)	Community Outreach and Public Participation Plan (July 2002)
Final Scoping Report (February 8, 2002)	Purpose and Need Statement (November 2002)
Purpose and Need Report (March 5, 2002)	Existing and Future Conditions Final Report (March 2003)
Corridor Analysis Alternatives Evaluation Report: Volume 1 (July 30, 2002)	Final Alternatives Development and Screening (December 2003)
Corridor Analysis Alternatives Evaluation Report: Volume 2 (February 6, 2003)	Draft Final Report, SR-138 Corridor Study (November 26, 2003)
Project Study Report/Project Development Support (PSR/PDS) for I-5 between SR-14 and SR-126	
Project Study Report/Project Development Support (PSR/PDS) for SR-14 between Sand Canyon and Avenue P	
Financial Strategies for the Integrated I-5/SR-14/SR-138 Corridor Plan (February 2004)	
North County Combined Highway Corridors Study Final Report (This Document, April 2004)	

CHAPTER 2: AGENCY AND PUBLIC INVOLVEMENT

Developing and implementing a proactive outreach effort that engaged ongoing, substantive input from key decision-makers, including both the impacted community and public agencies, was critical in building consensus around the final North County Corridors Plan. Using venues that ranged from monthly TAC meetings and regularly scheduled policy oversight group briefings to public open houses and stakeholder group presentations at important project milestones, the outreach effort sought to be inclusive, visible and to maximize participation.

The outreach effort included stakeholders from local and regional agencies, elected and public officials from impacted communities, cities and rural town councils, business and civic groups, homeowner associations, local media, and interested individuals.

Driving the agency and public involvement effort was the desire to share information with project stakeholders and to receive their feedback at regular junctures and/or at key milestones, identify and address their issues of greatest concern, and integrate their feedback into the process. This effort produced a consensus across a broad spectrum of stakeholders.

Technical Advisory Committee

A collaborative and cooperative multi-agency process was facilitated by a North County Combined Highway Corridors Study TAC that was formed by the MTA to guide technical oversight of the Study based on their regional perspectives. The TAC was composed of representatives from the following agencies:

- Los Angeles County Metropolitan Transportation Authority (MTA)
- Federal Highway Administration (FHWA)
- Federal Transit Administration (FTA)
- California Department of Transportation (Caltrans), Districts 7 and 8
- California Highway Patrol (CHP)
- Southern California Association of Governments (SCAG)
- San Bernardino Associated Governments (SANBAG)
- Office of Los Angeles County Supervisor Mike Antonovich
- Los Angeles County Department of Public Works
- San Bernardino County
- City of Lancaster
- City of Palmdale
- City of Santa Clarita
- City of Los Angeles World Airports (LAWA)
- City of Los Angeles Department of Transportation (LADOT)
- Automobile Club of Southern California (AAA)
- Antelope Valley Air Quality Management District (AVAQMD)
- Parsons Transportation Group (PTG), lead consultant for the North County Combined Highway Corridors Study, and its various subconsultants

On occasion, TAC meetings were attended by additional stakeholders including representatives from the rural town councils, school districts, developers, and the West Mojave Plan. At critical milestones, special all-day TAC workshops were also convened to address specific decisions.

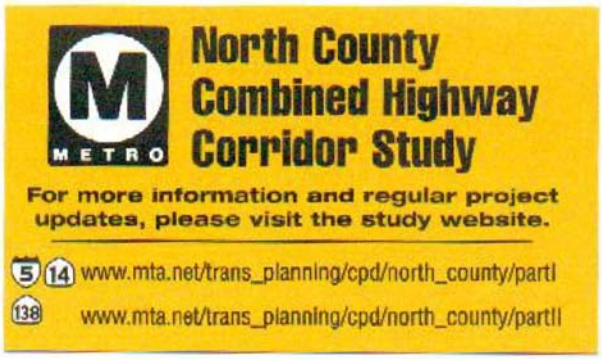
TAC members were invited to participate in all community open houses to hear first-hand public reaction to the Study. In this way, they were able to report back to their own agencies and, at the

same time, interact with the public to hear their thoughts directly.

The TAC met monthly throughout the two and half year duration of the Study to monitor its progress, review and comment on the technical products developed, and ensure that a comprehensive and sound technical analysis was completed. This process also ensured that the TAC reached consensus on the Study every step of the way.

Project Development Team (PDT) for PSRs/PDSs

Conceptual studies called Project Study Reports/Project Development Supports (PSRs/PDSs) were developed for the two sets of high-priority short-term improvements identified by stakeholders along I-5 and SR-14. These PSRs/PDSs are engineering documents used to program the support costs needed to conduct preliminary engineering and clear the projects environmentally for the subsequent design and construction phases. They include engineering plans and various technical studies used to develop a range of capital and support costs for the various alternatives under consideration.



These I-5 and SR-14 PSRs/PDSs were funded by the MTA and prepared by its project team, which coordinated closely with Caltrans and developed the PSRs/PDSs in accordance with Caltrans guidelines.

The development process for the PSRs/PDSs involved forming a Project Development Team (PDT) that included technical staff from Caltrans, representatives from Metro and the consultant team, and members of the TAC. An initial PDT meeting was held to kick off the study and secure consensus on the scope, purpose, and need for the projects. Follow-up PDT meetings were held to provide ongoing oversight and quality assurance. The first follow-up meeting involved discussing technical matters and understanding Caltrans expectations. The second follow-up meeting occurred after the initial drafts were submitted and served as a review of the documents to ensure they adhered to Caltrans quality standards. The third and last follow-up meeting involved addressing and resolving technical issues, and making final preparations for submittal and signature of the PSRs/PDSs.

The project team successfully completed the two PSRs/PDSs in March 2003.

Policy Oversight Committee

The North County Transportation Coalition (NCTC), the region's *de facto* Council of Government (COG), served as the Policy Oversight Committee (POC) for the North County Combined Highway Corridors Study. NCTC comprises 12 members—three each from the cities of Lancaster, Palmdale, and Santa Clarita, respectively—an elected official, a city staff member, and a representative of the general public.

MTA staff and members of the project team briefed the NCTC (in its function as POC) at key project milestones and decision points, received input from its members, and received the green light to proceed at critical junctures throughout the study. MTA staff and members of the project team attended approximately 10 NCTC meetings during the course of the Plan development.

A final NCTC briefing meeting was held in April 2004, and the project team received formal approval for the integrated North County Corridor Plan.

Public Outreach

The North Los Angeles County region, which encompasses the cities of Lancaster, Palmdale, and Santa Clarita and large portions of rural unincorporated Los Angeles County, presented some unique public outreach challenges and opportunities. The region is geographically diverse; therefore, the outreach effort had to both reflect coverage and take into consideration

multiple opportunities for key stakeholders to participate. The public involvement plan for the study was initiated to support the MTA and the technical teams in building consensus for North County Corridors Plan.

To maximize coverage and public participation in the process, the public outreach program also used a variety of communications strategies, information materials, stakeholder meetings, and public open houses to inform the public about the North County Combined Highway Corridors Study.

One-on-One Stakeholder Interviews

The project team conducted approximately 50 interviews with a broad cross section of North County stakeholders including elected officials, technical agencies, and business groups that reflected a broadly representative group of key opinion leaders. These one-on-one stakeholder interviews helped refine the study's purpose and need, and launched the outreach process. The stakeholders identified their transportation priorities as well as short- and long-term transportation issues to be considered. Potential interviewees were identified by the project team and approved by the TAC.

Focus Group

A focus group was conducted at the first screening milestone to ensure feedback from the commuter population was included in the scoping process. Focus group participants were recruited based on their commute patterns.

Public Open House Meetings

Five rounds of open house meetings (11 meetings in total) were held in the Antelope and Santa Clarita Valleys during the course of the study, typically at the Palmdale Cultural Center and the Santa Clarita City Hall. These open house meetings coincided with key project milestones including study kickoff; presentation of the study purpose, need, and objectives; display of the alternatives; presentation of the locally preferred strategies (LPSs); and finally the integrated North County Corridor Plan. Each series of open houses was publicized via meeting notices/newsletters mailed to the project database of approximately 2,500 and distributed in public buildings, press releases distributed to the local print and broadcast media, and advertisements placed in local print media outlets and on Metro, city, and local government websites. (See Exhibits 2.1 and 2.2 for representative meeting notices.)

City and Rural Town Council Briefings

Periodic briefings were given to the City of Lancaster and Palmdale City Councils and to special working sessions of the Santa Clarita City Council. In addition, two series of briefings were held with many of the rural town councils for a total of 15 meetings.

Stakeholder Meetings

MTA staff and members of the project team provided update reports to the Antelope Valley Transportation Summit (a group of City and County elected officials) at each of its quarterly meetings during the project.

Additional meetings were scheduled with the Antelope Valley Board of Trade (AVBOT) and its Transportation Committee, the Valencia Industrial Association (VIA), and the Santa Clarita Chamber of Commerce. Other presentations were made to the California League of Cities – Desert Mountain Division and the Antelope Valley Forum.

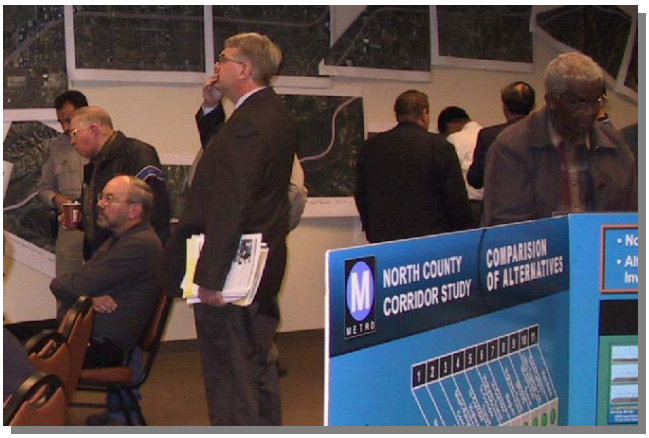


Exhibit 2.1: Notice of the November 2002 Open Houses, Distributed at Littlerock and Palmdale Fall Festivals, October 2002

North County Combined Highway Corridor Study

www.mta.net

Upcoming Community Meetings

The North County Combined Highway Corridor Study is an ambitious two-part project that is looking at ways to develop realistic, affordable transportation solutions to alleviate traffic congestion and create efficient travel throughout North Los Angeles County. This Study is key to the ongoing economic vitality of the region which continues to experience tremendous growth in both population and traffic.

This Study, a multi-agency and -jurisdiction project led by the Los Angeles Metropolitan Transportation Authority (MTA), began in August last year and initially focused on I-5 and SR-14, two corridors running north-south across North Los Angeles County to the Kern County line. Work on the second part of the Study, which commenced in May 2002, will look at alternatives for the SR-138 corridor running east-west across the region to the San Bernardino County line.

MTA received initial input from the public on the Study at an Open House held in Palmdale in early summer, and is continuing to receive stakeholder feedback. During this time, the project team has conducted in-depth technical analysis and is gearing up to present an initial list of alternatives for the public at a follow-up Open House.

Please join us at a community Open House in Palmdale on November 19 to come hear about, and provide comments on, the alternatives we have developed for the I-5/SR-14 corridor, as well as hear an update on MTA's progress with work on the SR-138 corridor. Your feedback will be vital as we identify, then narrow down, the alternatives for the SR-138 for further study.

Open House

Tuesday, November 19, 2002
5-8 p.m.

Palmdale Cultural Center
Lilac Room
38350 N. Sierra Highway
Palmdale, California

For project information

Website:
http://www.mta.net/trans_planning/CPD/north_county

Brian Lin, Project Manager
MTA
One Gateway Plaza
Mail Stop 99-22-4
Los Angeles, CA 90012
Phone: (213) 922-3036
Fax: (213) 922-3022
Email: linb@mta.net

If you would like to receive project updates and newsletters, please contact:
Clarissa Filgioun
Community Outreach Specialist
Phone: (213) 381-5700
Fax: (213) 381-5857
Email: clarissa@therobertgroup.com

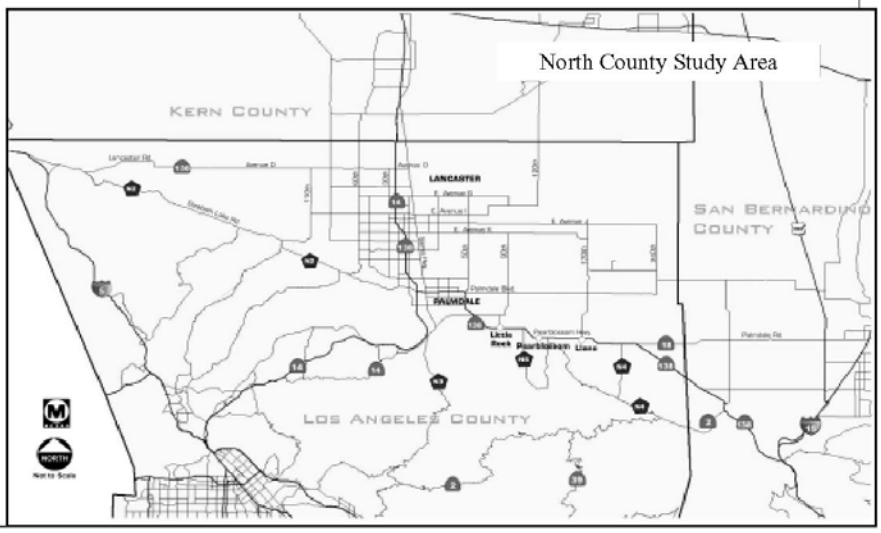
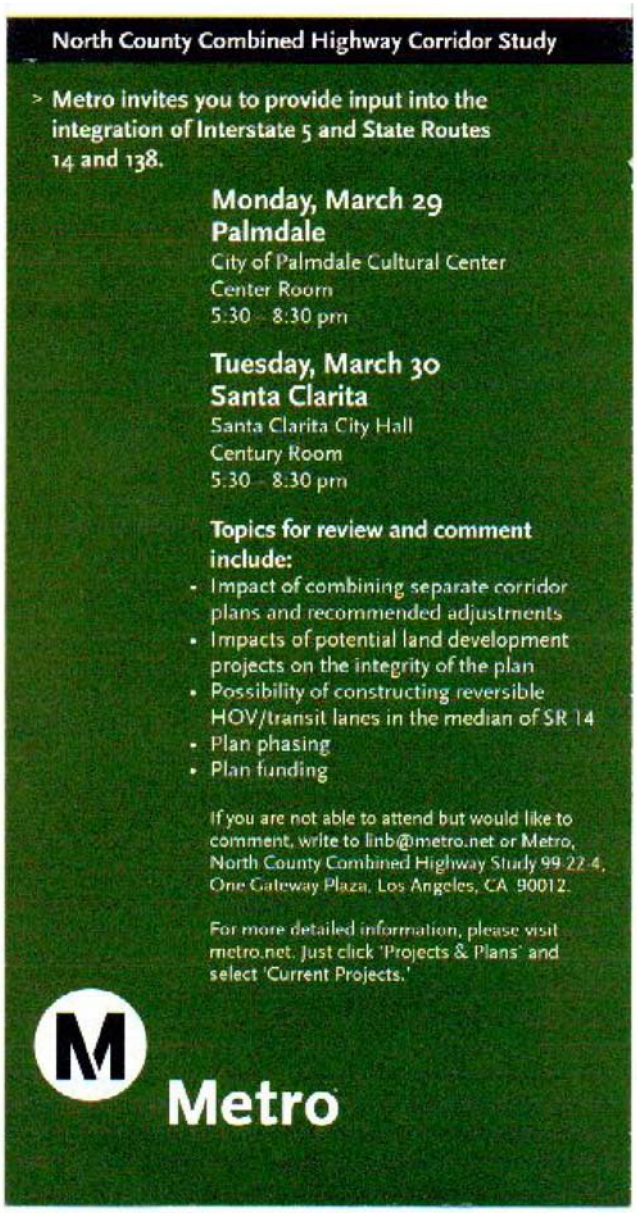


Exhibit 2.2: Notice of Final Open Houses



Additional Outreach Opportunities

To build interest in the project and attendance at public meetings and to receive input on the preliminary alternatives, the project team staffed a booth at the Palmdale Fall Festival and distributed flyers publicizing the public meetings at the Littlerock Fall Festival.

Communication Materials Development

In addition to periodic newsletters and meeting notices, a series of fact sheets, PowerPoint presentations, and project updates were developed. Up-to-date study information was also regularly posted on MTA's website.

Summary

The objective of this comprehensive, wide-ranging agency and public involvement effort was to establish consensus for the North County Corridors Plan. In addition to the ongoing technical and policy input, public comment was received and incorporated into the selection of the final integrated North County Corridors Plan. Public input received at the open houses and other briefings was also used at a project team workshop to assist in developing the initial set of conceptual alternatives. The team also responded to detailed written comments from the Lancaster Coalition of Neighborhood Organizations (LCNO) and met with the Los Angeles County Sanitation District to address their concerns about the alignment.

The I-5, SR-14, and SR-138 corridors serve distinct communities; for example, Antelope Valley residents were more interested in SR-14 and SR-138, while Santa Clarita stakeholders tended to focus on I-5. Summarized below are overall observations as well as specific comments from North Los Angeles County stakeholders:

- North Los Angeles County must plan now for future growth, given the long lead times required for infrastructure improvements.
- Long-term strategies must provide redundancy of systems (multimodality) and routes connecting the Santa Clarita and Antelope Valleys with other parts of Southern California.
- Strategies must consider all types of trips, and a variety of origins and destinations.
- The subregion must address critical short-term issues, including safety and congestion, with a series of practical, phased improvements to the I-5 and SR-14 corridors, and these improvements must include additional transit service to help absorb existing as well as future demand.

- Provide support for I-5 truck lanes as a solution for problems created by truck/auto conflicts in general-purpose lanes.
- I-5 stakeholders supported the need for capacity enhancements.
- Stakeholders are generally supportive of capacity enhancements on SR-14, including additional HOV lanes and reversible carpool lanes.
- There was substantial support for completing the funded and planned improvements on SR-138 in the short term.

On the whole, stakeholders are supportive of the North County Corridors Plan and are interested in exploring funding mechanisms to realize the projects. Several people want environmental justice issues addressed on the HDC alignment, and discussion took place with several Lancaster community members regarding specific alignments for the HDC north-south connectors.

The Public Outreach and Consensus-Building Process Report for the North County Corridors Plan provide detailed documentation of this effort.

CHAPTER 3: CORRIDOR CHARACTERISTICS AND TRANSPORTATION NEEDS

North Los Angeles County: Suburban/Pastoral Quality of Life Meets City-Style Congestion

North-South Travel Needs

North-south connectors between the Antelope and Santa Clarita Valleys and the rest of Los Angeles County are currently limited to the I-5 and SR-14. Located north of the sprawling urbanized Los Angeles Basin and San Fernando Valley, the region provides desirable amenities and affordable housing in bedroom communities that are increasingly remote from good-paying jobs. These factors place a severe and growing congestion choke-hold on the two overloaded north-south freeways connecting jobs and houses in greater Los Angeles. The need for additional or expanded north-south corridors relates not only to extreme peak-period congestion and travel delay, but also to the need for greater system redundancy. New connections to the San Gabriel Valley, alternatives to the I-5/SR-14 interchange, and new routes through the Newhall Pass are all subjects of interest.

East-West Travel Needs

East-west connector routes between the I-5, SR-14, and I-15 are very limited. No high-level facilities currently exist that can be used conveniently by travelers to travel across the high desert or transition from one north-south route to another to reach the Los Angeles Basin from another portion of the North County Study Area. The rural, two-lane, unimproved sections of SR-138 cause travel delays and safety problems for area residents, commuters, truckers, and recreational vehicles alike. New facilities and upgraded connections are required to meet future demand and to provide for transitions between the primary north-south corridors.

Regional Mobility for Economic Vitality: Moving People and Goods

The importance of cost-effective transportation investment for the North County subregion cannot be overstated. The 2001 Regional Transportation Plan (RTP) emphasizes the interrelationship between transportation investment and performance and the economic vitality and quality of life of all subregions with the six-county Southern California Association of Governments (SCAG) region. The ability to attract jobs is important to the development goals of the localities in the high desert area, which are needed to improve regional jobs/housing balance. A robust, well-planned, minimally congested transportation system is a critical element to economic growth and vitality. Plans for the area must also help ensure that Southern California has the trucking infrastructure required to remain economically competitive at the global level.

Serving as Urban L.A.'s "Growth Safety Valve": Trends in Demographics and Travel Patterns

According to the most recent SCAG projections, previous rapid demographic growth in North Los Angeles County will continue for the long term, making the area by far the fastest growing of the nine subregions in Los Angeles County. Between 1997 and 2025, North Los Angeles County's population is projected to increase more than 149 percent from approximately 0.5 million to 1.2 million; employment is projected to increase more than 99 percent from approximately 150,300 to 299,400, and the number of household dwelling units is projected to increase more than 187 percent from approximately 153,300 to 441,000.

This staggering projected growth in population and household dwelling units, coupled with trailing increases in area jobs, defines the fundamental character and challenges of this subregion and indicates a significant need for new capacity on roadways and increased public transit services within the North County area. Adding to the trend is growth in the economies of existing and planned communities within Kern and San Bernardino counties, coupled with growth in the overall statewide economy that will create substantial increases in intercounty/ interregional trips through the area, both in trucks and general traffic.

Intercounty/Interregional Trip Making

Sizable growth is projected for the next 25 years in very long distance truck and general traffic that traverses the North County study area as intercounty/interregional trips. Growth in this category of trips will be attributable to sustained long-term growth in the Los Angeles area as well as the state's economy and development in adjacent geographic areas such as Kern and San Bernardino Counties.

Opportunity for HOV Benefits to All Corridor Travelers

An unusually high percentage of the trips on the I-5 and SR-14 in North County are long-distance trips of 25 miles or more. Trips of this length are very suitable for ridesharing if preferential lanes or facilities are available to give carpools and vanpools a significant travel time advantage over travel in the general-purpose lanes. Express bus routes can also serve this segment of travelers, reducing congestion on adjacent lanes for those who must or choose to drive alone.

Need for New Transit Connections and Services

Relative to urbanized Los Angeles, transit service is underdeveloped in North County, creating mobility obstacles for autoless households and the elderly or disabled. As the study area grows, there will be parallel growth in demand for a broad variety of transit modes providing better connectivity between North County and central and western Los Angeles County. Also, the need for convenient transit connections to Kern County, Ventura County, and the Victor Valley is expected to emerge in response to increasingly complex travel patterns and higher overall demand.

Increasing Urbanization Means More Complex Trip-Making Needs

With the study area's population expected to reach approximately 1.25 million by 2025, urban development will expand substantially in the Santa Clarita and Antelope Valleys and across the high desert toward San Bernardino County and the Victor Valley. The magnitude, timing, and location of expected population growth and the continued disconnect to area jobs results in greater complexity in travel demand (multiple purposes and multiple directions) affecting the I-5, SR-14, and SR-138 highway corridors.

Palmdale Airport Access

Regional access to/from the Palmdale Airport continues to constrain the potential for Palmdale Airport's expansion to assume its planned role in the regional airport system and economic development market. Palmdale Airport has been identified as a key component in SCAG's regional airport system and will grow in importance as the study area grows in size by horizon year 2025. Both commercial passenger air service and cargo service will require reliable and high-level roadway that directly connects the airport with the region and the entire high desert area.

Growing Truck Volumes

Accompanied by increasing truck traffic to Kern County and Central California, this regional economic vigor has placed pressure on North County's already underdeveloped transportation infrastructure. Although these issues are perhaps not unique to this portion of the region, they certainly have highlighted the freeway system's lack of alternatives, its vulnerability to seismic and weather events, and the general shortage of financial resources to address long-term solutions needed to meet the various transportation challenges that have been identified, including high levels of growth in truck travel. A key study goal is to maintain and, if possible, enhance truck movement on SR-138 while minimizing impacts on local communities.

Roadway-Related Characteristics and Emerging Transportation Needs

Limited Freeway Capacity Means Lost Time on I-5 and SR-14

Available roadway capacity on the I-5 and SR-14 in the North County study area is quickly being outstripped as traffic demand grows. Given the rapid growth trends for traffic in North Los Angeles County, programmed capacity improvements on I-5 and SR-14 will be overwhelmed well before the horizon year 2025.

Delay on the I-5 and SR-14 is substantial today and will grow worse in the coming years. On an average weekday, motorists traveling southbound on SR-14 corridor general-purpose lanes experience the maximum delay in the morning peak period—approximately 5,000 hours. During the evening peak period, motorists traveling northbound on I-5 typically experience the maximum delay of approximately 1,500 hours. The combined annual travel delay on both of the I-5 and SR-14 study corridors in both northbound and southbound directions is approximately 3 million hours.

SR-138 Cannot Keep Pace with Future Demand

The number and percentage of trips that travel in and out of the high desert area will increase substantially (relative to internal trips), requiring significant improvements in roads that can serve these long-distance through trips. Without such

improvements, limited and localized congestion on SR-138 today will become far more severe by 2025 with widespread congestion during morning and evening peaks.

Interregional Traffic Contributes to Localized Congestion

North County geographically functions as a strategic gateway between the Los Angeles Basin and central and northern California. As a result, the I-5, and to a lesser extent, the SR-14 in North County must carry a substantial number of interregional traffic and truck trips. In recent years, these interregional movements have grown substantially, placing an ever-increasing strain on North County segments of I-5 and SR-14. Based on the most recent Caltrans peak period counts, the I-5 carries a very high percentage of trucks both north and south of the I-5/SR-14 interchange. Percentages range from 15 to 21 percent of total traffic south of the SR-126, with percentages as high as 44 percent north of SR-126.

Operational Complexities and Safety Challenges

Especially in the SR-138 corridor, obsolete and inadequate roadways have combined with growing traffic and truck demand to create operational conflicts between cars, trucks, and recreational vehicles, with impacts on roadway safety at specific locations. Narrow, undivided stretches of highway with few passing opportunities, multiple access locations, and irregular topography and limited sight distances all contribute to a high number of injury and fatality accidents on SR-138. Existing roadways must be made safer and new routes must be developed to the highest safety standards.

Safety on existing roadways and growing accident rates and fatalities are major issues on all corridors within the North County Study area. Accident data from Caltrans and other jurisdictions indicate that accident rates on the I-5 and SR-14 are at or above the statewide averages for freeway facilities. Long-standing safety problems on SR-138 combined with sharp increases in traffic throughout North Los Angeles County illustrate that Antelope Valley is failing to keep up with its essential transportation needs. Transportation improvements that provide immediate benefits and that meet critical needs should move forward into implementation as soon as possible.

Lack of System Redundancy

Primary study area transportation Corridors (I-5, SR-14, and SR-138) are vulnerable to shutdown because of accidents, inclement weather, earthquakes, landslides, and wildfires. To cope with emergencies, multiple facilities and alternative modes of travel are needed for the area.

Transit-Related Characteristics

Existing Public Transportation Services and Ridership

The study area contains a variety of public transit options, including fixed route and express bus services, park-and-ride lots, dial-a-ride, paratransit services, and Metrolink commuter rail. Amtrak bus service links the Antelope Valley to the rail system in Bakersfield, where the Southwest Chief line leaves for Victorville, and eastward through Las Vegas, Kansas City, and Chicago.

Transit operators in North County are aggressively expanding services and facilities to meet short-term demand, especially for north/south commuter express service. However, funded improvements are insufficient to address transit's emerging long-range role (which could be significantly greater if increased transit capacity receives priority) as a cost-effective remedy to some of the regional mobility challenges.

Expanding North County Transit's Ability to Reduce the Strain on Roadways

Extensive travel growth will overwhelm roadway capacity, requiring public transportation to carry more of the burden. A comprehensive multimodal transit framework—that is, an appropriate mix of rail and bus services—is needed to support future urban growth, provide a backup to travel by automobile, and support a lifestyle less dependent on the automobile.

North County Corridors Planning Themes

Because no one mode or element of transportation will be able to meet all of the diverse travel requirements of North County, packages of improvements were compared one against the other. These system alternatives or scenarios were taken through a rigorous process of analysis and comparison to determine which combination of improvements have the best overall benefit to North County.

Major elements of overall transportation alternatives considered were additional freeway lanes, special lanes for trucks and HOVs; bus rapid transit, high-speed rail transit, widening/realignment of roadways, and possible new highway links through the San Gabriel Mountains and another following the High Desert Corridor alignment.

The following themes, not necessarily in order of priority, emerged from scoping to guide the development and evaluation of alternatives in the North County Combined Highway Corridor Study. Because transportation funding is limited, transportation strategies reflecting these themes were structured to enhance funding prospects.

- Substantially increased vehicle capacity is needed in each of the major highway corridors. Sufficient highway right-of-way should be reserved along I-5, SR-14, and SR-138 to develop new HOV lanes and truck lanes in response to emerging demand. Many improvements, both flexible and multimodal, are needed to meet the substantial socioeconomic growth that is projected for Santa Clarita, Valencia, and the Antelope Valley communities of Palmdale and Lancaster. Available roadway capacity is quickly being outstripped, and programmed capacity improvements will be overwhelmed well before the horizon year 2025. Delay on the I-5 and SR-14 is substantial today and will grow worse in the coming years.

- A package of early action transportation improvements (highway and transit) is needed within the context of long-range planning objectives. Demand for corridor transportation improvements is great, and the public questions why solutions take so long to implement. Therefore, a comprehensive package of early action items must be developed to meet short-term needs. Consensus on a set of early action items is emerging and would be common to all long-range alternatives evaluated: continuous HOV lanes plus three mixed-flow lanes on SR-14 from Sand Canyon Road to Avenue P; extension of HOV lanes on I-5 from SR-14 to SR-126; extension of truck lanes on I-5 from SR-14 to Calgrove Boulevard; passing lanes and select pavement widening on SR-138 from Palmdale to the San Bernardino County line; and bus/Metrolink passenger service improvements to complement the HOV network.

- Safety enhancements to existing roadways are needed and new safer facilities must be built to reduce accident rates and fatalities. Widening, realignment, and traffic control along SR-138 is particularly important.

- Regional multimodal access to Palmdale Airport must be upgraded in anticipation of the Palmdale Airport's emergence as a Southern California commercial aviation hub. Palmdale Airport has long been envisioned as relief for congestion at other Los Angeles County/regional airports, especially LAX. The Palmdale Airport is also recognized as an important engine for the economic development and diversification of the Antelope Valley. Regional access to/from Palmdale Airport continues to constrain the

potential for Palmdale Airport's expansion to assume its planned role in the regional airport system and economic development market.

- A semiexclusive truck network is needed to avoid the capacity constraints and safety hazards inherent in a combined truck/auto highway system. Increased use of exclusive truck lanes, truck ramps, and climbing lanes will facilitate goods movement (important for the economic vitality of the state and region) as well as save lives. As already-high truck volumes increase, available capacity of truck lanes is limited, and traffic operations for both trucks and automobiles is adversely impacted, i.e., differences in truck and auto speeds creates friction that adversely impacts vehicle capacity and safety.
- A semiexclusive HOV/bus network is needed to avoid the capacity constraints and safety hazards inherent in combining HOV/bus operations with mixed flow traffic. A continuous and integrated HOV/bus system with dedicated HOV lanes, HOV bypasses/ ramp metering on freeway on-ramps, and priority location for HOV/express bus stops at interchanges will facilitate HOV use and provide the greatest time savings for the greatest number.
- New high-capacity east-west connector routes are needed to link I-5, SR-14, and I-15 to meet future demand and provide for movement between primary north-south corridors. The new routes would increase accessibility, shorten vehicle trips, and function as part of a metropolitan bypass for the Los Angeles region.
- Alternatives to the I-5 and SR-14 facilities are needed in order to cope with emergencies. Among other things, the feasibility of new north-south route options should be studied. I-5 and SR-14 are lifelines of statewide and regional importance. Study area transportation is vulnerable to shutdown because of accidents, inclement weather, earthquakes, and landslides.

CHAPTER 4: PART I ALTERNATIVES EVALUATION (I-5 AND SR-14 CORRIDOR PLANS)

Screening from 11 Conceptual Scenarios to a Short List of Six Feasible Alternatives

A list of 11 conceptual alternatives for I-5 and SR-14 was developed based on the results of the comprehensive scoping process conducted between October 2001 and March 2002, involving the study team, several dozen key study stakeholders, representatives from participating agencies, and the Technical Advisory Committee (TAC). Each alternative in this set was multi-modal, incorporated capital improvements and operational strategies, and was structured to show the full range of options so that the tradeoffs in costs, transportation benefits, and other impacts could be understood. These 11 multi-modal possibilities for the I-5 and SR-14 are aggregated into the following thematic scenarios:

- **Alternative 1** – No Build (Existing Plus Funded)
- **Alternative 2** – Transportation Systems Management (TSM)
- **Alternative 3** – Build 1: Minimum Highway/Minimum Transit
- **Alternative 4** – Build 2: Moderate Highway/ Minimum Transit
- **Alternative 5** – Build 3: Minimum Highway/ Moderate Transit
- **Alternative 6** – Build 4: Moderate Highway/ Moderate Transit
- **Alternative 7** – Build 5: Moderate Highway/ Moderate Transit plus Maglev
- **Alternative 8** – Build 6: Moderate Highway/ Moderate Transit plus New N-3/SR-2 Mountain Route
- **Alternative 9** – Build 7: Moderate Highway/ Moderate Transit plus New N-3/SR-2 Rail Route
- **Alternative 10** – Build 8: Moderate Highway/Moderate Transit plus Sand Canyon/Little Tujunga Canyon Mountain Route
- **Alternative 11** – Build #9: Maximum Highway/Maximum Transit

As Exhibit 4.1 shows, the initial screening criteria represented a variety of performance indicators in one of four categories:

- Transportation Service
- Financial Feasibility
- Community and Environmental Impacts
- Ease of Implementation

The analysis that aided the TAC in selecting the short list was order of magnitude, and allowed the identification of alternatives that were most likely and least likely to perform well in more detailed and comprehensive evaluations. The three build alternatives recommended to be carried forward—3, 5, and 6—appeared to provide a good balance of corridor carrying capacity, financially affordability, environmental compatibility, and implementability. Alternative 4 was withdrawn from further consideration due to its similarity to Alternative 6. Also, the evaluation of alternatives 5 and 6 in combination was deemed to be more important than the evaluation of Alternative 4. Alternatives 7-11 were withdrawn from consideration due to high costs, environmental impacts, and implementation difficulties.

Exhibit 4.1: Initial Screening Matrix of Alternatives

Several additional alignments through the San Gabriel Mountains were identified during public review. However, these new mountain routes were rejected due to high costs and environmental impacts.

Six Short List Alternatives Selected

Based on screening criteria approved by the TAC, the initial list of alternatives was reduced to a short list of alternatives for evaluation, including a No-Build, Transportation Systems Management (TSM) and three build alternatives. As Exhibit 4.1 shows, the selected criteria and concept-level ranking of the initial alternatives resulted in the following short list, described in more detail in Exhibit 4.2:

- **Alternative 1** (No-Build)
- **Alternative 2** (TSM)
- **Alternative 3** (Minimum Highway/Minimum Transit)
- **Alternative 5** (Minimum Highway/Moderate Transit)
- **Alternative 6** (Moderate Highway/Moderate Transit, also known as the Ultimate TCR)

Exhibit 4.2: Overview of North County Part I Short-Listed Project Alternatives

- **Alternatives 1 and 2**, No Build and TSM, are required to be advanced for baseline comparison. The TSM alternative adds 12 new Metrolink commuter rail cars and 29 new southbound express bus departures over No-Build, but does not add highway capacity.
- **Alternative 3** is the first of the build alternatives proposed to be advanced. It embodies minimum investment, with an apparent balance between highway and transit. Along I-5, one new HOV lane would be added between SR-14 and SR-126 and a new truck lane would be added from SR-14 to Calgrove Ave. Along SR-14, a continuous section of 3 general-purpose lanes plus an HOV lane would be completed in each direction from I-5 to Avenue P. This alternative would add 32 express bus runs and 2 Metrolink commuter trains, with an additional 17 cars, to the southbound AM commute beyond those provided in the TSM alternative.
- **Alternative 5** builds on Alternative 3 with a substantial increase in transit investment. This alternative would provide the same highway improvements as Alternative 3, and add 35 southbound express bus runs and 4 Metrolink trains, with an additional 19 cars in the AM commute beyond improvements provided in Alternative 3.
- **Alternative 6** builds on Alternative 5, adding substantial highway investment. Along I-5, 1 new general-purpose lane would be added from SR-14 to the Kern County line, 1 new HOV lane would be added from SR-14 to north of SR-126 West, and the truck lane would be extended north to SR-126 East and become a climbing lane as required north to the Kern County line. Along SR-14, 1 general-purpose lane would be added from Sand Canyon to Avenue D, 1 HOV lane would be added from I-5 to Avenue L, and a truck lane would be added from I-5 to Sand Canyon. This alternative would have the same transit investment as Alternative 5.
- In addition to selecting these alternatives for further evaluation, the TAC directed the North County team to perform sensitivity testing of Alternative 6 + High-Speed Rail, which adds a technology-neutral high-speed rail component to the Moderate Highway/Moderate Transit scenario in Alternative 6.

I-5 Corridor Alternatives Evaluation

Early in the study, the TAC and the North County Transportation Coalition identified HOV lanes between SR-14 and SR-126 West and truck lanes from SR-14 to Calgrove as the highest priority for early implementation in the I-5 Corridor. Early action recommendations were based on a review of current congestion and safety issues, consistency with regional travel forecasts, and stakeholder input.

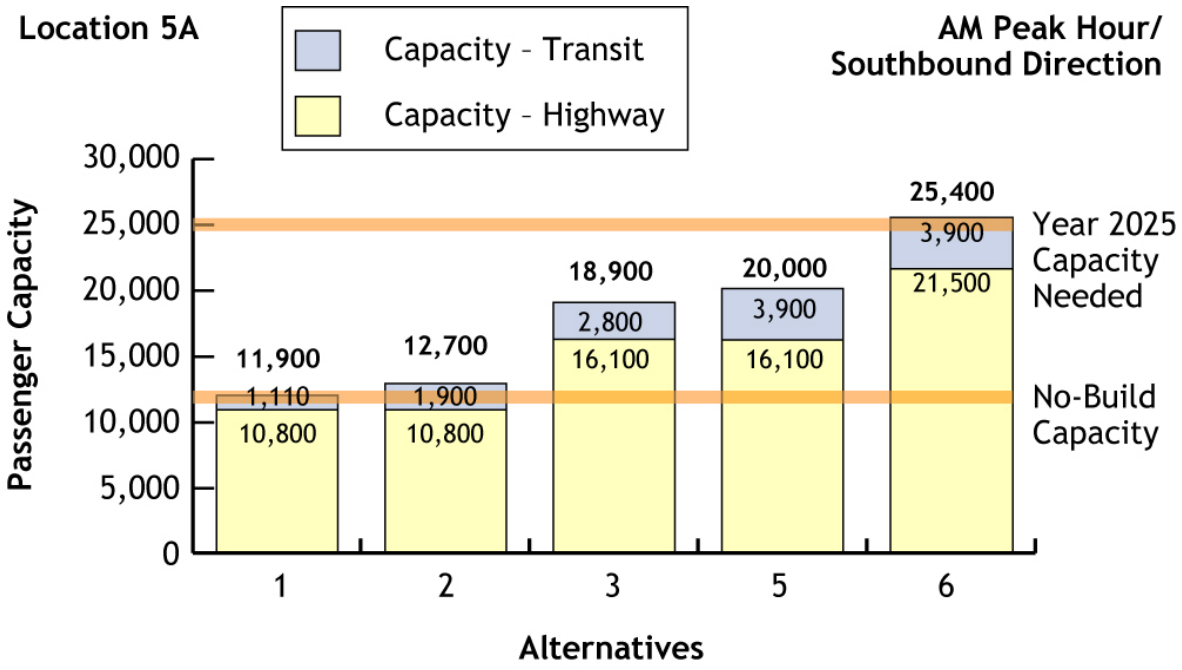
Long-range planning for the I-5 Corridor began with a horizon year 2025 corridor travel forecast that more than doubled the current travel volume. An initial investigation of the I-5 Corridor alternatives was conducted at six cutlines (designated 5A through 5F) from just north of the I-5/SR-14 interchange on the south to the Kern County line in the north. Cutline 5A, a short I-5 segment just north of the I-5/SR-14 interchange, was deemed a key location for assessing future I-5 Corridor travel needs. The three build alternatives provided the following new roadway and transit facilities and services at cutline 5A:

- Just north of the interchange, build Alternatives 3 and 5 would provide two new traffic lanes (an HOV and a truck lane), an increase of about 50 percent over existing capacity. Alternative 6 would provide four new lanes (two HOVs, a truck lane, and a general-purpose lane), roughly doubling existing freeway capacity.
- Metrolink and express bus services would be increased at this location. Peak hour transit service would be increased by almost 100 percent over existing services in Alternative 3 and by 200 percent over existing levels in Alternatives 5 and 6.
- Park-and-ride lot spaces would be increased by about 100 percent over existing capacity in Alternatives 5 and 6.

Highway and Transit Demand and Capacity Compared

- With current I-5 roadway capacity, congestion occurs southbound in the morning peak period and northbound in the evening peak period, when traffic volume is at capacity. In 2025 with no new lanes, traffic conditions would degrade substantially. Alternatives 3 and 5 would improve conditions by adding capacity. Alternative 6 roughly doubles highway capacity, approaching long-range travel forecasts for the peak hour. Exhibit 4.3 shows I-5 capacity, by alternative, for the roadway segment from SR-14 to Calgrove Blvd.

Exhibit 4.3: Highway and Transit Person Carrying Capacity on I-5 North of SR-14



Note: Assumes average vehicle occupancy of 1.345 persons per vehicle

Exhibit 4.3 shows that at location 5A (I-5 from SR-14 interchange to Calgrove Blvd.) the passenger capacity needed to meet year 2025 demand is 26,000. Alternatives 1 and 2 have 11,900 and 12,700. Alternatives 3 and 5 have 18,900 and 20,000 passenger capacity while Alternative 6 has 25,400.

- Transit demand in the I-5 Corridor is expected to increase in response to residential and job growth. In response to new demand, transit service would double in Alternative 2, triple in Alternative 3, and quadruple in Alternatives 5 and 6. Notwithstanding any increase, the dominance of the highway mode along the I-5 Corridor is expected to continue. Transit's share in the peak hour will approach 10 percent in Alternative 6 for horizon year 2025.

Trucks and Goods Movement

The high truck volumes in the I-5 Corridor forecasts, and safety issues inherent in mixing large volumes of trucks and autos, suggest that two truck lanes might be physically separated from the mainline roadway in each direction. Trucks would travel in a semi-exclusive I-5 truckway, bypassing the interchanges and accessing the mainline roadway on longer segments between interchanges. Extending the separate truck lanes north from the I-5/SR-14 interchange would eliminate the need for automobiles to weave across truck traffic at on and off ramps, thereby increasing traffic safety and improving freeway operations.

Capital Costs

Estimated capital costs of alternatives on I-5 range between $15 million for Alternative 2 and $700 million for Alternative 6. Most of the cost is for highway improvements. Each lane of new highway serving the built-up area between SR-14 and SR-126 will cost about $90 million.

Environmental Impacts

Several significant environmental resources could be affected by highway improvements: parks, historic sites, streams, and habitat areas. Most of the right-of-way needed for future improvements in the I-5 Corridor has been acquired, and retaining walls are envisioned to limit encroachment on residences, businesses, and habitat outside the right-of-way. Extensive noise wall construction will be needed in some areas. There would be potential and indirect impacts in the area south of the I-5 and SR-14 interchange due to desired continuity of freeway widening.

Looking Past the Bottleneck

One important finding from the highway analysis was that new traffic lanes north of the I-5/SR-14 interchange must be coordinated with the construction of highway improvements through the interchange and south to I-210 and I-405. Providing continuity through the interchange would require new general-purpose, HOV, and truck lanes south through the interchange to match improvements to the north. Phased construction of new lanes south of the interchange will require further consideration. (See Chapter 7 for integration analysis results.)

SR-14 Corridor Alternatives Evaluation

In early 2002, the TAC and NCTC identified as the top priority for early action in the SR-14 Corridor one continuous HOV lane and three general-purpose lanes in each direction from I-5 to Avenue P. Early action recommendations were outlined in an application submitted for MTA's March 2003 Call for Projects.

Long-range SR-14 corridor planning began with year 2025 travel forecasts. Travel within the corridor was forecast to nearly triple over current travel volumes. An initial investigation of the SR-14-Corridor was conducted at six cutlines (designated 14A through 14F) from just north the I-5/SR-14 interchange at the southern end of the corridor to the Kern County line in the north.

A key location for assessing future SR-14 Corridor needs is just north of the I-5/SR-14 interchange.

The attributes of alternatives at this location are:

- Alternatives 2, 3, and 5 would provide no new traffic lanes at this location. However, a single mixed-flow lane would be added upstream, between Sand Canyon and Avenue P for a nearly 30 percent increase in freeway capacity. Alternative 6 would provide two new lanes at this location (a second HOV and a truck lane), for a nearly 50 percent increase in existing freeway capacity.
- Peak hour transit service on the SR-14 would be nearly tripled with Alternative 3 and increased nearly four-fold over the No-Build, with Alternatives 5 and 6.
- Park-and-ride lot spaces would be increased 50 percent with Alternative 3 and almost doubled with Alternative 6.

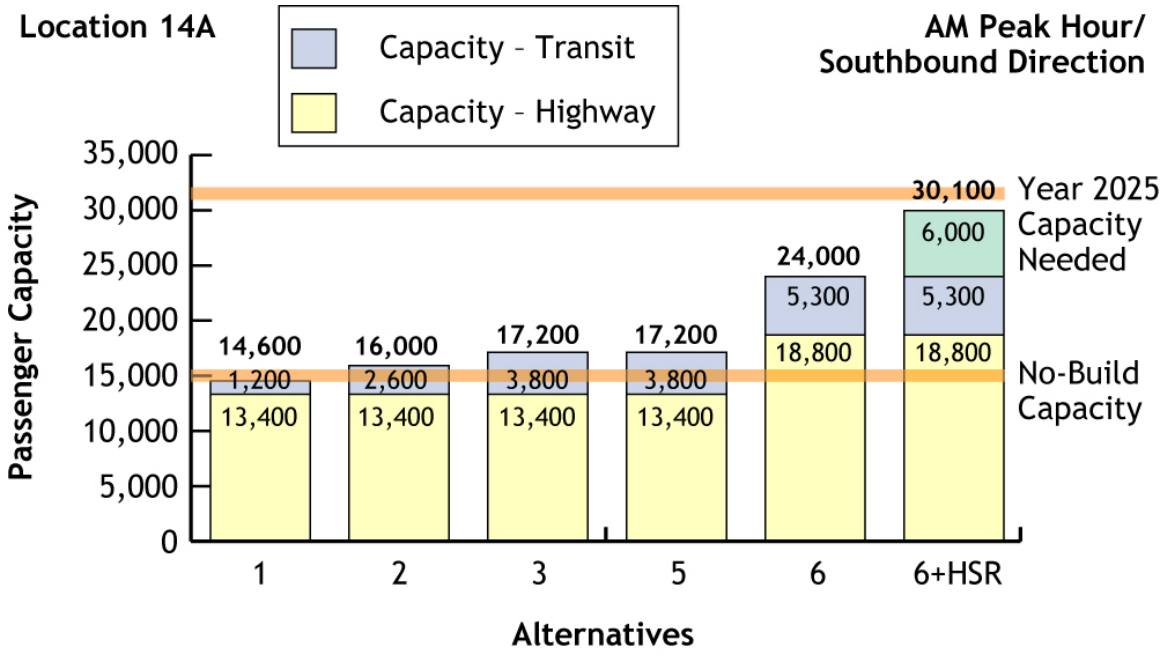
Highway and Transit Demand and Capacity Compared

With current SR-14 highway capacity, congestion occurs southbound in the morning peak period and northbound in the evening peak period, when traffic volume is at capacity. In 2025, with no new lanes, traffic conditions would degrade substantially. Alternative 6 would improve conditions compared to the No-Build alternative, with two new lanes.

Transit capacity in the SR-14 Corridor must be expanded in response to Antelope Valley growth. Transit service would double with Alternative 2, almost triple with Alternative 3, and quadruple with Alternatives 5 and 6. Implementation of high-speed rail with a station in Palmdale could add an additional 6,000 passengers in the peak hour. Alternative 6 + HSR would increase transit capacity eight-fold. Exhibit 4.4 shows highway plus transit capacity, by alternative, at the location on SR-14 just north of the I-5/SR-14 interchange.

Implementing a California High-Speed Rail Initiative routed through Palmdale/Lancaster affords the opportunity to raise Antelope Valley transit accessibility to an entirely new level. This 700-mile statewide system, which will go to the voters for approval, provides for 180-mph trains linking northern and southern California cities. Although a route through the North County has not been selected, a strong demand-based argument can be made for the route through Palmdale. This alignment provides access to a sizable commuter market in addition to serving longer-distance intercity ridership.

Exhibit 4.4: Highway and Transit Person Capacity on SR-14 North of I-5



Note: Assumes average vehicle occupancy of 1.345 persons per vehicle

Exhibit 4.4 shows that the total passenger capacity in the AM peak hour southbound for year 2025 is 33,000 on SR-14 just north of I-5. Alternatives 1 and 2 have 14,600 and 16,000 passenger capacity. Alternatives 3 and 5 have the same capacity, 17,200, while Alternative 6 is 25,400.

Directional Traffic Points to Possible Benefits of Reversible HOV Lanes

- The peak period commute along the SR-14 Corridor is very directional, with 70 percent of travel southbound in the morning and northbound the evening; travel in the off-peak direction comprises less than 30 percent of overall traffic volumes. Thus, the SR-14 Corridor offers a unique opportunity for implementing reversible HOV lanes. Typical HOV lanes operate in lanes adjacent to and outside the general-purpose lanes. An alternative would provide two reversible HOV lanes operating in a median roadway separated from the mainline by concrete barriers. Access to the median "chute" would be controlled with gates similar to those used to protect railroad crossings. The I-15 Managed Lanes, north of San Diego and the Caldecott Tunnel in the Bay Area, operate in a similar manner.
- The pavement width and right-of-way required for two reversible lanes would be considerably less than that required for a conventional HOV configuration. A four-reversible-lane configuration requires the same pavement width and right-of-way as a conventional HOV configuration with 2 lanes in each direction, but its more flexible operation offers more peak direction capacity. See Chapter 7 for the integration analysis of the reversible HOV lane concept.
- A variation of the reversible-lane configuration would be to increase the number of reversible lanes inside the reversible median roadway and market a portion of the excess capacity to single occupant vehicle drivers willing to pay to bypass congestion in the general-purpose lanes. This variation of the reversible HOV/Managed Lanes concept is now used along I-15 north of San Diego, where revenue generated from solo drivers paying to use the

HOV lanes finances new transit service in the same corridor.

Capital Costs

Estimated capital costs of SR-14 Corridor alternatives range between $50 million for Alternative 2 and $1.2 billion for Alternative 6. Most of the cost is for highway improvements. Each lane of new highway serving the corridor between I-5 and Avenue P will cost about $350 million. For additional comparison, an Alternative 6+ including Alternative 6 highway and transit improvements plus High-Speed Transit is estimated to cost $2.7 billion.

Environmental Impacts

Several significant environmental resources could be affected by highway improvements: Angeles National Forest, parks, historic sites, creeks, and habitat. Most of the right-of-way needed for future improvements in the SR-14 Corridor has been acquired, and retaining walls are envisioned to limit encroachment on residences, businesses, and habitat outside the right-of-way. Noise wall construction will be needed in some areas. Again, there would be potential indirect impact south of the I-5 and SR-14 interchange due to desired continuity of freeway widening.

Part I Locally Preferred Strategy Selection Process

Based on the Study, the TAC selected Part I short-and long-term Locally Preferred Strategies in 2003. However, it was understood that the strategies identified (Alternatives 3 and 6, for the short- and long-term strategies, respectively) might be modified when Parts I and II of the North County Study were integrated in the spring of 2004. This section tracks the Part I corridor-specific evaluation that led to the selection of Alternatives 3 and 6, and concludes by showing the final short- and long-term alternatives for the I-5 and SR-14 Corridors, as modified by the integration process. Definitions of the modified locally preferred strategies appear in Chapter 6, Locally Preferred Strategy Definitions. Details of the integration analysis appear in Chapter 7, North County Corridors Plan.

Part I Short-Range Corridor Strategy Selection Rationale

The selected I-5 and SR-14 Short-Range Corridor Strategy (Alternative 3, with modifications, as defined in Chapter 6) was based on the statement of purpose and need adopted by the TAC and NCTC in early 2002. That statement specified the advancement of a package of high-priority improvements for early action.

1. **Accommodation of Forecast 2010 Travel**—Target improvements alleviate congestion envisioned by 2010 travel forecasts.
2. **Consistency with Long-Range Corridor Strategies**—Short-range roadway widening would not be undone by future improvements.
3. **Special Consideration/Priority for Safety**—Target extension of truck lanes on I-5 from SR-14 to Calgrove Avenue and uniform/consistent roadway section along SR-14 from Sand Canyon to Avenue P to reduce accident rates.
4. **Focus on Transit and Carpool (HOV) Improvements** for greatest cost-effectiveness in accommodating peak hour, peak direction person travel.

Part I Long-Range Corridor Strategy Selection Rationale

The selected I-5 and SR-14 Long-Range Corridor Strategy (Alternative 6, with modifications, as

defined in Chapter 6) was based on the statement of purpose and need adopted by the TAC and NCTC in early 2002 and the two-tiered Corridor Alternatives Analysis, which was described earlier. Several findings played a key role in identifying the recommended strategies:

1. **Accommodation of Forecast 2025 Travel**—Doubling of person travel is forecast in the I-5 Corridor and tripling of travel is forecast in the SR-14 Corridor.

2. **Maximum Reliance on Transit and Carpooling to Relieve Peak Hour, Peak Direction Traffic Congestion**—Cost-effectiveness analysis shows will be less expensive to accommodate peak hour, peak direction person travel via transit and carpooling than with additional general-purpose highway capacity. Unfortunately, there are limits to the attractiveness of transit and carpooling (competitive travel time, need a vehicle for work, etc.), and it will not be cost-effective to accommodate peak hour travel demand via transit/carpooling for an incremental cost of more than $3 per incremental person trip in the I-5 Corridor and $6 per incremental person trip for the SR-14 Corridor.

3. **Avoidance of Significant Environmental Constraints**—Alternatives through the San Gabriel Mountains and other options encroaching on valued habitat were eliminated from consideration, in part to avoid protracted and contentious project development, and in part to select options that could be phased in incrementally. Large projects that take many years to complete do not produce inordinate political support and willingness to defer benefit.

4. **Special Consideration/Priority for Trucks/Goods Movement, Important to the Economic Vitality of the Region**—Designated truck lanes should be developed because separating truck traffic from general-purpose lanes can accelerate the delivery of goods and services and reduce accident costs.

5. **Incorporation of High-Speed Rail** through the Antelope Valley is envisioned as an important augmentation to the corridor. With the advancement of the California High-Speed Rail Project, and SCAG's Palmdale to LAX Maglev Project, there is an excellent opportunity to piggyback urban commuter service on high-speed intercity transit service, thereby achieving more cost-effective public transportation for both travel markets.

North County Study Findings Presented to Antelope Valley Board of Trade in March 2004

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CHAPTER 5: PART II ALTERNATIVES EVALUATION (SR-138 CORRIDOR PLAN)

Screening from Eight Conceptual Scenarios to a Short List of Four Feasible Alternatives

An initial set of broad conceptual alternatives for the SR-138 Study was developed during an Alternatives Development Workshop with the SR-138 Technical Advisory Committee (TAC) conducted on November 4, 2002. The long list of alternatives was the result of a comprehensive scoping process conducted between May and December 2002 and included the study team, several dozen key study stakeholders, representatives from participating agencies, and the TAC. Each of the initial eight alternatives was designed to address the identified needs and objectives of the study area and to provide the basis for meaningful comparison among discrete components and logical sets of strategies. The initial set of alternatives are presented below:

Conceptual Set of Alternatives

- **Alternative 1:** No Build (includes only funded and committed transportation projects to 2025)
- **Alternative 2:** Enhanced Transportation Systems Management (TSM)
- **Alternative 3:** Low Build—Regional Arterials
- **Alternative 4:** Medium Build—4-Lane Expressway/Business Loop Bypass
- **Alternative 5:** High Build Alternative—High Desert Corridor
- **Alternative 6:** High Build Alternative—High Desert Corridor Modified
- **Alternative 7:** High Build Alternative—High Desert Corridor with Rail
- **Alternative 8:** Very High Build Alternative—Enhanced High Desert Corridor with HOV

Screening of Conceptual Set of Alternatives

The screening criteria used to assess the initial set of eight conceptual alternatives was developed from the project Purpose and Need statement and was applied to each conceptual alternative to determine whether it, or elements of it, satisfied study objectives. In a March 2003 all-day workshop, the TAC rated and ultimately ranked these alternatives. Exhibit 5.1 shows the results of the TAC alternatives screening workshop. Note that the No Build Alternative (Alternative 1) and the Enhanced TSM Alternative (Alternative 2) are needed to provide an ongoing basis of comparison to the selected build alternatives throughout all stages of the study. TAC scrutiny was directed to the six build alternatives. A numerical scoring of the alternatives (detailed in Chapter 4 of the Alternatives Development and Screening Report) was then color-coded for presentation to the public as shown in Exhibit 5.1.

Exhibit 5.1: Initial Screening of Alternatives

Ranking of Alternatives	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8
Cost	Good	Good	Fair	Poor	Fair	Good	Fair	Fair
Travel Benefits	Poor	Poor	Fair	Poor	Fair	Good	Fair	Fair
Regional Connectivity	Poor	Poor	Fair	Poor	Fair	Good	Fair	Fair
Safety	Poor	Poor	Fair	Poor	Fair	Good	Fair	Fair
ROW Impact	Good	Poor	Fair	Poor	Fair	Poor	Fair	Fair
Environmental Concerns	Good	Poor	Fair	Poor	Fair	Good	Fair	Fair
Public/Community Support	Poor	Good	Fair	Good	Fair	Good	Fair	Fair
Financial Viability	Good	Good	Fair	Poor	Fair	Poor	Fair	Fair
Transit	Poor	Poor	Fair	Poor	Fair	Poor	Fair	Fair
Total	Poor	Poor	Fair	Poor	Fair	Good	Fair	Fair

Good Fair Poor

Alternatives 4 and 6 were selected for further analysis. These became Alternatives C and D, respectively, in the Final Set of Alternatives, and, along with the required No Build (Alternative A) and Enhanced TSM (Alternative B) alternatives, were carried forward into the next phase of more detailed analysis and assessment.

Four Short-List Alternatives Selected

The four alternatives carried forward provide a range of transportation service, varying from no improvements to a six-fold increase in highway and transit capacity. More expensive, less efficient, and more environmentally intrusive options such as an extensive system of eight-lane arterial streets were eliminated from further consideration during this initial screening process.

Alternative A: No-Build

This alternative consists of existing and funded (but not yet constructed) projects. Included are HOV lanes on SR-14 north to Avenue P-8 and widening portions of SR-138 to four lanes. The alternative also includes completion of the Palmdale Multi-modal Transportation Center and a 50 percent increase in local bus service over current (2003) levels.

Alternative B: Enhanced Transportation System Management (TSM)

Alternative B includes everything in the No-Build Alternative, plus the balance of unfunded (approximately $80 million) SR-138 widening improvements. This alternative also includes introduction of express bus service between the Antelope and Victor Valleys.

Alternative C: 4-Lane Expressway/Business Loop Bypass

Alternative C includes Alternative B plus the following:

- Four-lane east-west expressway between SR-14 and I-15 along an alignment previously identified for a High Desert Corridor (HDC);
- Four-lane north-south expressway parallel and east of SR-14 between Avenue D and SR-138
- A four-lane expressway bypass around the communities of Littlerock and Pearblossom

- Widening of existing SR-138 west of SR-14 to four lanes
- An increase in express bus service between the Antelope and Victor Valleys to 12 buses in the peak hour

Alternative D: Modification of the High Desert Corridor

Alternative D includes Alternative B plus the following:

- East-west HDC freeway/expressway extending from SR-14 to I-15. The route would be an 8-lane freeway along P-8 from SR-14 east to 50th Street East, then a 6-lane freeway/expressway east to 240th Street East, where it would tie into San Bernardino County's planned 4-lane expressway to I-15 and beyond
- North-south HDC alignment, including a 4-lane expressway from Avenue D south to east-west HDC and a 6-lane freeway south to SR-138
- Upgrade of the western portion of SR-138 to a 4-lane expressway between I-5 and SR-14
- Provision of truck climbing lanes on SR-138 from Phelan to I-15 in San Bernardino County
- Increase in express bus service between the Antelope and Victor Valleys to 12 buses in the peak hour

SR-138 Corridor Alternatives Evaluation

From June to November 2003, the four short-listed alternatives (A through D) were subjected to detailed evaluation, focusing on:

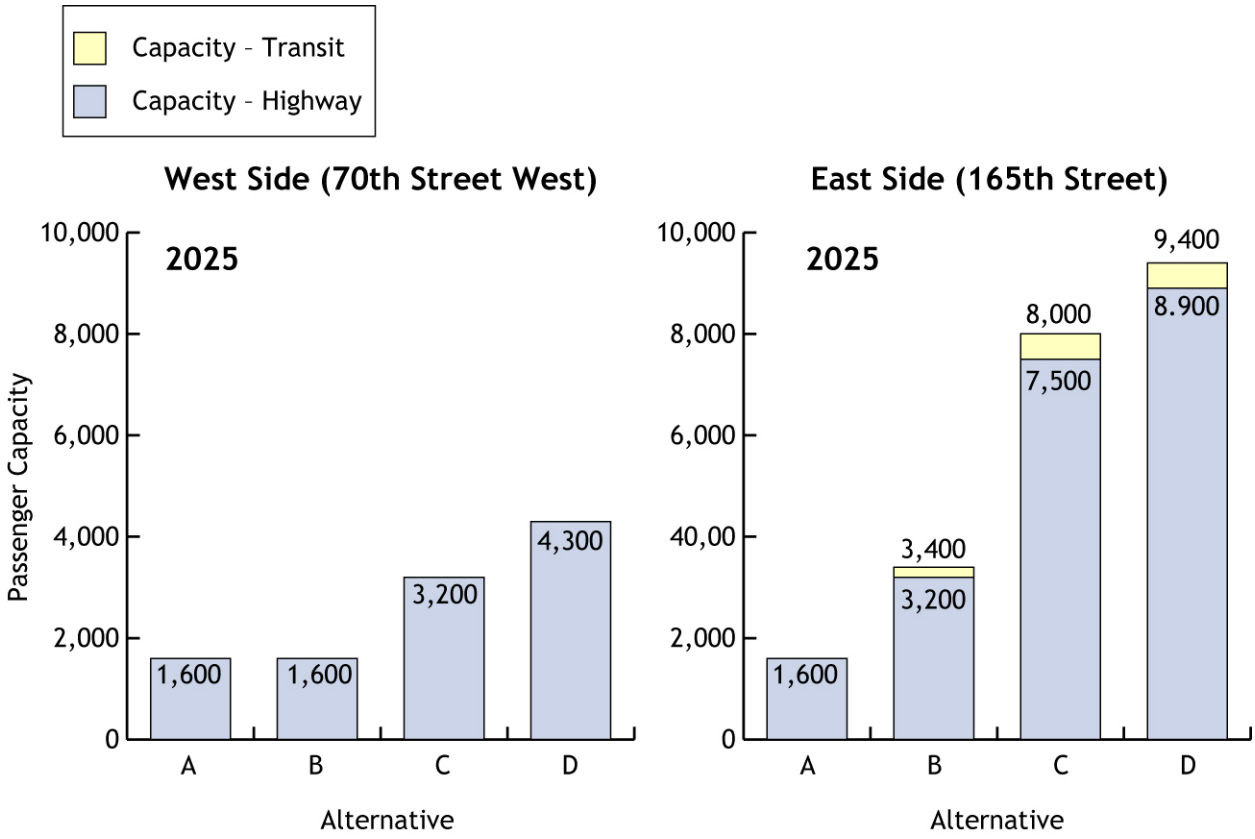
- Capacity to accommodate forecast travel in the corridor
- Comparison of capital and operating costs
- Environmental constraints
- Ease of implementation

This evaluation of the corridor alternatives was first presented to the Study TAC in a workshop on September 8, 2003, and was used by the TAC to rank the final four alternatives.

Highway and Transit Demand and Capacity Compared

Exhibit 5.2 compares overall passenger capacity and demand at various defined "screenlines" (corridor segments) identified for analysis. The graph shows 2025 peak hour/peak direction passenger capacity across the final set of alternatives along project roadways at two key screenline locations: one in the western segment of the study corridor (at 70th Street West) and the other in the eastern segment of the study corridor (at 165th Street East).

Exhibit 5.2: Peak Hour/Peak Direction Passenger Capacity at SR-138 Corridor Screenlines



- An incremental increase occurs from Alternative A through D for both the eastern and western segment. However, the capacity added by Alternatives B, C and D on the east side of the corridor is approximately twice that added by the same alternatives on the west side, reflecting the higher volume of travel demand at the east end of the corridor for horizon year 2025. Maximum person carrying capacity for the roadway in the eastbound direction, during the peak morning hour, is 8,900 for Alternative D, at 165th Street East in the eastern portion of the study area.
- East-west express bus service is provided exclusively in the eastern segment of the corridor (east of SR-14); therefore, the AM peak hour, peak direction (i.e., eastbound) transit capacity shows up only on the right side of Exhibit 5.2. Moving from a scenario with no east-west express bus service in the No-Build Alternative, Alternative C adds a morning eastbound capacity of 200 transit seats.

New Capacity Stimulates Travel and Provides Regional Connectivity

- For the western screenline location, daily traffic demand ranges from 23,000 trips (No-Build) to 42,000 trips (Alternative D). On the eastern segment, the No-Build scenario produces 99,000 trips per day, while Alternative C and D yield daily vehicle trips of 149,000 and 166,000, respectively. The increases in corridor demand for the higher alternatives (C and D) relate to the creation of new trips between Antelope Valley and Victor Valley within trip distribution in the regional travel model coupled with the capture of some existing vehicular trips from other routes in the system.
- From a mobility perspective, Alternatives C and D would create new mobility opportunities across the high desert in the horizon year (2025) for residents of both the Victor and Antelope Valleys that did not exist in the No Build and TSM Alternatives. The

increase in connections that is inherent in Alternatives C and D is also a mobility benefit from an economic standpoint for Palmdale Airport, Southern California Logistics Airport, and other high desert commercial centers.

2025 Travel Times Improve with All Build Alternatives

- Alternatives B, C, and D provide incremental improvements in travel time for three east-west trips, as shown in Exhibit 5.3. Compared to the No-Build Alternative, a traveler leaving Lancaster for Victorville in 2025 would save 11 minutes with Alternative B, 18 minutes with Alternative C, and 22 minutes with Alternative D.

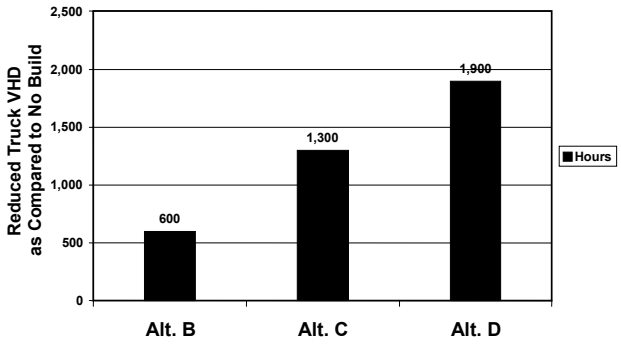
Exhibit 5.3: Corridor Travel Times Savings (in Minutes) in 2025 (Compared to No-Build)

	Alt. B	Alt. C	Alt. D
Lancaster to Victorville Time Savings	11	18	22
Palmdale to Victorville Time Savings	17	30	34
I-5 to Victorville Time Savings	8	19	22

Trucks and Goods Movement

- From the outset of the North County Combined Highway Corridors Study, in recognition of the importance of trucking in the area's future economic viability, efficient truck and commodities movement was identified as a major component to be addressed in developing alternatives. Successful alternatives would be those that provide safer facilities for trucks and are designed to reduce truck conflicts with passenger vehicles.
- As shown in Exhibit 5.4, forecast truck hours of delay are reduced versus the No-Build Alternative in all three higher-level alternatives. Alternative D provides the greatest reduction (1,900 hours/day).

Exhibit 5.4: Reductions in Truck Hours of Delay



Note: Represents daily reductions in hours of delay for heavy-duty trucks in the SR-138 Study Area, compared to No Build.

How the Alternatives Compare in Providing an "Urban Bypass" around Los Angeles Basin Congestion

Another key objective pertaining to trucking was to have the alternatives provide safer/high capacity facilities across the high desert that can function as urban bypasses around North County Communities and the Los Angeles basin. The concept of an urban bypass for trucks across the High Desert between I-5, SR-14, and I-15 is beneficial not only because it would eliminate unnecessary truck traffic through Los Angeles, but because it would also provide an extra economic stimulus to the North County study area.

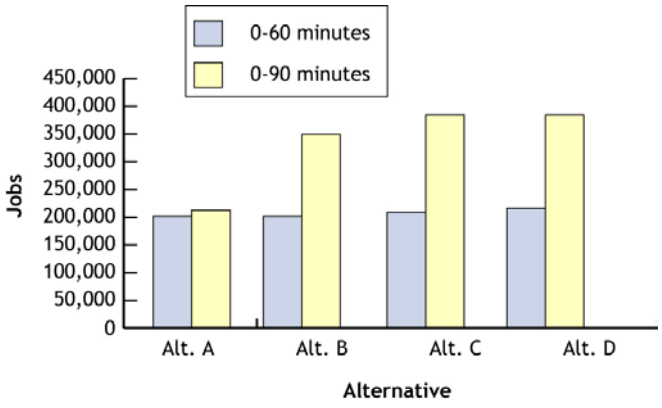
The potential for diverting trucks from routes through the Los Angeles Basin and SR-58 in Kern County to the High Desert Corridor

(Alternative D) is significant—approximately 14,000 daily truck trips.

Economic Development

Exhibit 5.5 illustrates a complementary measure of economic development potential—the number of jobs accessible from central Palmdale, within 60 and 90 minutes, during the AM peak hour. The exhibit shows that very little change is produced by Alternatives C and D (7 and 12 percent increases over No-Build, respectively). However, at 90 minutes, Alternatives B, C, and D show increases in access to jobs over No-Build of 63 percent, 79 percent, and 80 percent, respectively. These increases occur due to expanding abilities to reach the relatively job-rich areas of Victor Valley and San Bernardino and include better access to the south as well.

Exhibit 5.5: Job Accessibility from Central Palmdale in the PM Peak Hour (2025)



Capital Costs

Capital costs, in millions of 2003 dollars, shows that total capital costs for the two build alternatives are very close: $2.8 billion for Alternative C and $2.9 billion for Alternative D. The cost per lane-mile for Alternatives C and D, are $6.5 and $5.8 million per lane-mile, respectively. Alternative B, which by definition emphasizes nonroadway construction strategies, would cost $5.7 million per new lane-mile and has a total project cost of $234 million, compared to $2.8 billion and $2.9 billion for the two build alternatives (C and D).

Environmental Impacts

Environmental analysis reviewed potential impacts to a full range of factors, including water resources, cultural resources, biological resources, fault zones, public services, general plan consistency, and property acquisitions. Alternatives C and D show the greatest impacts, especially with respect to potentially affected biological resources, fault zones, parks and trails affected, as well as for potential property acquisitions.

In Table 5.1, potential property acquisition impacts are expressed as ranges of both residences and businesses affected, as total properties affected, and as ranges of properties per route-mile, for each of the alternatives. Property acquisition impacts can often be reduced in project design phases as routes are adjusted to minimize those impacts, wherever feasible.

Public outreach efforts made the project study team aware of possible environmental justice concerns or challenges resulting from project-related impacts (compounded by nonproject-related impacts) on lower income housing and populations in the area of P-8 in Palmdale. More detailed review of this issue is appropriate for the next stage of environmental clearance.

Table 5.1: Property Impacts of SR-138 Build Alternatives

Key Property Impact Measures	Alt. B Enhanced TSM	Alt. C 4-Lane Exp.	Alt. D Modified HDC
PROPERTY ACQUISITIONS			
Total Residential Properties Potentially Affected	15-16	44-151	58-125
Total Businesses Potentially Affected	22-68	42-88	41-91
Total Properties Potentially Affected	37-84	86-239	99-216
Total Properties Potentially Affected per Route Mile	1.6-3.6	0.5-1.4	0.6-1.3

Notes: For the estimated number of Property Acquisitions, a range is shown. The higher limit of the range denotes the number of structures that fall within the ROW footprint of the proposed alternative. The lower limit denotes the number of structures that would be acquired if the design and location of the proposed alignments were to be modified.

SR-138 Locally Preferred Strategy Selection Process

In November 2003, based on extensive analysis (which has been abbreviated for this report), the Study TAC confirmed its selection of Part II short- and long-term locally preferred strategies for the SR-138 Corridor. The TAC's rating of alternatives against the evaluation criteria is summarized in Exhibit 5.6. Alternative B was selected as the short-range strategy; Alternative D would be slightly modified to become the long-range strategy. The strategies were selected based upon the performance of all alternatives against nine criteria including mobility performance indicators and economic development effects to environmental impact, project cost, and ease of implementation. As in Part I, however, it was understood that the identified strategies might be further modified as a consequence of the integration of Parts I and II of the North County Study, which was conducted in Spring of 2004.

Complete definitions of the locally preferred strategies as modified by the results of the integration analysis, are illustrated in Chapter 6, Locally Preferred Strategy Definitions. Details of the integration analysis itself are found in Chapter 7, North County Corridors Plan.

Exhibit 5.6: Performance of the Final SR-138 Alternatives

Factors	Alt A No Build	Alt B Enhanced TSM	Alt C 4-Lane Expressway	Alt D Modified HDC
Safety	Fair	Good	Good	Good
Capacity	Poor	Poor	Good	Good
Regional System Connectivity	Poor	Poor	Good	Good
Implementation	Fair	Good	Fair	Fair
Trucks/Goods Movement	Poor	Poor	Good	Good
Economic Development	Fair	Fair	Poor	Fair
Natural/Cultural Environment	Good	Good	Fair	Fair
Social Environment	Good	Good	Fair	Fair
Transit/Alternative Modes	Fair	Good	Good	Good
Cost Effectiveness	Good	Good	Fair	Fair
Overall Score	Fair	Fair	Fair	Good

Note: Based on comments received at community open houses and town council/stakeholder presentation according to factors derived from purpose and need

Good Fair Poor

CHAPTER 6: LOCALLY PREFERRED STRATEGY

I-5 Corridor Locally Preferred Strategies

I-5 Corridor Early Action Needs

Early in the study, the TAC and North County Transportation Coalition identified HOV lanes between SR-14 and SR-126 West and truck lanes from SR-14 to Calgrove as the highest priority for early implementation within the I-5 Corridor. Early action recommendations were based on a review of current congestion and safety issues, consistency with regional travel forecasts, and key stakeholder input.

Early action recommendations were included in an application submitted to MTA's March 2003 Call for Projects. Although the 2003 Call was cancelled, the application can be used for future Calls. These priorities have been incorporated into the short-term recommendations.

I-5 Corridor Short-Term (2010) Locally Preferred Strategy

The Recommended Short-Term Strategy (Exhibit 6.1) for the I-5 Corridor consists of:

- Adding an initial HOV lane in each direction between SR-14 and SR-126 West and extending truck lanes north of SR-14 to Calgrove Avenue. This strategy increases capacity just north of the I-5/SR-14 interchange by nearly 50 percent.
- Increased Metrolink commuter rail and express bus services will be made available for I-5 travelers. The short-term strategy would triple the existing peak hour express bus service and increase Metrolink commuter rail service from two peak hour trains with a total of eight cars, to three peak hour trains with a total of 18 cars, more than doubling Metrolink commuter rail capacity in the corridor.

I-5 Corridor Long-Term (2025) Locally Preferred Strategy

The I-5 Long-Term Strategy (Exhibit 6.2), as modified for corridor integration and as currently recommended, includes:

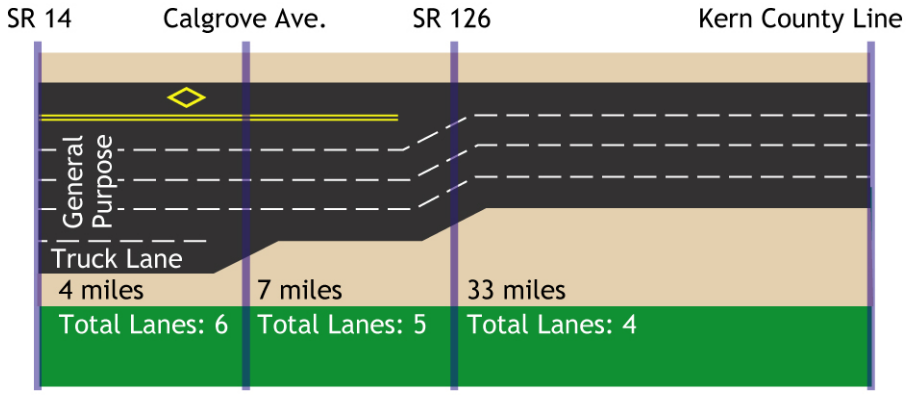
- Doubling the current four lanes to eight lanes in each direction between SR-14 and SR-126 West. Two lanes would be for HOVs, two lanes for trucks, and four lanes for general use. The increase in the number of lanes would accommodate the forecast for a doubling of I-5 travel demand by 2025.
- North of SR-126 West, one new HOV lane would be extended to Lake Hughes and a new truck lane would be added to the existing four lanes in each direction. Sizing of I-5 north of Lake Hughes was largely governed by anticipated *through* traffic rather than suburban development, and includes four general-purpose lanes and one truck/climbing lane in each direction north to the Kern County Line.
- Transit service in the I-5 Corridor would be tripled with twice the number of Metrolink train departures and three times the number of commuter rail cars. Express bus departures in the peak period would increase four-fold over today's levels.

SR-14 Corridor Locally Preferred Strategies

SR-14 Early Action Needs

In early 2002, the TAC and NCTC identified completing one continuous HOV lane and three general-purpose lanes in each direction from I-5 to Avenue P as the top priority for early action in the SR-14 Corridor. Early action recommendations were included in an application submitted to MTA's March 2003 Call for Projects. Although the 2003 Call was cancelled, the application can be used for future Calls.

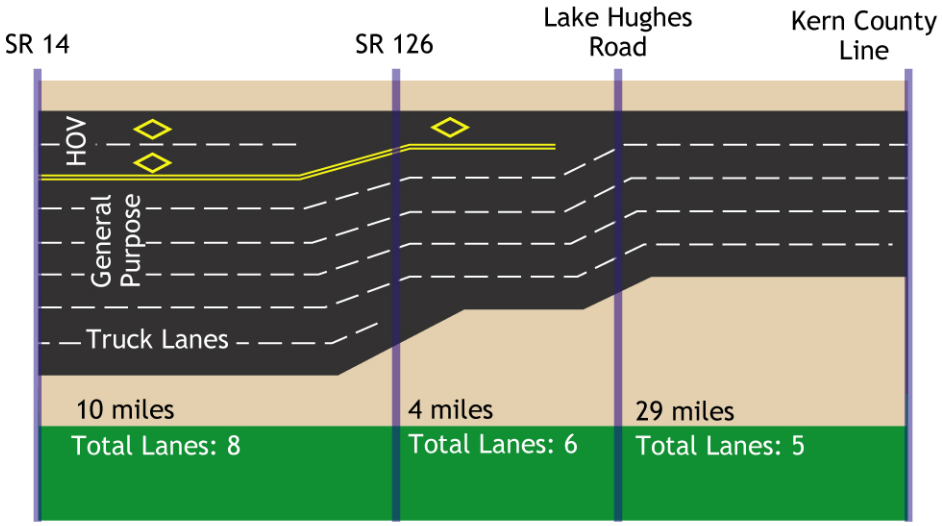
Exhibit 6.1: I-5 Corridor Short-Term Strategy



Metrolink Trains/Cars	
Existing	New
2/8	3/18

Express Buses	
Existing	New
4	12

Exhibit 6.2: I-5 Corridor Long-Term Strategy



Metrolink Trains/Cars	
Existing	New
2/8	4/24

Express Buses	
Existing	New
4	16

SR-14 Short-Term (2010) Strategy

The Short-Term Strategy for the SR-14 Corridor (Exhibit 6.3) was based on Alternative 3. Later modified for corridor integration (see Chapter 7) and as currently recommended, it includes:

- Five general-purpose lanes in each direction and three reversible HOV lanes from I-5 to San Fernando Road.
- Three general-purpose lanes and three reversible HOV lanes from San Fernando Road to Pearblossom, at which point only two of the reversible HOV lanes continue from Pearblossom to Avenue P.
- ITS (or Intelligent Transportation System) improvements, consisting of electronic surveillance equipment—cameras, vehicle detection, and ramp metering devices—are also recommended for traffic monitoring and improved operations.
- Metrolink train departures in the morning peak hour would increase from two to three, and the numbers of commuter rail cars would more than double. Express bus service would more than triple, and could better compete timewise with driving alone by using the expanded HOV lanes.

SR-14 Corridor Long-Term (2025) Locally Preferred Strategy

The recommended Long-Term Strategy (Exhibit 6.4) for the SR-14 Corridor, as modified for corridor integration and as currently recommended, includes:

- Adding three reversible HOV lanes to the existing four-six lanes in each direction between I-5 and Pearblossom. The three reversible lanes, designated for peak direction carpool and transit use, would effectively increase the capacity of the roadway by 50-75 percent while holding construction costs to minimum.
- Adding two reversible HOV lanes to the existing/committed three-four lanes between Pearblossom and Avenue P. The reversible lanes would almost double roadway capacity in this section.

Exhibit 6.3: SR-14 Corridor Short-Term Strategy

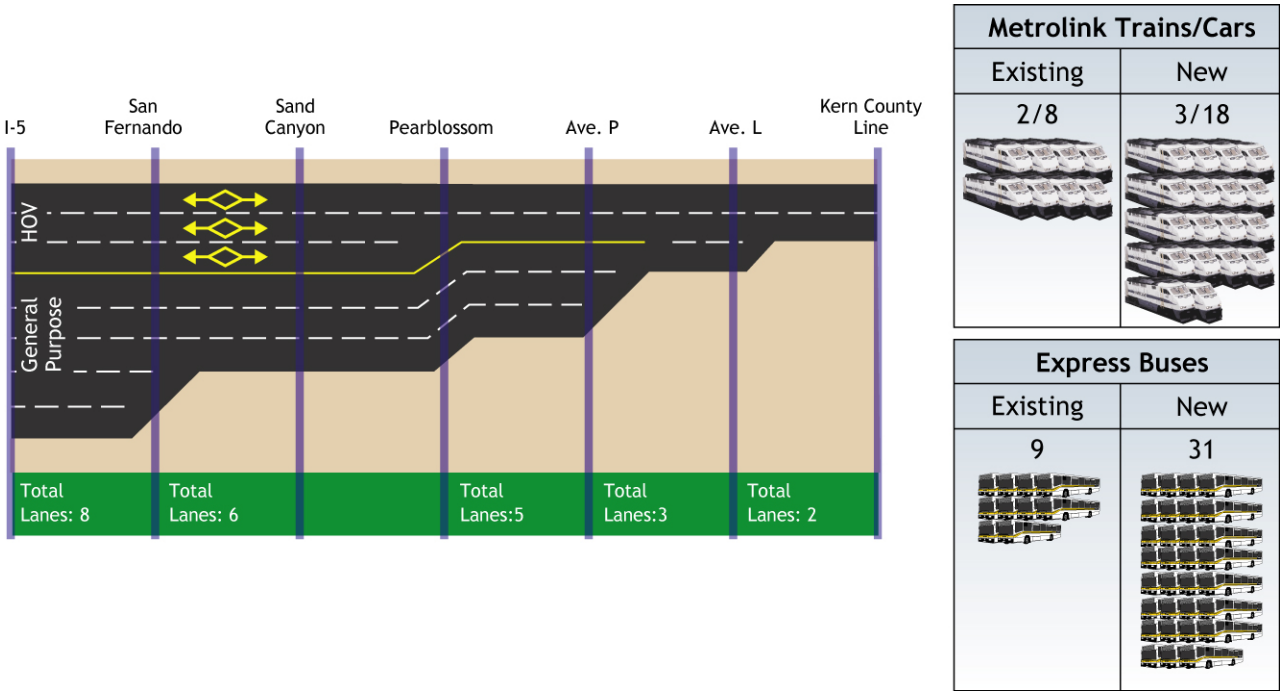
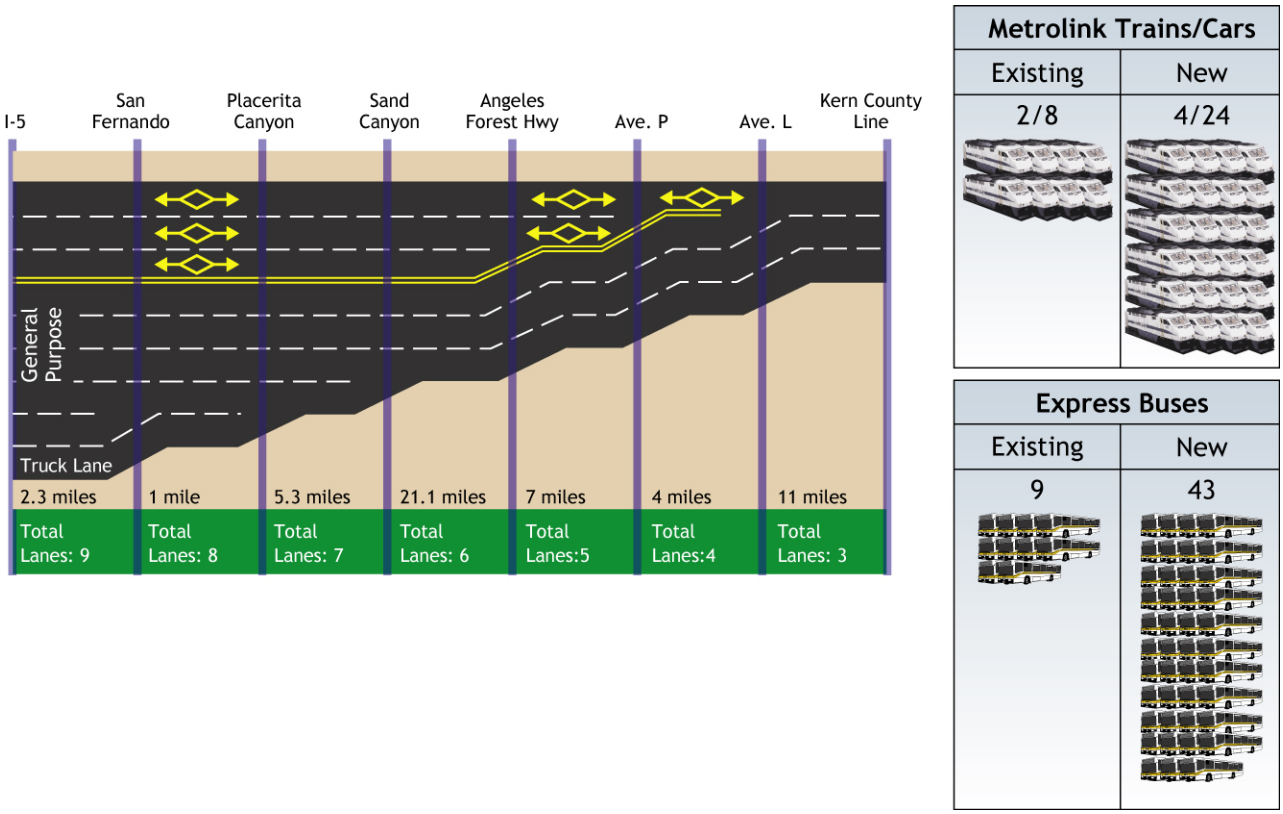


Exhibit 6.4: SR-14 Corridor Short-Term Strategy



- Adding a general-purpose lane between San Fernando Road and Sand Canyon.
- Adding a truck lane from I-5 to Placerita Canyon.
- North of Avenue P, adding one new lane to the two-three current lanes. The new lane would be designated for HOV use north to Avenue L and for general-purpose use from Avenue L to the Kern County line.
- Metrolink commuter rail capacity would triple, with more departures and more cars in the peak hour. The plan includes nearly five times the number of express buses.

SR-138 Corridor Locally Preferred Strategies

SR-138 Corridor Short-Term (2010) Locally Preferred Strategy

The Recommended Short-Term Strategy (Exhibit 6.5) for the SR-138 Corridor consists of:

- Widening existing SR-138 to four lanes between Pearblossom and the San Bernardino County line. Completion of the SR-138 widening from Palmdale to I-15 is the highest near-term priority for safety and increased corridor highway capacity.
- Constructing a four-lane expressway along the HDC from US 395 to SR-18.
- Preserving the right-of-way for future High Desert Corridor (HDC) freeway/expressway construction. Advanced acquisition of right-of-way will pay dividends in future cost savings.
- Increasing current levels of fixed route bus service by 50 percent.

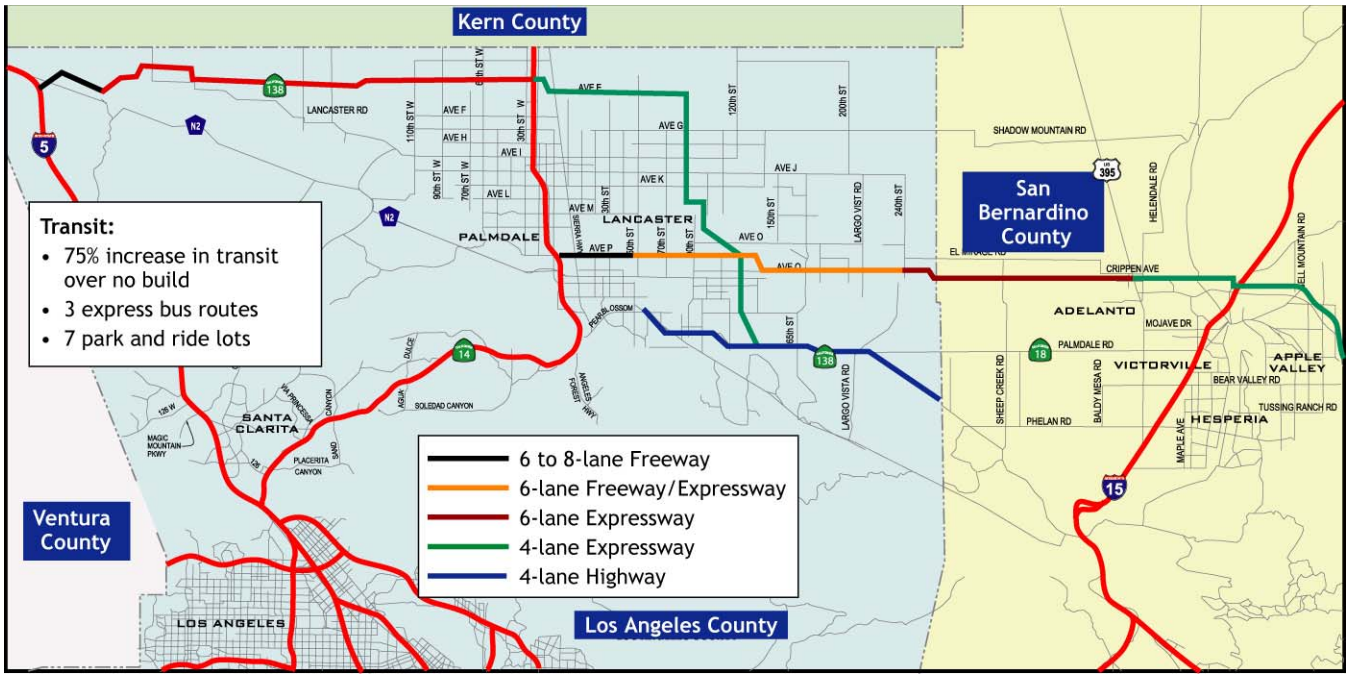
Exhibit 6.5: SR-138 Corridor Short-Term Strategy

SR-138 Corridor Long-Term (2025) Locally Preferred Alternative

In November 2003, the Recommended Long-Term Strategy for the SR-138 Corridor was identified (Exhibit 6.6). The strategy, as modified for corridor integration and as currently recommended, includes:

- Widening existing SR-138 to four lanes from Pearblossom east to the San Bernardino County line.
- Constructing a limited-access High Desert Transportation Corridor, a completely new freeway/expressway between I-5 and I-15. The east-west segment between SR-14 and I-15 would be an 8-lane freeway (including an HOV lane in each direction) from SR-14 past the Palmdale Airport to 50th Street East along an alignment paralleling P-8 in Palmdale; a 6-lane freeway/expressway from 50th Street East to 240th Street East; and a 4/6-lane expressway from 240th Street East past the planned Southern California Logistics Airport to I-15 and beyond. This new east-west route is the backbone of the proposed HDC, and will accommodate an expected three- to six-fold increase in traffic between the Antelope and Victor Valleys. It will also provide a new level of intra-valley accessibility and carry truck and other through traffic safely around existing communities.
- Between I-5 and SR-14, the HDC would be a six-lane freeway or expressway along the current SR-138 alignment. This route would accommodate at least a doubling of traffic demand anticipated by 2025.

Exhibit 6.6: SR-138 Corridor Long-Term Strategy



- A north-south HDC expressway would begin at SR-14 and Avenue D, jog south to Avenue E at the Old Sierra Highway, head south along 90th Street East, jog over to intersect with the east-west HDC at 126th Street East, and continue south to the existing SR-138 near 150th Street East. This north-south HDC expressway would complement SR-14 in carrying through traffic around the Palmdale and Lancaster communities.
- Transit service in the SR-138 study area would be expanded by 75 percent over the No Build (currently programmed) conditions. Three new express bus routes would be added between Palmdale/Lancaster and Victorville, and seven park-and-ride lots would be constructed.

CHAPTER 7: NORTH COUNTY CORRIDORS PLAN

During Parts I and II of the North County Combined Highway Corridors Study, individual plans (or *locally preferred strategies*) for the three North County corridors were developed, as presented in the preceding three chapters. The plans were initially developed in a segregated manner based on their ability to serve the individual travel markets within their respective corridors. Each corridor has unique functional, capacity, operational and safety issues. Broadly speaking, the I-5 serves as a *goods movement* corridor linking the Central Valley with the Ports of Los Angeles/Long Beach. In contrast, SR-14 may be generally described as a *commute* corridor with an anticipated tripling of the commute population. A key feature of the geography of SR-138 makes it a *bypass* corridor with potential to avoid congestion in the central region by routing traffic around congested Los Angeles freeways. Of course, each of these corridors serves *numerous* functions, and so must perform well across a broad range of criteria.

Integrated I-5/SR-14/SR-138 Network

In the end, the three North County Corridors must function together to serve the collective transportation needs in North Los Angeles County. Thus, the next logical step in the study was to perform a systems analysis that examined the combined impacts of the three corridors and modified the three individual plans based on their collective synergies. The result is a fully integrated major highway and transit investment along I-5, SR-14, and SR-138—approximately 270 miles of the most significant transportation facilities in northern Los Angeles County.

Transportation Corridor Plan Integration undertaken at the end of the North County Study—including analyzing future regional travel patterns along the integrated network—identified locations where the three individual locally preferred strategies work together to improve the anticipated level of service or reduce costs. In addition, it included a so-called sensitivity analysis—that is, several targeted investigations of the transportation impacts of newly emerging land-use developments not included in adopted regional forecasts and opportunities for operational applications such as reversible carpool /high occupancy vehicle (HOV) lanes in locations where traffic has pronounced directional imbalances.

Finally, the sensitivity analysis examined the need for continuity in the system south of the I-5/SR-14 Interchange, through the I-5 throat, where nearly all North County traffic must travel to reach the Los Angeles Basin. This section of the I-5 is particularly troublesome because of the massive weaving movements that different streams of traffic need to make to get from SR-14 and I-5 north to the I-210, I-405 and I-5 south. Lack of system redundancy is also a major issue in this section, where significant damage occurred in both the 1971 Sylmar and 1994 Northridge earthquakes.

Sensitivity Analyses

Taking Advantage of Directional Travel on SR-14

In the future, a significant number of North County residents will be traveling to jobs in the Los Angeles Basin. Therefore, projected traffic volumes on the SR-14 will be very directional—on the order of 70 percent southbound in the AM peak and northbound in the PM peak. Given this pattern, the most logical and cost-effective systems optimization is the introduction of reversible HOV lanes on SR-14.

As shown in Table 7.1, the introduction of extra capacity for HOVs and transit vehicles (e.g., adding a third lane) stimulates increased HOV formation and transit ridership in the corridor. Approximately 1,550 more HOVs are forecast to use the three lane reversible facility versus the standard two HOV lanes on SR-14 that was part of the initial recommendation.

Exhibit 7.1 compares the initially recommended HOV operations—two HOV lanes in each direction—with reversible lane options. The reversible lane concept would be similar to that

Table 7.1: North County Combined Highway Corridors Study
Findings from Reversible Lane Sensitivity Analysis

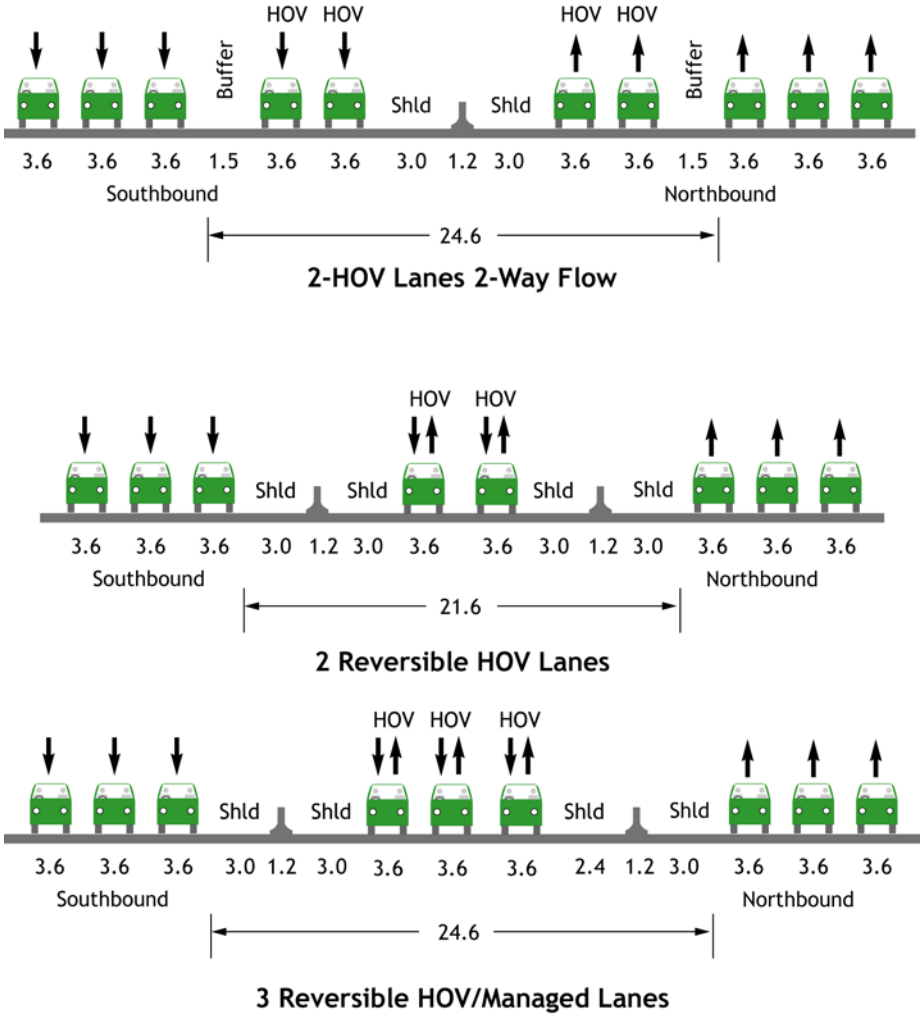
Features of the Reversible Lane*	Vehicular Traffic Changes Due to the Reversible Lanes (AM Peak Hour Southbound)			Corridor Impacts	Person trips
	SOVs	HOVs	Transit Ridership		
• SR-14 (Ave. P to L) • 1 HOV Lane in each direction	-120 vehicles (3% decline)	+390 HOVs (12% increase)	+230 AVTA riders (21% increase in AVTA riders)	Increased HOV capacity is attracting new HOV vehicle trips to SR-14	New HOV capacity increases HOV formation and express bus ridership
• SR-14 (Ave. L to Angeles Forest) • 2 reversible HOV Lanes*	-288 Vehicles (4% decline)	+578 HOVs (15% increase)	-122 rider decline in Metrolink Commuter Rail	Metrolink loses 9 percent of its riders to AVTA/SCT buses	Directionality of demand is 75/25% in the AM (67/33 PM)
• SR-14 (Angeles Forest to I-5) • 3 Reversible HOV Lanes*	-540 vehicles	+1,548 HOVs (25% increase)***	+434 AVTA/SCT riders (+13 % in SCT riders)	+987 more vehicles added to Corridor SB in AM peak hour	+3,600 person trips added to Corridor SB in AM peak hour**
• I-5 North of the SR-14 • Two HOV lanes in each direction*	-640 vehicles	+120 HOVs	Slight increase in express bus riders	I-5 North is losing 3% of vehicle trips	I-5 North is losing 1 percent of person trips to the SR-14
• I-5 (SR-14 to I-405) • 4 reversible HOV lanes*	-1,180 vehicles	+1,668 HOVs	+500 AVTA/SCT transit riders	4 reversible HOV lanes at 1.2 d/c	HOV/Transitway carries 27,500 SB person trips in AM peak hour
• I-5 (south of I-405 Split) • 2 reversible HOV lanes transitioning to 1 HOV lane in each direction*	75 percent of trucks split to I-5	HOVs nearly evenly split between I-5 and I-405	70 percent of express bus riders split to I-5	Heavy peak HOV volumes will require long transitional area to aid smooth flow	Directionality of trips diminishes south of I-5/I-405 split
• I-405 (South of I-5) • 2 reversible HOV lanes transitioning to 1 HOV lane in each direction*	55 percent of SOVs split to I-5	HOVs nearly evenly split between I-5 and I-405	Transition from 2 reversible HOV lanes to 1 standard SB HOV lane	Heavy peak HOV volumes will require long transitional area to aid smooth flow	Directionality of trips diminishes south of I-5/I-405 split

* Analyzed with HOV lanes eligible for 2 person plus high occupancy vehicles plus express buses.

** The AM Peak Hour Corridor throughput southbound on the SR-14 measured in total person trips (SOV, HOV, express bus) increased from 35,400 to 39,000 persons. With only a 987 increase in total vehicles southbound, the average vehicle occupancy in the corridor has increased from 1.4 persons per vehicle (ppv) observed today to 1.8 ppv for horizon year 2025.

***Of the total HOV demand in this section of SR-14, 44 % is destined to I-5 south of I-405 and 46 % is destined to I-405.

Exhibit 7.1: Comparison of HOV Options for the SR-14 Corridor



currently being demonstrated along I-15 north of San Diego. The lanes would be physically separated from the mainline by concrete barriers and operated southbound toward Los Angeles in the morning and northbound in the evening. The pronounced directional travel pattern along SR-14 is unique, providing an opportunity to increase passenger capacity at less cost than the conventional dedicated 24-hour HOV lane operation.

- The two-lane reversible lane HOV concept would carry the same traffic volume at less cost compared to the conventional HOV configuration.
- The three-lane reversible HOV concept would carry 50 percent more HOV traffic with a cost equal to the conventional configuration.
- Regional travel forecasts indicate sufficient 2025 HOV demand with two or more occupants to warrant three reversible lanes from I-5 north to Pearblossom and two reversible lanes north to Avenue P. The two-lane reversible HOV concept could serve as an interim improvement or be restricted to HOVs with three or more occupants.
- Access ramps would connect the reversible lanes with bus stations and park-and-ride lots located at three strategic locations along the reversible HOV/transit facility—tentatively identified as Pearblossom, Soledad Canyon, and San Fernando Road.

Accounting for Future (Unadopted) Growth

North Los Angeles County is the most dynamic subregion in the county for growth and development. Several large new developments are emerging that are not accounted for in the adopted growth forecasts for the SCAG Region. Thus, it was important to conduct a special sensitivity analysis to determine the impact of potential new North County development—not currently in the regional land use and transportation plan—to see whether the plan recommendations hold up to these possible demographic changes.

As shown in Table 7.2, the six developments included in the sensitivity test added approximately 44,000 new housing units and 74,200 jobs beyond what was included in the SCAG 2025 Adopted Growth forecasts. Two changes to the North County Corridors Integrated Plan occurred as a result of further growth in traffic or shifts in traffic patters. They are:

- SR-138: Upgrade to a 6-lane freeway from I-5 to N2 to serve higher traffic primarily associated with the proposed Centennial Ranch Development.
- Widen the HDC Expressway to 6 lanes from 240th Street East to US 395 to serve higher truck volumes associated with the Southern California Logistics Airport.

Dealing with the Bottleneck

Finally, it was important to examine possible I-5/SR-14 Interchange improvements for their potential impact on the adjacent North County recommendations. As is shown in Exhibit 7.2, additional mixed flow, truck, and HOV lanes will be needed to create conformity with the planned capacity enhancements on I-5 and SR-14. Continuity of North County improvements through this interchange will be important in achieving full benefit from the integrated North County Corridors Plan.

Extension of I-5 Corridor improvements to the south through the I-5/SR-14 Interchange continuing down to the 5/405 split is important to ensuring the effectiveness of I-5 and SR-14 Corridor investments. As shown in Table 7.3, traffic volumes are forecast to be extremely high on the I-5 south with substantial volumes of traffic needing to weave across lanes to the I-210, I-5 south, and the I-405. For continuity of highway flow through the 5/14 Interchange, we recommend:

- Addition of one new truck lane in addition to the two current lanes;
- Addition of three HOV lanes in addition to the single planned HOV lane; and
- Addition of three mixed flow lanes to the six current lanes.

If the reversible HOV lane concept were extended south through the 5/14 interchange down to the 5/405 split, there would be additional carpool formation, leading to added time savings and improved air quality. A concept plan was developed to merge three reversible HOV lanes from SR-14 with two conventional HOV lanes from I-5 into a 4-lane reversible facility operating in the median of I-5 south to the 5/405 split with two lanes in each direction. It, along with other I-5 south transportation concepts, is presented at the end of this chapter.

Table 7.2: North County Combined Highway Corridors Study Findings from Land Use Sensitivity Analysis

Land Use	Characteristics of Development			Impact	Mitigation
	Housing	Jobs	Vehicle Trips Added In PM Peak Hours		
Centennial Ranch	23,000	30,000	• 1,060 EB on SR-138 • 1,390 WB on SR-138 • 490 NB on I-5 • 590 SB on I-5	• Major Increase on SR-138 • Moderate Increase on I-5	• SR-138: Upgrade 6-lane freeway from I-5 to N 2 • None needed on I-5
Newhall Ranch	20,885	18,800	• 490 SB on I-5 • 320 NB on I-5	• Moderate on I-5	• None needed on I-5
Tejon Industrial Complex – Kern Co.	None	Truck trips added	• 70 trucks NB on I-5 • 70 trucks SB on I-5	• Minimal	• None needed on I-5
Southern California Logistics Airport	None	17,400 Truck trips added	• 1,500 WB on HDC • 1,280 EB on HDC	• Substantial • Heavy truck • Volumes added to HDC	• Widen HDC Expressway to 6 lanes between 240th Street East and US 395
Palmdale Airport	None	2,000 Truck trips added	• Little change on P-8*	• Minimal	• None needed on P-8
Sunshine Canyon Landfill	None	Truck trips added	• 30 trucks on I-5 • 30 trucks on SR-14	• Minimal	• None needed on I-5 and SR-14
Composite Effect on North County	43,885	74,200	• Change in Trip • Distribution	• Slight reduction in trips on SR-14*	• No adjustment on SR-14

*Changes occur in trip distribution in North County due to 74,200 jobs being added. This lessens the jobs/housing imbalance in North County and slightly reduces background traffic on SR-14 and P-8. (HDC West segment).

Exhibit 7.2: Added Future Capacity Needed in the I-5/SR-14 Interchange

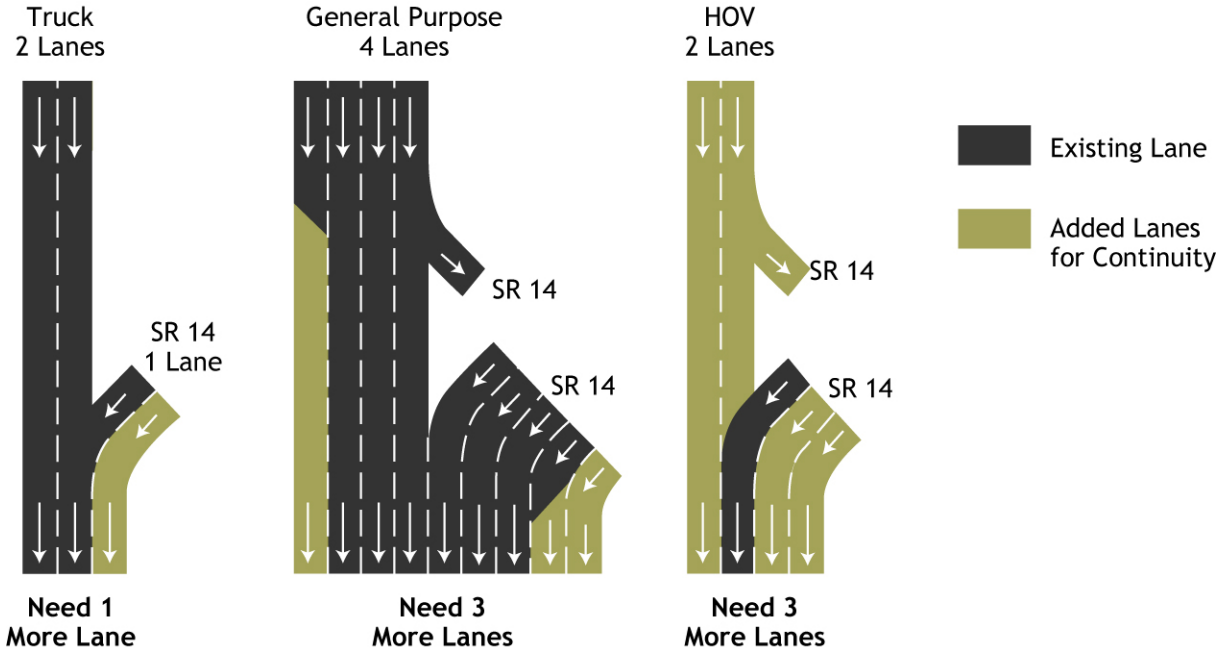


*Table 7.3: Route Paths for Vehicular Volumes and Person Trips Forecast for Year 2025 through the I-5/SR-14 Interchange**

Southbound I-5 Vehicles					
Vehicle Type	**To I-405**	**TO I-5 South**	**To I-210**	**To Other**	**Total**
SOV	5,648	9,865	10,219	5,246	30,977
Truck	359	1,738	1,628	336	4,061
HOV	3,361	4,827	426	976	9,590
Buses		45			45
Total	**9,367**	**16,474**	**12,273**	**6,558**	**44,673**
Percentages					
SOV	18%	32%	33%	17%	100%
Truck	9%	43%	40%	8%	100%
HOV	35%	50%	4%	10%	100%
Buses	0%	100%	0%	0%	100%
Total	**21%**	**37%**	**27%**	**15%**	**100%**

Southbound SR-14 Vehicles					
Vehicle Type	**To I-405**	**To I-5 South**	**To I-210**	**To Other**	**Total**
SOV	13,682	15,160	8,786	7,269	44,897
Truck	287	942	461	187	1,877
HOV	10,277	9,857	1,284	1,110	22,527
Buses	45	90			135
Total	**24,291**	**26,049**	**10,530**	**8,565**	**69,436**
Percentages					
SOV	30%	34%	20%	16%	100%
Truck	15%	50%	25%	10%	100%
HOV	46%	44%	6%	5%	100%
Buses	33%	67%	0%	0%	100%
Total	**35%**	**38%**	**15%**	**12%**	**100%**

**Based on regional travel forecasts from SCAG Travel Demand Model Runs.*

Accommodating Growing Truck Travel Safely

As truck traffic grows along I-5, it will become increasingly desirable, from a safety standpoint, to physically separate the truck lanes from mainline traffic. This illustrates a concept for locating truck lanes outside the mainline and routed around the interchanges to minimize conflict with interchange access traffic. Access from the mainline to the truckway would be permitted via slip ramps every 5 to 8 miles.

Recommended Corridors Plan

As a result of the integrated analysis and detailed sensitivity testing, an integrated multimodal long-range corridors plan has now been developed to serve the long-range demands of the North County. Exhibit 7.3 shows the integrated long-range roadway plan for the three North County Corridors. The combined recommendations will allow the three North County Corridors to function together in a seamless system to serve the diverse transportation needs in North Los Angeles County.

As the study has demonstrated, each of the three corridors is unique with respect to function, capacity, operational and safety issues. Therefore, the long-range corridor plans for each are not only tailored to create a seamless regional North County roadway system, but also meet the unique individual needs of each corridor.

I-5 Corridor

I-5 is the *goods movement* corridor linking the Central Valley with central Los Angeles and the Ports of Los Angeles/Long Beach. Thus, as shown in Table 7.4, the I-5 Corridor Plan has a major emphasis on capacity enhancement and exclusive lanes for trucks.

SR-14 Corridor

SR-14 is the *commute* corridor with an anticipated tripling of the commute population in North County. Therefore, as shown in Table 7.5, enhancements to corridor person-carrying capacity, namely adding reversible HOV lanes (for carpools and express bus use) is the primary focus.

SR-138 Corridor

SR-138 is the *bypass* corridor with potential to avoid congestion in the central region by routing traffic around congested Los Angeles freeways. The corridor must also have room to accommodate major widenings in the future because it will function as the primary east-west route serving a future North County population of over two million people. Thus, as shown in Table 7.6, the SR-138 corridor plan creates a continuous freeway/express way route across the High Desert with 300' right-of-way protection.

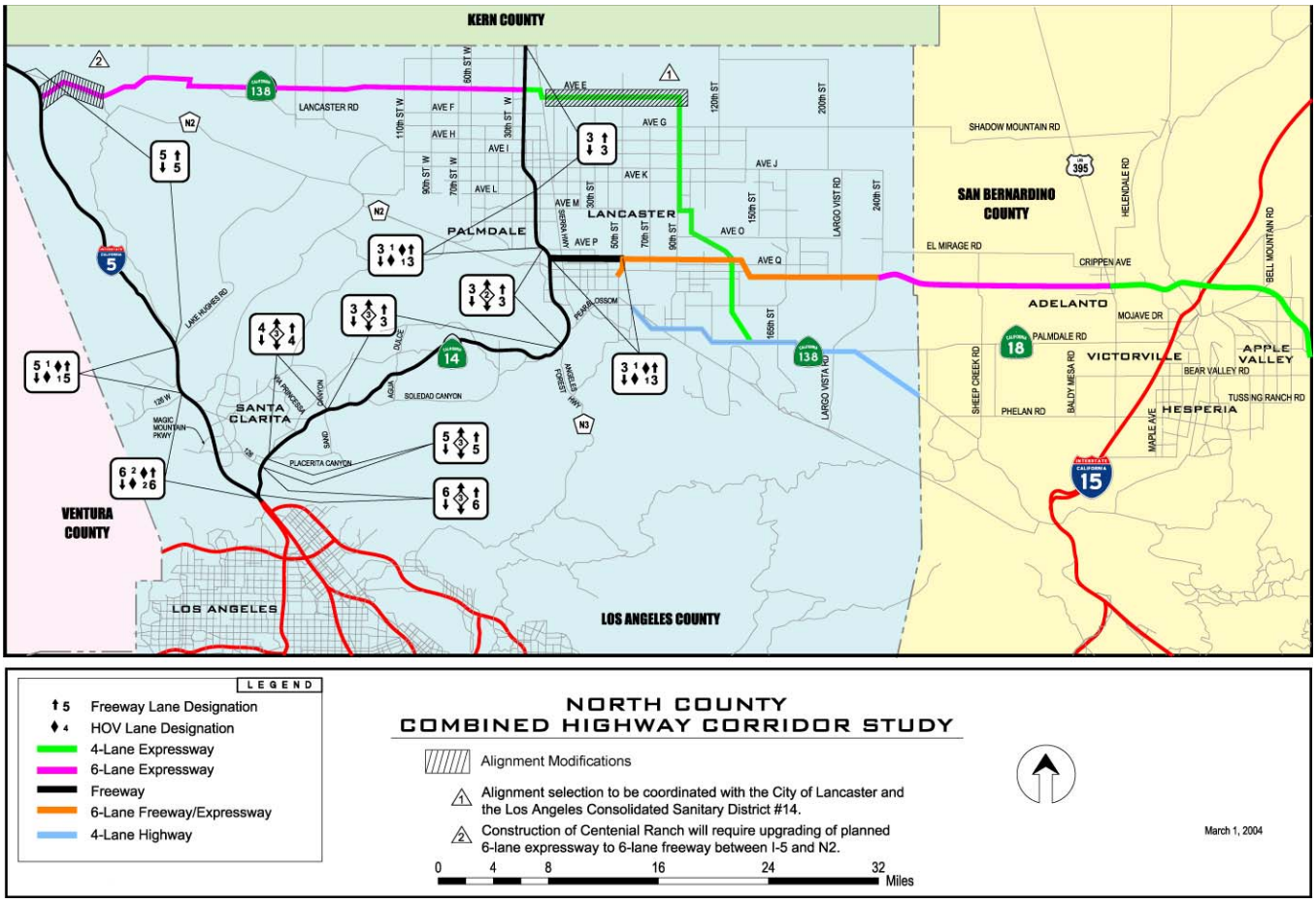
In terms of short-range improvements (see Exhibit 7.4), the emphasis is on right-of-way protection and implementation of key high priority early actions that address the most critical near term bottlenecks as well as safety, operational and connectivity needs.

Integrated Public Transportation Plan

It may seem that the lion's share of the North County Combined Corridors Plan is focused on roadway improvements. However, public transit is by no means neglected. First of all, several of the planned roadway projects will prove beneficial to the development of express bus transit services because they create better overall (and more direct) systems connections within North County and to the greater Los Angeles region. Second, investments such as the HOV lanes on SR-14, I-5 and P-8 will be beneficial to making express bus service more competitive with driving alone.

In addition, as shown in Tables 7.7 and 7.8, the Integrated North County includes over $438 million in public transit capital investment over the long-range. This includes a doubling of Metrolink trains and significant line (and speed) improvements, a four-fold increase in express bus service, and many new park-and-ride facilities. The short-range investment in public transit is $192.2 million.

Exhibit 7.3: Long-Range Improvements, North County Corridors Plan



Future Corridor Analysis: I-5 South

The confluence of the I-5 and SR-14 brings a substantial amount of traffic together in the I-5/SR-14 Interchange and the segment of the I-5 south to the I-405 split. As shown in Exhibit 7.2, added future capacity is needed for trucks, general purpose traffic and HOVs. A major operational difficulty is created by the large volumes of southbound I-5 to I-210 traffic crossing SR-14 to I-5 traffic. In addition, there is a lack of system redundancy through the I-5/SR-14 Interchange which makes the system vulnerable to total shutdown as was demonstrated by damage associated with the 1971 Sylmar and 1994 Northridge earthquakes.

Given the significance of the I-5 south segment, a prescoping analysis was performed as part of the North County Combined Highway Corridors Study to identify possible transportation concepts applicable to the I-5/SR-14 Interchange and I-5 south. The effort involved the Los Angeles County Metropolitan Transportation Authority (MTA), City of Los Angeles Department of Transportation (LADOT), Caltrans District 07, Los Angeles County Department of Public Works and the City of Santa Clarita. The primary objectives of the analysis were to develop transportation concepts that optimized capacity, minimized conflicting vehicle movements by segregating vehicular modes and travel streams, provided continuity of capacity with planned improvements on the I-5 north and SR-14, and created system redundancy.

Table 7.4: North County Corridors Plan, I-5 Corridor

Route	Roadway Type	Length (miles)	Number of Lanes Per Direction			Estimated Cost (2002, $ Millions)		
			Existing/ Funded	Short Range Plan	Long Range Plan (LPS)	Short Range	Long Range	Corridor Total
SR-14 to Calgrove Ave.	Freeway	3.5	4	4+1 Truck + 1 HOV	4 + 2 Truck + 2 HOV	$95*	$67	**$162**
Calgrove Ave. to SR-126 West	Freeway	6.5	4	4 + 1 HOV	4 + 2 Truck + 2 HOV	$89*	$148	**$237**
SR-126 West to Lake Hughes Road	Freeway	4	4	4	4+1 Truck climb + 1 HOV	$4	$106	**$110**
Lake Hughes Road to Kern County Line	Freeway	29	4	4	4+1 Truck climb	$30	$276	**$306**
Total						**$218**	**$597**	**$815**

*Project Approval and Environmental Document for completed PSR/PDS was submitted for funding within the 2003 "Call for Projects." Although the 2003 Call was cancelled, the application can be used for future Calls.

Table 7.5: North County Corridors Plan, SR-14 Corridor

Route	Roadway Type	Length (miles)	Number of Lanes Per Direction			Estimated Cost (2002, $ Millions)		
			Existing/ Funded	Short Range Plan	Long Range Plan (LPS)	Short Range	Long Range	Corridor Total
I-5 to San Fernando Rd	Freeway	2	5+1 HOV	5+3 HOV*	5+3HOV* +1 Truck	$23**	$29	**$52**
San Fernando Rd to Placerita Cyn	Freeway	1	3+1HOV	3+3 HOV*	4+3 HOV*+1 Truck	$10**	$7	**$17**
Placerita Cyn to Sand Cyn	Freeway	5.3	3+1 HOV	3+3 HOV*	4+3 HOV*	$56**	$37	**$93**
Sand Cyn to Pearblossom	Freeway	21	2/3+1 HOV	3+3 HOV*	3+3 HOV*	$559**		**$559**
Pearblossom to Avenue P	Freeway	7	2	3+2 HOV*	3+2 HOV*	$175**		**$175**
Avenue P to Avenue L	Freeway	4	3	3	3+1 HOV	$5	$32	**$37**
Avenue L to Kern Co. Line	Freeway	11	2	2	3	$8	$84	**$92**
Total						**$836**	**$189**	**$1025**

* Reversible HOV lanes.

** Project Approval and Environmental Document for completed PSR/PDS was submitted for funding in the 2003 "Call for Projects." Although the 2003 Call was cancelled, the application can be used for future Calls. The completed PSR/PDS did not include 2-3 reversible HOV lanes conversion of 2 existing/programmed HOV lanes plus one new HOV lane) between I-5 and Avenue P. Evaluation of the reversible lanes is proposed for inclusion as part of the subsequent PAED effort. A PSR/PDS update and PEAR budget increase may be needed to address the modifications.

Table 7.6: North County Corridors Plan, SR-138 Corridor

Route	Roadway Type	Length (miles)	Number of Lanes Per Direction			Estimated Cost (2002, $ Millions)		
			Existing/ Funded	Short Range Plan	Long Range Plan (LPS)	Short Range	Long Range	Corridor Total
SR-138								
Avenue T (Pearblossom Hwy) to I-15	Highway	36	2	2	2	$253*		**$253**
I-5 to SR-14**	Expressway	43	1	1	3	$52	$627	**$679**
HDC E-W (Avenue P-8)								
SR-14 to 50th Street E	Freeway	5	---	3+1 HOV	3+1 HOV	$238		**$238**
50th Street E to US 395	Freeway/ Expressway	36	---	---	3	$38	$911	**$949**
US 395 to I-15	Expressway	8	---	2	2	$80		**$80**
I-15 to SR-18	Expressway	14	---	2	2	$142		**$142**
HDC N-S								
SR-14 to HDC SR-138	Expressway	24.5	---	---	2	$50	$593	**$643**
Total						**$853**	**$2,131**	**$2,984**

* Includes approximately $112 million currently programmed for SR-138 widening by Caltrans. The approximately $101 million remaining was submitted for the 2003 "Call for Projects." Although the 2003 Call for Projects has been cancelled, the application can be used for future Calls.

**Construction of Centennial Ranch would require upgrade of SR-138 to 6-lane freeway between I-5 and N2 (5 miles), not included in the Corridors Plan.

Exhibit 7.4: Short-Range Improvements, North County Corridors Plan

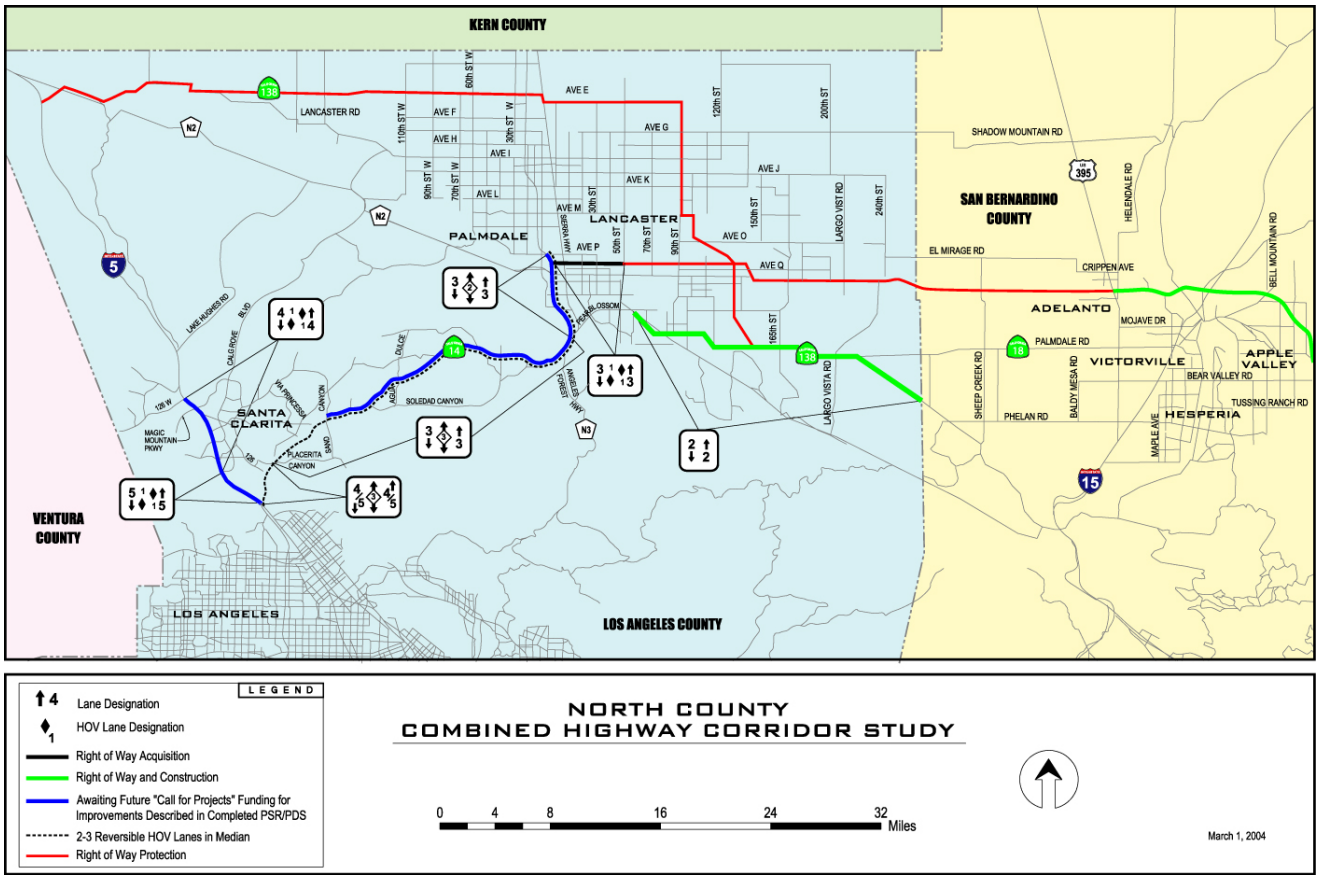


Table 7.7: North County Combined Highway Corridors Study, Summary of I-5/SR-14 Transit Recommendations

I-5/SR-14 North-South Corridors	Description of Peak Hour Service AM Peak Hour Southbound			Total Capital Costs	Regional Connections
	Express Bus	Metrolink	Park And Ride		
Existing Transit	13 buses	2 trains/8 cars	19 lots/5,479 spaces	2003 budgets	AV to downtown L.A.*
Recommended Short-Range Service	28 buses	3 trains/18 cars	25 lots/6,800 spaces	AVTA/SCT SRTPs	AVTA/SCT service to 4 different destinations
Recommended Long-Range Service-2025	54 buses	4 trains/24 cars	36 lots/10,708 spaces		AVTA/SCT service to 7 different destinations
Long-Range Person Carrying Capacity	2,300 seats	2,900 seats	HOV and transit utilization		All Connections min. of 30-minute headways
2025 Ridership	2,300 riders	2,200 SB riders	95 percent full		1 to 4 percent mode share
Short-Range Capital Costs (Above No Build)	$44,500,000	$107,700,000	$16,500,000	$168,500,000	
Long-Range Capital Cost (Above No Build)	$61,100,000	$295,800,000	$32,800,000	$389,700,000	
* Current Express Bus Connections are primarily focused on service to downtown Los Angeles.					

Table 7.8: North County Corridors Study, Summary of SR-138 Corridor Transit Recommendations

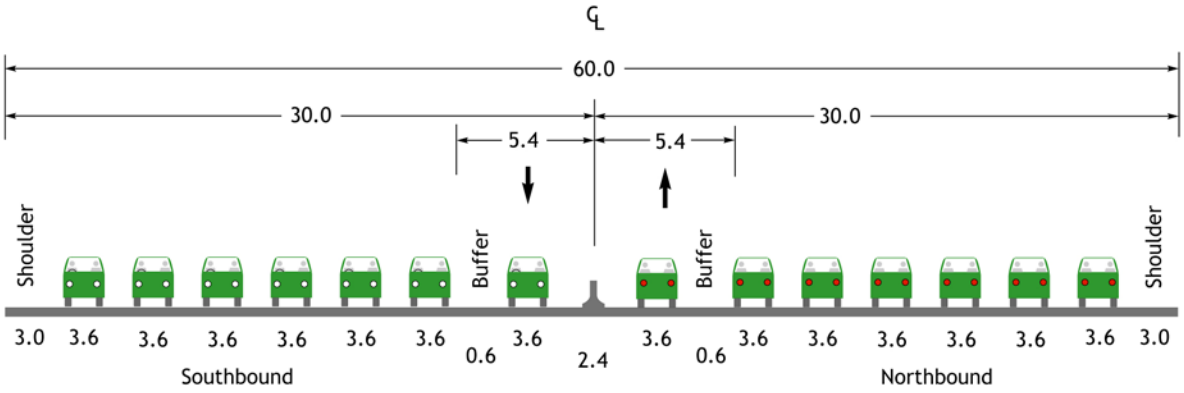
SR-138/HDC East-West Corridors	Description of Peak Hour Service AM Peak Hour Eastbound			Total Capital Costs	Regional Connections
	Local Bus	Express Bus	Park And Ride		
Existing Transit	VVTA/AVTA	VV to SB**	See above	2003 budgets	Feeder Bus to Metrolink
Recommended Short-Range Service	50 % increase over No Build	3 E-W routes --6 buses per hour	4 new lots with 1,200 total spaces	AVTA/VVTA SRTPs	Antelope Valley to Victor Valley and L.A.
Recommended Long-Range Service -2025	75 % increase over No Build	3 E-W routes—9 buses per hour	7 new lots with 2,800 total spaces		AV to VV, L.A., San Bernardino & Kern Co.
Long-Range Person Carrying Capacity	VVTA/AVTA 4,500 seats	400 seats/ hour per direction	HOV and transit utilization		All connections min. of 30-minute headways
2025 Ridership	4,400 riders	300 riders	90 percent full		1 percent mode share
Short-Range Capital Costs (Above No Build)	$7,200,000	$11,800,000	$4,700,000	$23,700,000	
Long-Range Capital Costs (Above No Build)	$10,800,000	$19,700,000	$10,800,000	$48,300,000	
**Current service operates between Victorville and San Bernardino. No current express bus service exists between the Antelope and Victor valleys.					

Early in the I-5 south prescoping process, it became clear that a critical objective was the optimization of person carrying capacity through the development of an HOV/transit concept that would provide for preferential treatment of carpools and express buses. This will further stimulate carpool formation and transit usage at the expense of driving alone during commute hours. As shown in Exhibit 7.5, this requires a change from the currently planned single HOV lane in each direction on the I-5 south to a multiple HOV lane concept that can be reversed to serve the highly directional peak traffic flows (southbound in the AM peak and northbound in the PM peak). In addition, as shown in Exhibit 7.6, the reversible HOV lanes could be designed as an exclusive 4-lane reversible HOV/transitway facility with direct connections from the SR-14 reversible HOV lanes and the I-5 north HOV lanes. On the southern end, the I-5 HOV/transitway would split to serve the nearly equal HOV forecasts destined to the I-5 and I-405.

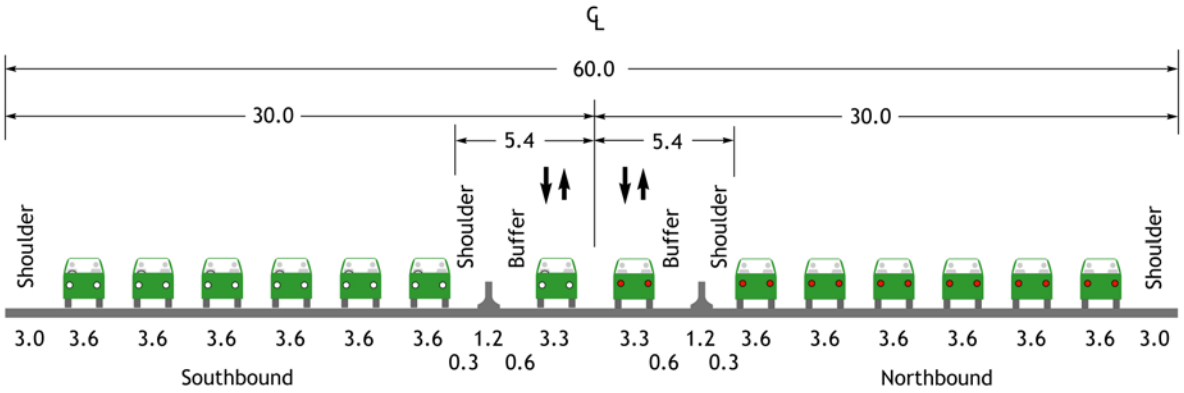
The proposed lane configuration in Exhibit 7.5 differs from Caltrans' 1998 Caltrans Transportation Concept Report (TCR) for Interstate 5, Concept #2 and the Project Study Report-Project Development Support (PSR-PDS) for HOV direct connectors at the I-5/I-405 interchange. As such, Caltrans Project Studies Office has recommended the Department and/or Metro consider performing a more detailed feasibility analysis of this segment in the near future to refine the proposed freeway alignment to ensure that planned projects do not preclude long-range corridor needs.

A second concept is a general purpose traffic connector between the SR-14 and I-405 that would serve the substantial number of trips forecast in horizon year 2025 to travel that path (Exhibit 7.7). As was the case with the HOV volumes on the I-5 south, the traffic destined from the SR-14 to the I-405 is very directional (80%-20% southbound in the morning and northbound in the evening). Therefore, this connector could also be developed with 3 reversible lanes.

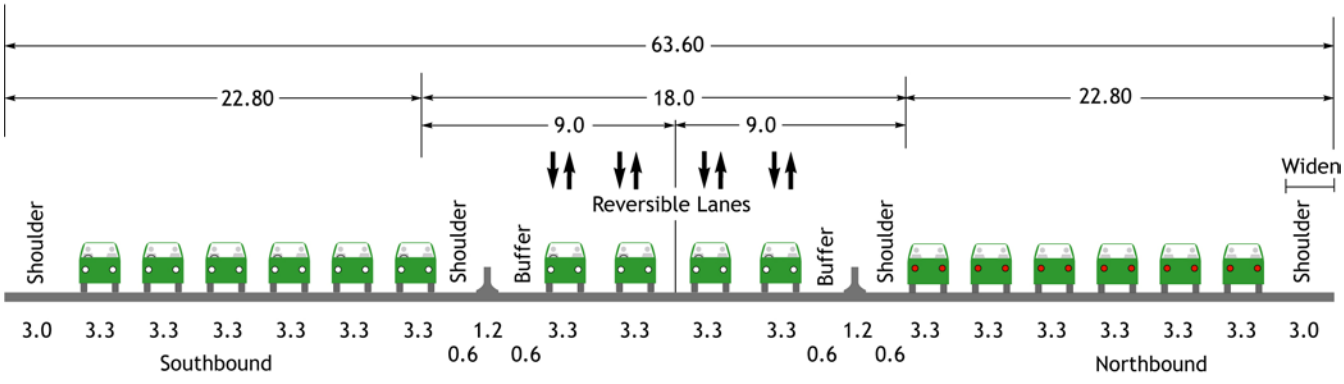
Exhibit 7.5: I-5 South of SR-14: HOV Options – I-5/SR-14 Interchange Prescoping



Planned 1 HOV Lane Each Direction



2 HOV Lane Reversible



4 HOV Lanes Reversible

Units in meters

Exhibit 7.6: I-5 South Reversible HOV/Transitway: 4 Lanes AM Peak Hour, Horizon Year 2025

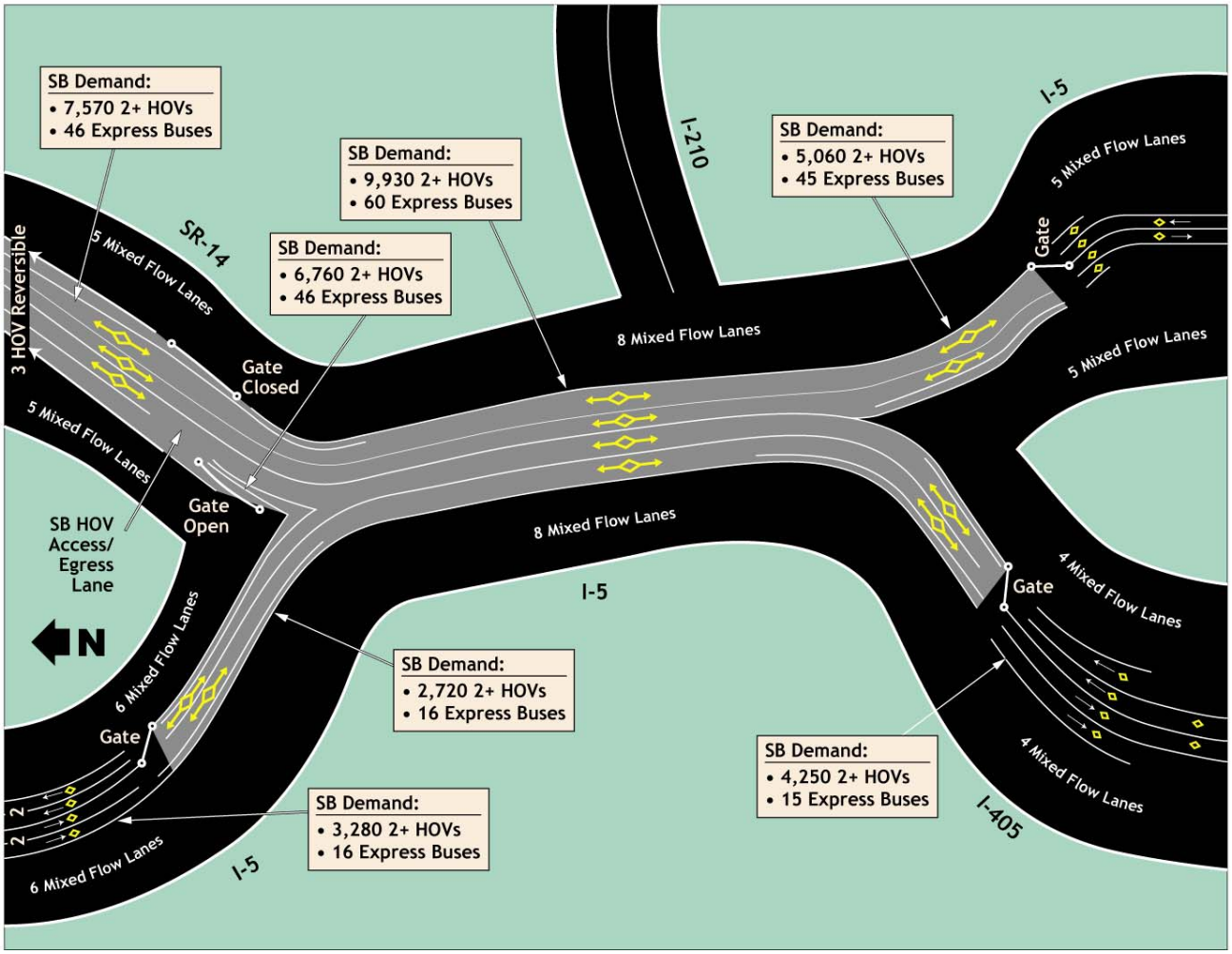
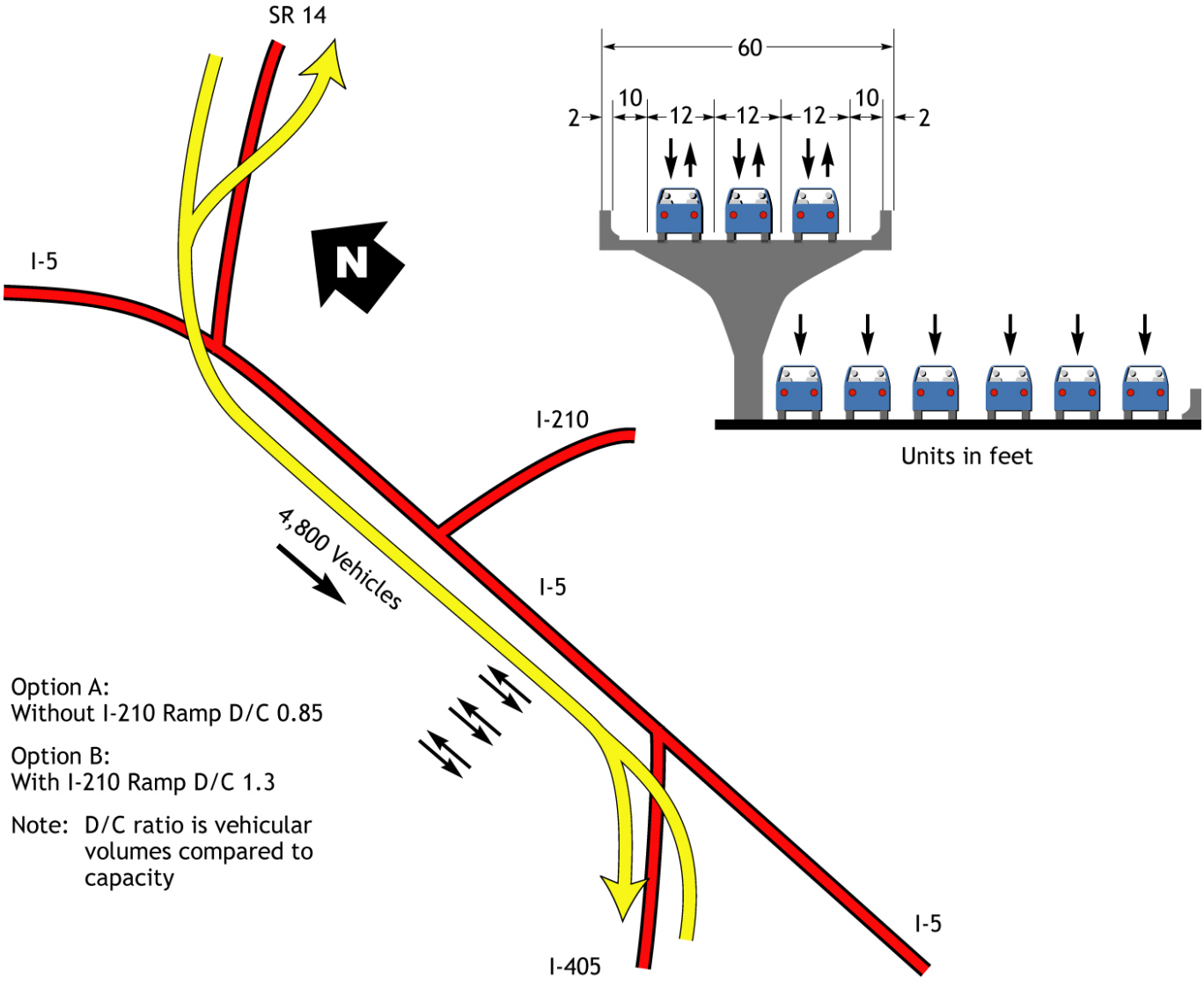


Exhibit 7.7: SR-14/I-405 Connector: 3 Lanes Reversible – I-5/SR-14 Interchange Prescoping
AM Peak Hour Southbound – Horizon Year 2025



Given the heavy truck volumes forecast for the I-5 south, additional capacity is needed on the I-5 truckway and a possible extension of the truckway should be considered to keep trucks destined to I-5 and I-405 segregated from general purpose traffic through the I-5 throat. As shown in Exhibit 7.8, the extension of the I-5 truckway south of I-210 to the I-5/I-405 split will keep heavy duty trucks segregated from other vehicular streams of traffic.

The I-5 south prescoping process examined a number of alternate routes around the I-5/SR-14 Interchange area that could create systems redundancy and divert traffic volumes away from the I-5 south. Exhibit 7.9 shows one alternate route concept that would connect from San Fernando Road/SR-14 in the City of Santa Clarita through and under the mountains to the Roxford/I-210 Interchange. As envisioned, the 4.5-mile route would be partially in tunnel sections and partially a surface road with three lanes in each direction. Full interchanges would be required at each end to facilitate traffic flow.

Exhibit 7.8: Truckway Widening/Extension – I-5/SR-14 Interchange Prescoping
AM Peak Hour Southbound – Horizon Year 2025

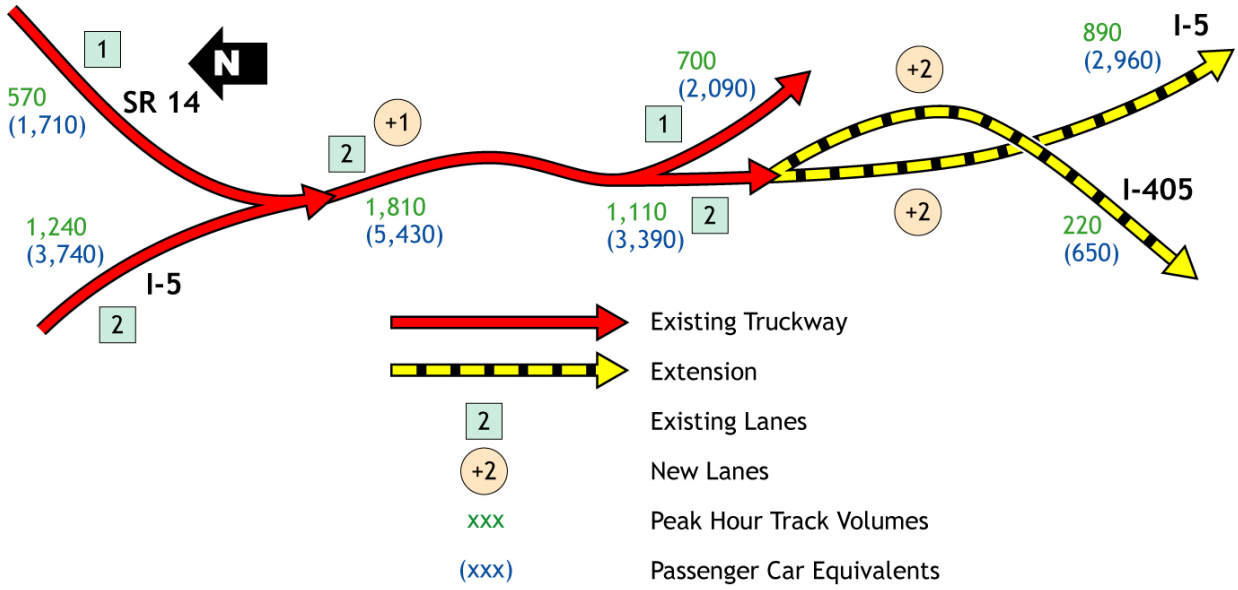
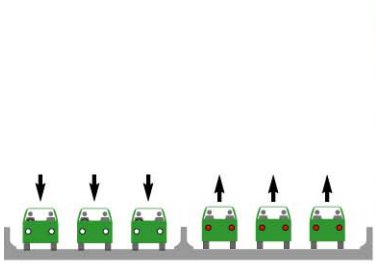
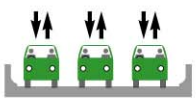
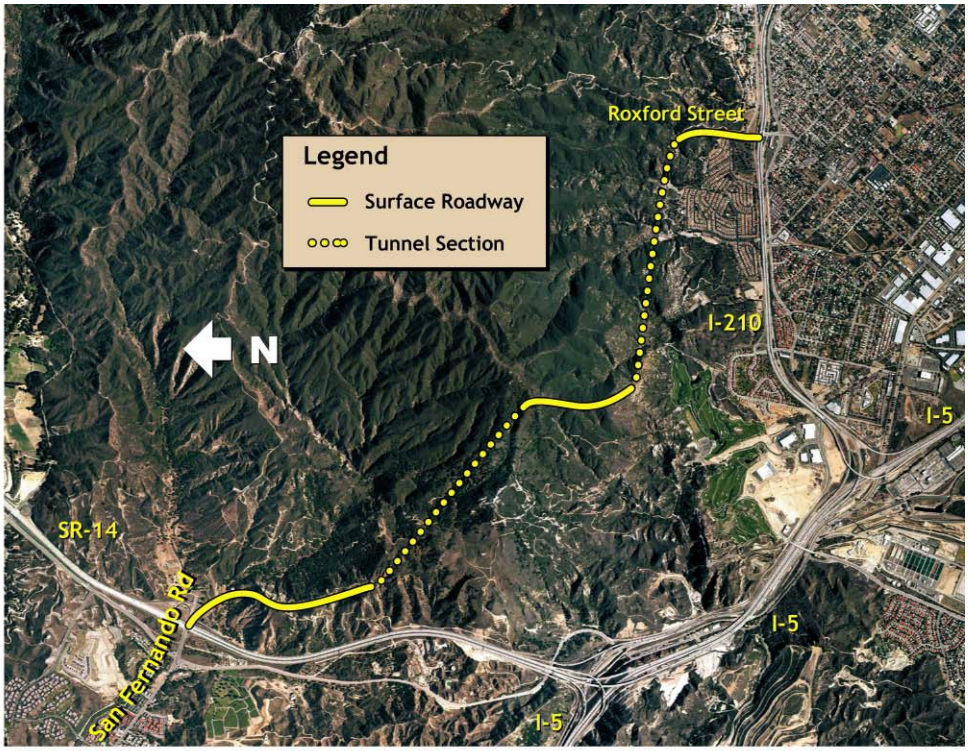


Exhibit 7.9: Santa Clarita to Sylmar Bypass – I-5/SR-14 Interchange Prescoping







The prescoping process for the I-5 south also examined a wide variety of other freeway to freeway concepts and connector ramp treatments including an SR-14/I-210 ramp braid and double decking the I-5 south. In addition, LADOT performed considerable work on a wide variety of possible arterial/local access options in the vicinity of the I-5/SR-14 Interchange and the I-5 south. Six promising arterial/local access concepts are listed in Table 7.9. These concepts would create additional roadway capacity and systems redundancy in the I-5 south corridor and would improve overall traffic operations in the area.

Table 7.9: Arterial/Local Access Options – I-5/SR-14 Interchange Prescoping

Facility Description	Capacity Enhancement
Reversible Lane Old Road/San Fernando Road/Sepulveda	1 new lane
San Fernando Road/Sierra Highway intersection (widening and signal)	1-2 new turn lanes
Foothill widening between Sierra Highway and Balboa with Sierra Highway signal	1 new lane
Balboa/I-5 interchange new northbound on-ramp	New ramp
Roxford/I-5 interchange southbound on-ramp realignment	Modified intersection and ramp
Sepulveda southerly extension to Rinaldi	1-2 new lanes

CHAPTER 8: COST AND FINANCE

The North County Corridors Plan includes $4.8 billion in major highway and transit investment along the I-5, SR-14, and SR-138 corridors — approximately 270 miles of the most significant transportation facilities in northern Los Angeles County. While the three North County Corridors function together to serve the transportation needs in North Los Angeles County, each is unique with respect to function, capacity, operational and safety issues. The I-5 is a *goods movement* corridor linking the Central Valley with the Ports of Los Angeles/Long Beach. The SR-14 is a *commute* corridor with a commuter population anticipated to triple by 2025. The SR-138 is a *bypass* corridor routing traffic around the congested central region and Los Angeles Freeways.

Given the magnitude of the Corridors Plan, the financial strategy focuses on phased improvements, whereby essential short-term transportation improvements are prioritized for expedited implementation, with longer-term improvements implemented over an extended period, based on relative priority and funding. The transportation improvements focus on funding sources that could be pursued for the corridors in common as well as funding approaches reflective by the unique opportunities presented by each corridor.

Cost Estimates

The total cost of the projects in the North County Corridors Plan is approximately $5.4 billion, of which $4.8 billion is for highway-related improvements and $0.6 billion is for transit-related improvements. Of the $4.8 billion in highway improvements, $0.8 billion is for improvements in the I-5 Corridor, $1.0 billion is for improvements in the SR-14 Corridor, and nearly $3.0 billion is for improvements in the SR-138 Corridor. The costs are summarized in Table 8.1 below.

Table 8.1: Summary of Total Capital Costs in Los Angeles County, by Corridor in Millions, 2002 Dollars

Description	Short-Term Program	Long-Term Program	Total
FREEWAY IMPROVEMENTS			
Interstate 5	$218	$597	**$815**
State Route 14	$836	$189	**$1,025**
State Route 138[1]	$631	$1,672	**$2,303**
Total Freeway Capital Costs	**$1,685**	**$2,458**	**$4,143**
TRANSIT IMPROVEMENTS			
Interstate 5	$39	$90	**$129**
State Route 14	$129	$300	**$429**
State Route 138	$24	$48	**$72**
Total Transit Capital Costs	**$192**	**$438**	**$630**
Total Capital Costs	**$1,877**	**$2,896**	**$4,773**
[1]Does not include $681 million in long-term improvements in San Bernardino County			

Funding Opportunities

Over 20 federal, state, regional, and local funding sources were identified and considered to fund specific capital improvements called for in each of the three corridors (See Table 8.2). The analysis included a review of sources available through existing federal, state, regional, and local funding programs; potential new sources such as a new regional sales tax and regional impact fee; as well as user-based/congestion pricing approaches including toll lanes, high occupancy toll lanes, and truck toll lanes.

Table 8.2: Potential Funding Sources for the North County Corridors Plan

Potential Funding Sources	Corridor		
	I-5	SR-14	SR-138
FEDERAL SOURCES			
Federal Highway Administration (FHWA)			
High Priority Project Earmark	✓	✓	✓
Congestion Pricing Demonstration Program		✓	
National Corridor Planning and Development Program / Coordinated Border Infrastructure Program	✓		
Transportation Infrastructure Finance and Innovation Act (TIFIA) (Financing Mechanism)	✓	✓	✓
Federal Transit Administration (FTA)			
Section 5309 Discretionary Capital Funds	✓	✓	✓
STATE SOURCES			
State Highway Operation and Protection Program (SHOPP)			✓
Interregional Transportation Improvement Program (ITIP) – CASH	✓	✓	✓
Interregional Transportation Improvement Program (ITIP) – GARVEE	✓	✓	✓
State Infrastructure Bank			
REGIONAL AND LOCAL SOURCES			
MTA Regional Transportation Improvement Program (RTIP) – CASH	✓	✓	✓
MTA Regional Transportation Improvement Program (TRIP) – GARVEE	✓	✓	✓
MTA Calls for Projects (Various Sources)	✓	✓	✓
Contributions from Corridor Cities	✓		✓
Private Negotiated Contributions			✓
POTENTIAL NEW SOURCES			
New Regional Sales Tax	✓	✓	✓
Regional Transportation Impact Fee (New Development Only): "TUMF"	✓	✓	✓
Regional Transportation Improvement District/Assessment (New & Existing Development)	✓	✓	✓
USER-BASED FUNDING / CONGESTION PRICING			
Toll Lanes (All Traffic)			✓
Toll Lanes (High Occupancy Tolls)		✓	
Toll Lanes (Trucks)	✓		

While many of the funding sources are considered for all three corridors, certain sources are more relevant to particular corridors and/or to particular improvements proposed within each corridor. The I-5 is an internationally significant freight corridor with heavy truck movements, and would be an excellent candidate for receipt of funding through the FHWA National Corridor Planning and Development Program/Coordinated Border Infrastructure Program (Corridors and Borders). SR-14 is a major commuter corridor serving a rapidly growing population and employment base. As such, the reversible HOV/transit lanes proposed on SR-14 could be exemplary for funding through the FHWA Congestion Pricing Demonstration Program and/or for consideration as high occupancy toll lanes, whereby excess HOV capacity could be made available for use by single-occupant vehicles willing to pay a toll. With regard to SR-138, the operational and safety issues on the existing facility addressed in the short-term program are eligible for funding under the State Highway Operation and Protection Program (SHOPP).

Financial Strategy

The goals and objectives of the North County Corridors Plan played a critical role in the development of the short-term and long-term transportation improvements. The financial strategy attempts to balance funding each corridor's need for immediate short-term improvements while still planning for future congestion and related capacity and safety issues required as the North County region grows.

However, given California's continuing budget shortfalls, the magnitude of capital costs, and the complexity of the projects, it will be challenging to secure funding for the prioritized short-term projects ready for construction and for advancing the additional studies still required for the long-term improvements. The ability to secure funding will be dependent on strong local support, effective advocacy at the state and federal levels, and the creative combining of traditional and innovative funding sources and financing approaches.

I-5 Corridor

- To finance short-range improvements, North County cities and Caltrans are seeking MTA Call for Projects funding for: (1) Extension of truck lanes north from the I-5/SR-14 Interchange to Calgrove Avenue for increased safety and improved operations; and (2) extension of HOV lanes north from the I-5/SR-14 Interchange to SR-126 West to encourage use of transit and carpools in this increasingly congested area.
- As a contingency for funding short-range improvements, the Gateway Coalition and the City of Santa Clarita have asked the U.S. Congress for specific inclusion of I-5 as a recipient of Corridors and Borders funding under the pending federal reauthorization bill of the Transportation Equity Act for the 21st Century (TEA-21).
- The Cities of Santa Clarita and Los Angeles and the County may obtain interchange impact fee contributions from developers through the subdivision process. Impact fees would be assessed in proportion to the access benefits derived from the I-5 Corridor interchange improvements.

SR-14 Corridor

- To finance short-range improvements, North County cities and Caltrans are seeking MTA Call for Projects funding for: (1) Continuous three mixed flow lanes from Sand Canyon to Avenue P to improve safety and operations (eliminating drop lanes); and (2) conversion of the existing single HOV lane in each direction to two/three reversible HOV/transit lanes in the median.

- Simultaneously, North County cities are asking the U.S. Congress for specific inclusion of SR-14 as a recipient of transportation demonstration funding under the reauthorization of TEA-21. The reversible HOV/transit lane element appears particularly promising for demonstrating methods of increasing corridor transport through a coordinated program of bus rapid transit, managed lanes (tolling of surplus lane capacity), carpooling, and park and ride facilities.

- North County cities and the County may obtain interchange impact fee contributions from developers through the subdivision process. Impact fees would be based in proportion to the access benefits derived from the SR-14 corridor interchange improvements.
- To obtain right-of-way, North County cities and the County are expected to obtain developer right-of-way reservation during approval of planned unit development projects. This reservation would be purchased from the developers by Caltrans.
- Los Angeles County will protect right-of-way through the subdivision process to the extent legally appropriate.

SR-138 Corridor

- To finance short-range improvements, Caltrans in association with the support of North County cities are seeking MTA Call for Projects funding for the widening of SR-138 from 2 to 4 lanes between Pearblossom and the San Bernardino County line.
- As a contingency for funding the widening of SR-138 from Pearblossom to the San Bernardino County line, North County cities are expected to ask the U.S. Congress for inclusion of the SR-138 widening ("blood alley") as a recipient for funding under the reauthorization of TEA-21.
- Current constraints on existing tax revenue sources make conventional financing of a new High Desert Corridor (HDC) highway in Los Angeles County very challenging; existing funding sources are being focused on maintenance/operation of existing highway and transit infrastructure.
- Alternatives to conventional MTA/Caltrans funding are envisioned for the HDC: (1) Local initiative — particularly for right of way protection and acquisition; (2) toll revenue finance through the SB 138 bill; and (3) federal grants — particularly for cross-valley truck access.
- North County cities are expected to seek the California Legislature's approval of SB 138 to authorize designation of the future High Desert Corridor as a possible toll road, to be financed publicly or privately.

Project Coordination and Phasing

Recent progress toward implementation includes:

I-5 Corridor

- North County cities have agreed to work together collaboratively through the North County Transportation Coalition (NCTC), Golden Gateway Coalition, or a Joint Powers Agency to pursue funding, project development, design and construction to implement the I-5 Corridor Improvements.
- Working jointly with Caltrans, the County, and North County cities, MTA prepared a Project Study Report/Project Development Support (PSR/PDS) document defining the initial implementation target for the corridor that consists of HOV lanes north to SR-126 West and a truck lane extension north to Calgrove Avenue (March 2003). This document is supporting requests through MTA and Caltrans for funding the next step in project development — Project Approval and Environmental Documentation.
- Local leaders are working with their U.S. congressional representative to include a $200 million demonstration grant under the reauthorization of TEA-21 for short-range HOV and truck lanes.
- The Santa Clarita General Plan is being amended to incorporate corridor

improvements as part of its official map, requiring developers to dedicate right-of-way along the alignment—particularly at interchanges—and limit cross street access to facilitate future freeway widening and separation of truck lanes from the freeway mainline.

SR-14 Corridor

- North County cities have agreed to work together collaboratively through the North County Transportation Coalition (NCTC), Golden Gateway Coalition, or a Joint Powers Agency to pursue funding for project development, design and construction to implement the SR-14 Corridor Improvements.
- Working jointly with Caltrans, the County, and North County cities, MTA prepared a Project Study Report/Project Development Support (PSR/PDS) document defining the initial implementation target for the corridor — elimination of lane drops in the two/three-lanes of mixed flow in each direction from Sand Canyon to Avenue P (March 2003). This document is supporting requests through MTA and Caltrans for funding the next step in project development — Project Approval and Environmental Documentation.

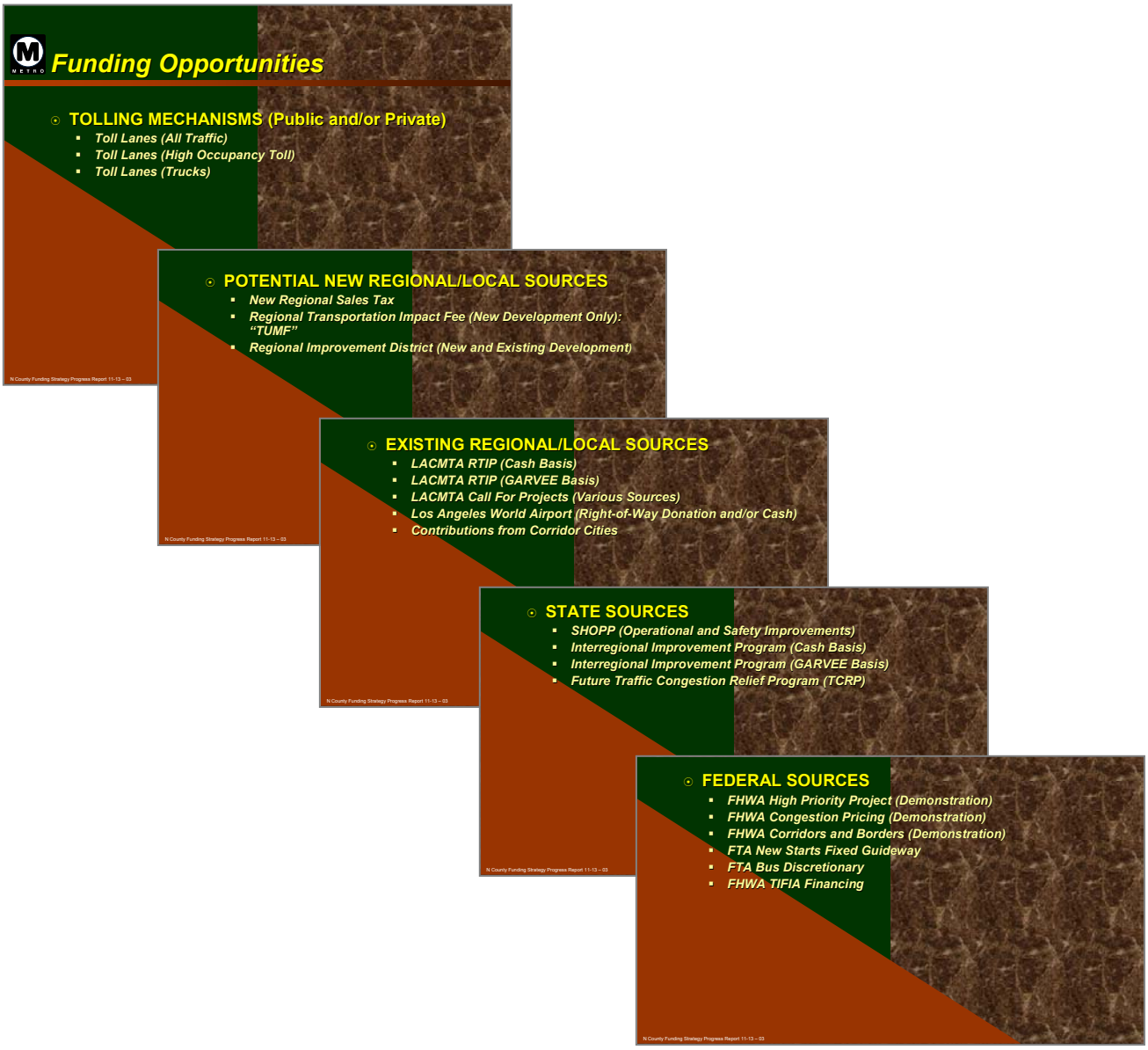
- MTA, in cooperation with Caltrans, North County cities, and the County, is prepared to supplement the corridor lane drop outlined in the PSR/PDS to include two/three reversible HOV/transit lanes from I-5 to Avenue P.
- Local leaders are working with their U.S. congressional representative to include an $800 million demonstration grant under the reauthorization of TEA-21 for the reversible HOV/transitway project.
- North County cities and the County General Plans are being amended to incorporate corridor improvements as part of their official map, requiring developers to dedicate right-of-way along the alignment and limit cross street access to facilitate future freeway widening.

SR-138 Corridor

- Palmdale and Caltrans have been working with the Los Angeles World Airport (LAWA), the owner of the Palmdale Airport, and other property owners in acquiring right-of-way along the HDC alignment between SR-14 and 50th Street East.
- Palmdale and Lancaster General Plans have incorporated the HDC alignment as part of their official map, requiring developers to dedicate roadway right-of-way along the alignment within proposed urban development.
- Los Angeles County will depict the HDC alignment for information purposes on its General Plan.
- Planned unit developments within the North County cities and the County will be required to be compatible with the future HDC alignment and access control.
- State legislation to authorize development of the HDC as a toll road (SB 138) was introduced during last year's legislative session. The legislation is currently being reconsidered. Public or privatized toll revenue financing has proven successful in California and elsewhere to fund, in whole or in part, new roadway construction;
- Local leaders are working with their U.S. congressional representative to include a $1 billion demonstration grant under the reauthorization of TEA-21 for the HDC.

Regional Programming

The North County Combined Highway Corridors Study, although facilitated by MTA, has been driven by local initiative and consensus. SCAG & MTA may not fully concur with all study recommendations. Inclusion of high priority North County projects is envisioned in future SCAG & MTA regional program updates to complement previously adopted regional priorities.


Funding Opportunities
TOLLING MECHANISMS (Public and/or Private)
Toll Lanes (All Traffic)
Toll Lanes (High Occupancy Toll)
Toll Lanes (Trucks)
POTENTIAL NEW REGIONAL/LOCAL SOURCES
New Regional Sales Tax
Regional Transportation Impact Fee (New Development Only): "TUMF"
Regional Improvement District (New and Existing Development)
EXISTING REGIONAL/LOCAL SOURCES
LACMTA RTIP (Cash Basis)
LACMTA RTIP (GARVEE Basis)
LACMTA Call For Projects (Various Sources)
Los Angeles World Airport (Right-of-Way Donation and/or Cash)
Contributions from Corridor Cities
STATE SOURCES
SHOPP (Operational and Safety Improvements)
Interregional Improvement Program (Cash Basis)
Interregional Improvement Program (GARVEE Basis)
Future Traffic Congestion Relief Program (TCRP)
FEDERAL SOURCES
FHWA High Priority Project (Demonstration)
FHWA Congestion Pricing (Demonstration)
FHWA Corridors and Borders (Demonstration)
FTA New Starts Fixed Guideway
FTA Bus Discretionary
FHWA TIFIA Financing

CHAPTER 9: RSTIS COMPLETION AND FUTURE STEPS

SCAG Letter of Completion

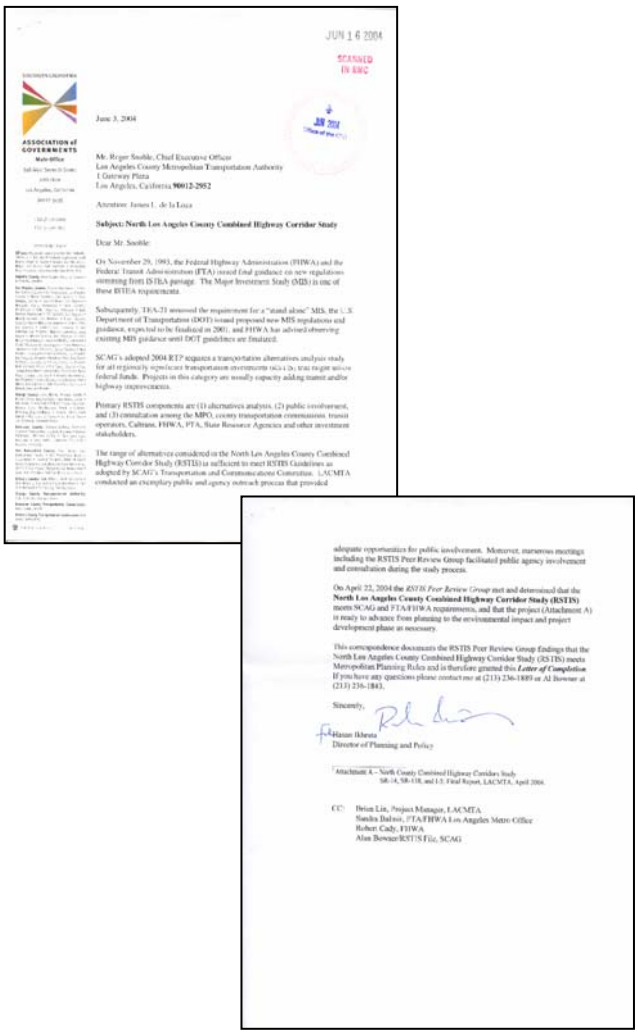
The SCAG RSTIS Peer Review Group has been continually updated on the process, progress, issues, and resolutions of the North County Corridor RSTIS. On June 3, 2004, the RSTIS Peer Review Group agreed that the letter of completion (Exhibit 9.1) should be issued and should include recommended short-range improvements within the I-5, SR-14, and SR-138:

- I-5 HOV lanes from SR-14 to SR-126 West;
- I-5 truck lanes from SR-14 to Calgrove Avenue;
- I-5 right-of-way protection from SR-14 to the Kern County Line;
- SR-14 reversible HOV/transit lanes from I-5 to Avenue P;
- SR-14 mixed flow lanes (elimination of lane drops) from Sand Canyon to Avenue P;
- SR-14 right-of-way protection from I-5 to the Kern County Line;
- I-5/SR-14 corridor Metrolink and express bus service increased by 50 percent over No Build;
- SR-138 widening to four lanes from Pearblossom to the San Bernardino County line;
- High Desert Corridor right-of-way preservation from I-5 to I-15; and
- SR-138 corridor express bus service increased by 50 percent over No Build.

Prior to issuing the letter of completion, the group reviewed the April 2004 *North County Corridors Pre-Final Report* and provided comments. Those comments have been incorporated herein.

Attached as part of the Letter of Completion for the full project is a list of agencies jurisdictions and organizations that have sent letters of support or comment letters to the MTA. (Exhibit 9.2).

Exhibit 9.1: SCAG Letter of Completion



SCAG Regional Transportation Plan

The long-range Regional Transportation Plan (RTP) and short-range Regional Transportation Improvement Program (RTIP) are updated by SCAG biennially. With completion of the North County Corridors Plan, the next RTP and RTIP (2006) will need to be revised to incorporate recommendations from this plan document.

The RSTIS process has identified several regional planning issues that directly impact North County and will need refinement/ coordination in future planning updates:

Exhibit 9.2: List of Letters of Support or Comment Endorsing the North County Corridors Plan

• North County Transportation Coalition	• San Bernardino Associated Governments
• Supervisor Michael D. Antonovich	• Automobile Club of Southern California
• City of Lancaster	• City of Palmdale
• City of Santa Clarita	• Antelope Valley Board of Trade
• Los Angeles World Airports, City of Los Angeles	• Llano Community Association
• I-5 Golden State Gateway Coalition	• Town of Littlerock
• Santa Clarita Valley Chamber of Commerce	• Quartz Hills Town Council
• Valencia Industrial Association	

- ***High Speed Transit in North County***—SCAG's current plan calls for a privatized Maglev system linking Palmdale Airport with Los Angeles World Airport, Orange County and Ontario Airport. Meanwhile the California High Speed Rail Authority (HSR) envisions similar service linking downtown Los Angeles with North County (either I-5 or SR-14 corridors), the Central Valley, the Bay Area, and Sacramento. The financial feasibility of the Maglev and HSR proposals has not yet been demonstrated. Regional travel forecasts indicate a need for greater passenger carrying capacity in the L.A. to Palmdale (I-5 to SR-14) corridor than can be provided by highway, Metrolink and express bus improvements within the North County Corridors Plan. A high speed transit linkage from the Antelope Valley to Sylmar and downtown LA will be of particular benefit to North County. Linkages north along I-5 via the Grapevine, southwest to Los Angeles World Airport, and east to the Victor Valley appear less advantageous to North County.

- ***Jobs/Housing Balance in the Antelope Valley***—SCAG's 2030 regional forecasts indicate demand for housing in Antelope Valley will far outstrip new jobs created locally. The imbalance, fueled by disparity between relatively inexpensive Antelope Valley housing and escalating housing costs in the LA Basin, is expected to generate a threefold increase in SR-14 corridor travel demand. Meanwhile, the costs of providing the highway and transit infrastructure to accommodate the 40+ mile commute is disproportional high, compared to costs of accommodating a similar population increase within the Basin or other locations where the number of jobs and housing supply are in relative balance (approximately 1 job per household). A regional mechanism is envisioned to insure a greater match between jobs, housing and transportation investment (i.e., constrain new housing in concert with new job creation and transportation capacity increases). Other cities and counties in California, confronted by similar infrastructure constraints, have chosen to ration new housing permits in an annual competition. To work effectively, Palmdale, Lancaster, and the County would need to act in concert through intergovernmental agreement, based upon the latest job and traffic counts and expected delivery of new transportation capacity (RTIP).

MTA Planning

The Los Angeles County Metropolitan Transportation Authority (MTA) is responsible for short- and long-range transportation planning for Los Angeles County. Over the past two years, the MTA has identified seven priority corridors through its Mobility 21 forum. A countywide short-range transportation planning process has also been initiated by MTA in cooperation with local jurisdictions.

Once the recommendations from the North County Combined Highway Corridors Study have been adopted by the MTA Board, the elements of the plan will be considered for inclusion in the next updates of the Short Range and Long Range Transportation Plans for Los Angeles County.

Preliminary Engineering and Design

The North County Corridors Plan identifies the design concept and scope of the transportation improvements to address transportation needs of North County. The next step in the project development process involves the preparation of a Project Study Report/Project Development Support (PSR/PDS) for the various short-range and long-range components of the plan. The PSR/PDS, an official Caltrans programming document, has already been prepared for three components of the short-range plan, allowing these projects to advance toward project approval and environmental clearance, once funding can be assured (Exhibit 9.3). Following project approval and environmental clearance, the project will enter final design and construction phase.

- I-5 short-range improvements—HOV lane extension from SR-14 to SR-126 West and truck lane extension from SR-14 to Calgrove Avenue. Options to be studied prior to approval are constrained (non-standard geometry), standard (including CHP area), and full build-out (including future widening), and no-build alternatives.
- SR-14 short-range improvements—elimination of lane drops with continuous 3 mixed flow lanes and one HOV lane in each direction between Sand Canyon and Avenue P. Options to be studied prior to approval are constrained (non-standard geometrics to minimize right-of-way impacts, while attaining optimum safety and operation), standard geometry (including CHP area), and full build-out (including widening to ultimate dimensions), and no-build alternatives. For the 2003 MTA Call for Projects the PSR/PDS that was approved for environmental review and preliminary design provide for 3 continuous mix flow lanes and one HOV lane and did not include the 2-3 reversible lanes between the I-5/SR-14 Interchange and Avenue P. The evaluation of the reversible lanes is proposed for inclusion as part of the subsequent PAED effort. A PSR/PDS update and a PEAR budget increase may be needed to address the modifications.
- SR-138 widening from Pearblossom to San Bernardino County Line. This project has completed project approval, and environmental clearance and is awaiting full funding for final design and construction.

Two additional PSR/PDS efforts are anticipated to facilitate implementation of North County short-range improvements:

- SR-14 two/three reversible HOV/transit lanes between I-5 and Avenue P. This will supplement and be integrated with the previously prepared PSR/PDS for lane drops between Sand Canyon to Avenue P. Options to be studied include two reversible lanes constrained (non-standard geometrics), two reversible lanes standard, three reversible lanes constrained, three reversible lanes standard, and alternative access control ramp configurations.

  In a memo from Caltrans to MTA (see Exhibit 9.4), Caltrans has expressed that they are receptive to the planning concepts involving the reversible high occupancy vehicle lanes. However, because the RSTIS process is a high level planning study, Caltrans will defer final approval until further detail analysis is conducted during subsequent phases. Some of the questions or comments that will need to be resolved during the subsequent phases include the following:

  1. Have traffic characteristics of the SR -14 remained conducive to 2 or more reversible HOV lanes? If so, for how long is this directional split projected to exist and does it warrant the cost of reversing lanes each day, after completion of the re-construction?
  2. The HOV facility on SR-14 would have to be modified significantly to accommodate reversible HOV lanes. Currently, there is water-carrying barrier in the median. If the facility is to be configured similarly to San Diego's 1-15 reversible lanes, all center median barriers, overhead HOV signing, and any bridge columns would have be relocated. Also, the drainage would have to be accomplished in some other way than the current situation.

Exhibit 9.3: PSR/PDS Documentation

07-LA-5-KP 73.5/89.2 (PM 45.7 / 55.4)
07-186-23320K
March 2003

PROJECT STUDY REPORT–
PROJECT DEVELOPMENT SUPPORT

This document can only be used to program the Engineering and Environmental Support for Project Approval and Environmental Document component. The remaining support and capital components of the project are preliminary estimates and are not suitable for programming purposes. Either a Supplemental PSR or a Project Report will serve as the programming document for the remaining support and capital components of the project.

I have reviewed the Right of Way information contained in this Project Study Report (Project D
and the Right of Way Data Sheet attached hereto, and find the data to be in conformance with
State standards and practices.

WAYNE C. HARROLD, Acting R/W Proje

On Route Interstate 5
Between SR 14
And SR 126

Submitted By: _____
BRIAN LIN, PROJECT MANAGER (MTA)

Approval Recommended By: _____
ASHRAF HABBAK, PROJECT MANAGER

Concurred By: _____
WILLIAM H. REAGAN, DEPUTY DIRECTOR, DIVISION OF

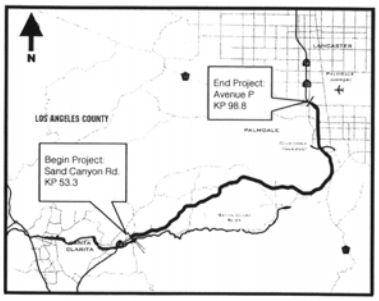
Approved: _____
DOUGLAS R. FAILING, DISTRICT DIRECTOR

Corridor Improvement of State Route 14 between Sand Canyon Road and Avenue P

07–LA–14 KP 53.3/98.8 (PM 33.1/61.4)
EA 23340K
March 2003

PROJECT STUDY REPORT (PROJECT DEVELOPMENT SUPPORT)

This document can be used to program only the Engineering and Environmental Support for Project Approval and Environmental Document component. The remaining support and capital components of the project are preliminary estimates and are not suitable for programming purposes. Either a Supplemental PSR or a Project Report will serve as the programming document for the remaining support and capital components of the project.



I have reviewed the Right of Way information contained in this Project Study Report (Project Development Support) and the Right of Way Data Sheet attached hereto, and find the data to be in conformance with current applicable State standards and practices.

for WAYNE C. HARROLD, Acting R/W Project Delivery Manager

On Route State Route 14
Between Sand Canyon Road
And Avenue P

SUBMITTED BY: _____
BRIAN LIN, LACMTA

APPROVAL RECOMMENDED BY: _____
OSAMA MEGALLA, Project Manager

CONCURRED BY: _____
WILLIAM H REAGAN, Deputy District Director, Division of Design

APPROVED: _____ 3-28-03
DOUG FAILING, District Director DATE

3. Can full-shoulders be accommodated? The 1-15 has full 10-ft shoulders on either side of the two reversible lanes to provide a refuge area in the event that a bus becomes disabled and passengers need to be transferred to a relief bus.

4. What type of separation will be provided between HOV lanes and mixed flow lanes? The 1-15 is completely barrier separated in the median from the mixed-flow lanes on either side. The barrier reduces the risk of crashes due to outside vehicle intrusion and visa versa.

5. How will the entrances and exits be protected from wrong-way drivers and to avoid motorist confusion? Concerns vary depending upon which strategy will be pursued, e.g., single entrance and exit like the 1-15 or intermediate entrances and exits.

6. How will the direction of the HOV facility be reversed each day? Who will clear the facility? The District 11 TMC clears the 1-15 facility of any debris or disabled vehicles prior to changing the direction of the facility.

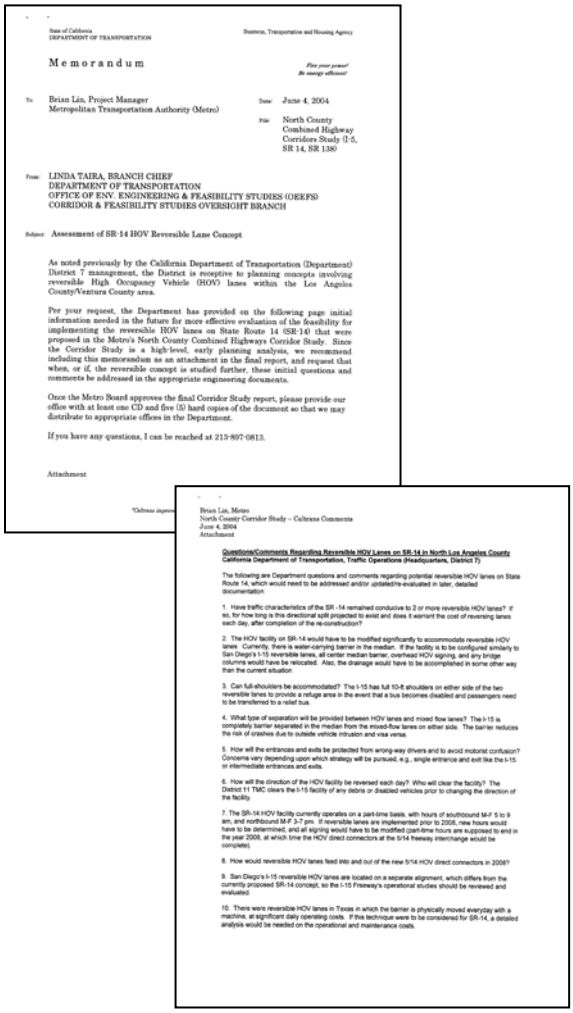
7. The SR-14 HOV facility currently operates on a part-time basis, with hours of southbound M-F 5 to 9 AM, and northbound M-F 3-7 PM. If reversible lanes are implemented prior to 2008, new hours would have to be determined, and all signing would have to be modified (part-time hours are supposed to end in the year 2008, at which time the HOV direct connectors at the 5/14 freeway interchange would be complete).

8. How would reversible HOV lanes feed into and out of the new 5/14 HOV direct connectors in 2008?

9. San Diego's 1-15 reversible HOV lanes are located on a separate alignment, which differs from the currently proposed SR-14 concept, so the 1-15 Freeway's operational studies should be reviewed and evaluated.

10. There were reversible HOV lanes in Texas in which the barrier is physically moved everyday with a machine, at significant daily operating costs. If this technique were to be considered for SR-14, a detailed analysis would be needed on the operational and maintenance costs.

Exhibit 9.4: Memorandum from Caltrans to the MTA Regarding Reversible Lane Concepts



Memorandum

To: Brian Lin, Project Manager
Metropolitan Transportation Authority (Metro)

Date: June 4, 2004

File: North County Combined Highway Corridors Study (I-5, SR 14, SR 138)

From: LINDA TAIRA, BRANCH CHIEF
DEPARTMENT OF TRANSPORTATION
OFFICE OF ENV. ENGINEERING & FEASIBILITY STUDIES (OEEFS)
CORRIDOR & FEASIBILITY STUDIES OVERSIGHT BRANCH

Subject: Assessment of SR-14 HOV Reversible Lane Concept

As noted previously by the California Department of Transportation (Department) District 7 management, the District is receptive to planning concepts involving reversible High Occupancy Vehicle (HOV) lanes within the Los Angeles County/Ventura County area.

Per your request, the Department has provided on the following page initial information needed in the future for more effective evaluation of the feasibility for implementing the reversible HOV lanes on State Route 14 (SR-14) that were proposed in the Metro's North County Combined Highways Corridor Study. Since the Corridor Study is a high-level, early planning analysis, we recommend including this memorandum as an attachment in the final report, and request that when, or if, the reversible concept is studied further, these initial questions and comments be addressed in the appropriate engineering documents.

Once the Metro Board approves the final Corridor Study report, please provide our office with at least one CD and five (5) hard copies of the document so that we may distribute to appropriate offices in the Department.

If you have any questions, I can be reached at 213-897-0813.

Attachment

Brian Lin, Metro
North County Corridor Study – Caltrans Comments
June 4, 2004
Attachment

Questions/Comments Regarding Reversible HOV Lanes on SR-14 in North Los Angeles County
California Department of Transportation, Traffic Operations (Headquarters, District 7)

The following are Department questions and comments regarding potential reversible HOV lanes on State Route 14, which would need to be addressed and/or updated/re-evaluated in later, detailed documentation:

1. Have traffic characteristics of the SR-14 remained conducive to 2 or more reversible HOV lanes? If so, for how long is this directional split projected to exist and does it warrant the cost of reversing lanes each day, after completion of the re-construction?

2. The HOV facility on SR-14 would have to be modified significantly to accommodate reversible HOV lanes. Currently, there is water-carrying barrier in the median. If the facility is to be configured similarly to San Diego's I-15 reversible lanes, all center median barrier, overhead HOV signing, and any bridge columns would have be relocated. Also, the drainage would have to be accomplished in some other way than the current situation.

3. Can full-shoulders be accommodated? The I-15 has full 10-ft shoulders on either side of the two reversible lanes to provide a refuge area in the event that a bus becomes disabled and passengers need to be transferred to a relief bus.

4. What type of separation will be provided between HOV lanes and mixed flow lanes? The I-15 is completely barrier separated in the median from the mixed-flow lanes on either side. The barrier reduces the risk of crashes due to outside vehicle intrusion and visa versa.

5. How will the entrances and exits be protected from wrong-way drivers and to avoid motorist confusion? Concerns vary depending upon which strategy will be pursued, e.g., single entrance and exit like the I-15 or intermediate entrances and exits.

6. How will the direction of the HOV facility be reversed each day? Who will clear the facility? The District 11 TMC clears the I-15 facility of any debris or disabled vehicles prior to changing the direction of the facility.

7. The SR-14 HOV facility currently operates on a part-time basis, with hours of southbound M-F 5 to 9 am, and northbound M-F 3-7 pm. If reversible lanes are implemented prior to 2008, new hours would have to be determined, and all signing would have to be modified (part-time hours are supposed to end in the year 2008, at which time the HOV direct connectors at the 5/14 freeway interchange would be complete).

8. How would reversible HOV lanes feed into and out of the new 5/14 HOV direct connectors in 2008?

9. San Diego's I-15 reversible HOV lanes are located on a separate alignment, which differs from the currently proposed SR-14 concept, so the I-15 Freeway's operational studies should be reviewed and evaluated.

10. There were reversible HOV lanes in Texas in which the barrier is physically moved everyday with a machine, at significant daily operating costs. If this technique were to be considered for SR-14, a detailed analysis would be needed on the operational and maintenance costs.

- High Desert Corridor freeway along Avenue P-8 between SR-14 and 50th Street East. This will address alternative alignments within the general vicinity of P-8, alternative lane configurations (three mixed flow lanes + HOV lane, four mixed flow lanes, three mixed flow lanes), alternative connections to SR-14 (e.g., freeway to freeway HOV ramp, no HOV ramp), alternative Palmdale Airport connections (freeway to arterial street,

freeway to freeway, alternative locations), non-standard and standard geometry.

Environmental Documentation

When funding becomes available, project implementation will require the preparation of an environmental document satisfying both California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) requirements based on the preliminary engineering plans. FHWA will be the lead agency to carry out the NEPA process and, at that time, all reasonable alternatives will be studied.

It is anticipated that the appropriate environmental document for short-range improvements on I-5 and SR-14 will be an Initial Study/Environmental Assessment (IS/EA). The level of impact for these projects (little or no right-of-way acquisition and no structure displacement, no biological species of concern, no cultural impacts, no public controversy) does not appear to warrant a more extensive Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The environmental document will be prepared in conjunction with a proactive public involvement program to identify and incorporate public and agency concerns and issues related to the project.

For initial development of the High Desert Corridor (HDC), a more extensive environmental analysis and documentation is envisioned—either an EIR, assuming Joint Powers Authority or other local project initiative (similar to Orange County toll road development) or an EIR/EIS if state/federal financing is anticipated. In the case of Orange County toll road development, the project was environmentally cleared, right-of-way obtained and construction funded with local initiative, while Caltrans oversight of design and construction came near project completion.

Project Implementation Schedule

After environmental clearance is obtained, the project would proceed into the preparation of final engineering plans, specifications, and estimates. Due to the time needed to obtain funding and perform the environmental and engineering activities, construction of the short-range improvements is not anticipated to be completed until 2015. Funding constraints make it unlikely that the longer range I-5 and SR-14 corridor improvements will be completed until 2020 or 2025, while SR-138 corridor would be fully implemented after 2030 in Los Angeles County.

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LIST OF ACRONYMS AND ABBREVIATIONS

AAA—*Automobile Club of Southern California*

AVAQMD—*Antelope Valley Air Quality Management District*

AVBOT—*Antelope Valley Board of Trade*

Caltrans—*California Department of Transportation*

CHP—*California Highway Patrol*

COG—*Council of Governments*

FHWA/FTA—*Federal Highway Administration/Federal Transit Administration*

HDC—*High Desert Corridor*

HOV—*High Occupancy Vehicle*

HSR—*High-Speed Rail*

ISTEA—*Intermodal Surface Transportation Efficiency Act*

ITIP—*Interregional Transportation Improvement Program*

ITS—*Intelligent Transportation Systems*

JPA—*Joint Powers Authority*

LACMTA (or MTA)—*Los Angeles County Metropolitan Transportation Authority*

LADOT—*City of Los Angeles Department of Transportation*

LAWA—*City of Los Angeles World Airports*

LCNO—*Lancaster Coalition of Neighborhood Organizations*

LPS—*Locally Preferred Strategy*

NCTC—*North County Transportation Coalition*

MIS—*Major Investment Study*

MPO—*Metropolitan Planning Organization*

NEPA—*National Environmental Protection Act*

PDT—*Project Development Team*

POC—*Policy Oversight Committee*

PSR/PDS—*Project Study Report/Project Development Support*

PUD—*Planned Unit Development*

RSTIS—*Regionally Significant Transportation Investment Study*

RTIP—*Regional Transportation Improvement Program*

RTP—*Regional Transportation Plan*

SANBAG—*San Bernardino Association of Governments*

SCAG—*Southern California Association of Governments*

SHOPP—*State Highway Operation and Protection Program*

SOV—*Single Occupant Vehicle*

TAC—*Technical Advisory Committee*

TEA-21—*Transportation Equity Act for the 21st Century*

TCR—*Transportation Corridor Report*

TDM—*Transportation Demand Management*

TIFIA—*Transportation Infrastructure Finance and Innovation Act*

TSM—*Transportation Systems Management*

TUMF—*Transportation Uniform Mitigation Fee*

USDOT—*United States Department of Transportation*

VIA—*Valley Industrial Association*